3.2 BACTERIA

ACETOBACTER

ACETOBACTER Beijerinck.

***Acetobacter aceti* (Beijerinck) Beijerinck**

2094 See *Acetobacter liquefaciens*

2116 NCIB 8554 (1961). Produces Quick vinegar (J. Gen. Microbiol. **24**, 34, 1961). ATCC 23746; DSM 2002 (Medium 1, 30°C)

2251 NCIB 8621 (1970). From alcohol turned to vinegar. Type strain (Int. J. Syst. Bact. **30**, 239, 1980). ATCC 15973; LMG 1261; M 3508; Delft strain L (Medium 1, 30°C)

5508 Same as NCIM 2251, MCC 2109 (Medium 66, 26°C)

***Acetobacter hansenii* Gossele et al.**

2529 NCIB 8246 (1974). (*Gluconacetobacter hansenii* ; *A. pasteurianus; A. xylinum*). Preparation of cellulose membranes for osmometry and for detection of cellulolytic organisms.(Nature, **59**, 64, 1947; J. Bacteriol. **85**, 284, 1963). ATCC 23769; DSM 46602; LMG 1524. (Medium 1, 30°C)

***Acetobacter liquefaciens* (Asai) Yamada and Tahara**

2094 NCIB 9505 (1959). (*A. aceti; Gluconobacter liquefaciens*) . J. Gen. Microbiol. **33**, 243 (1964). ATCC 23751; LMG 1503.(Medium 1, 30°C)

2279 NCIB 9418 (1970).(*Gluconacetobacter liquefaciens;Acetobacter aceti; Gluconobacter melanogenus*). Produces dark brown to black water soluble pigment on yeast extract-glucose-Calcium carbonate agar (J. Gen. Appl. Microbiol. **4**, 289, 1958; Nature **186**, 331, 1960; Antonie van Leeuwenhoek **28**, 357, 1962). ATCC 23750; IAM 1835; IFO 12251; AC-8; LMG 1388. (Medium 1, 30°C)

***Acetobacter melanogenus* Beijerinck.**

See *Gluconobacter oxydans*

***Acetobacter mesoxydans* Frateur.**

See *Gluconobacter oxydans*

***Acetobacter pasteurianus* De Ley and Frateur**

2104 NCIB 8757 (*A. ascendens*) (1960). Malt vinegar acetifier (J. Sci. Food Agric. **8**, 491, 1958). ATCC 23752; LMG 1618. strain F (Medium 1, 30°C)

2144 NCIB 8087 (*A.peroxydans*). ATCC 838;DSM 2006; LMG 1634 (Medium 1, 30 °C)

2311 NCIB 8856 (1971). (*A. rancens* subsp. *pasteurianus*). "Starchless mutants", parent strain of NCIB 8857 (Antonie van Leeuwenhoek **23**, 23, 1957). ATCC 23757; LMG 1623 (Medium 1, 30°C).

2312 NCIB 8618 (1971). (*A. peroxydans*) Type strain (Int. J. Syst.Bact. **30**, 239,1980). ATCC 12874, L-1374; DSM 2347; LMG 1635 (Medium 1, 30°C)

2313 NCTC 6249 (1971). (*A. turbidans*).Beer souring. ATCC 9325, NRRL B-570. (Medium 1, 30°C)

2314 NCIB 4937 (1971). (*A. ascendens*).ATCC 9323, NCTC 4937. LMG 1554 (Medium 1, 30°C)

2317 (*A. rancens, A. acetosus*).Manufacture of vinegar. ATCC 6438, NCTC 2224, NRRL B-468. (Medium 1, 30°C)

2318 NCIB 7215 (1971). (*Acetobacter indonesiensis*; *A. rancens, Bacterium orleanense*). Vinegar production using both the "Orleans method" and "Quick-vinegar process". Produces restriction endonuclease which cleaves phage and adeno-virus DNA. ATCC 9432, NCTC 7215, NRRL B-55; LMG 1607 (Medium 1, 30°C)

2432 NCIB 1345 (1972) (*Acetobacter* sp;*A. aceti*). Vinegar from apple juice, Gluconic acid producer.(Biochim. Biophys. Acta **60**, 163,1962). ATCC 8303; NCTC 1345. (Medium 1, 30°C)

2517 NCIB 8894 (1974). (*Acetobacter cerevisiae;A. rancens; A. alcoholophilus*). (J. Inst. Brew. **64**, 47, 1958). ATCC 23765; DSM 14362; LMG 1625 (Medium 1, 30°C)

2519 NCIB 6424 (1974). (*A. rancens; A.turbidans*).Beer souring (J.Appl. Bact. **19**, 31, 1956). ATCC 23758, NCTC 6424, LMG 1598. (Medium 1, 30°C)

2521 NCIB 6428 (1974). (*A. rancens; A.mobilis*).Beer souring (J. Appl. Bact. **19**, 31,1956). Type strain 20, ATCC 12877, NCTC 6428, LMG 1651. (Medium 1, 30°C)

2522 (*A. rancens*). Same as NCIM 2318 *Acetobacter* sp.

***Acetobacter suboxydans* kluyver and de Leeuw**.

See also *Gluconobacter oxydans*.

2679 PRL G-12 (Medium 2, 30°C)

***Acetobacter xylinum* (Brown) Holland.**

2526 NCIB 5346 (1974). (*Gluconacetobacter xylinus;A. acetigenus, A. pasteurianus*). Produces cellulose; acetic acid, (J. Inst Brew. **53**, 258, 1947; J. Appl Bacteriol,**19**, 31, 1956; Nature, Lond **180** , 811,1957) and levan (Biochim, Biophys. Acta, **60**,163,1962). ATCC 11142, NCTC 5346, DSM 2325, LMG 1538. (Medium 2, 30°C)

ACHROMOBACTER

ACHROMOBACTER

***Achromobacter agile* Jensen**

2530 NCIB 9986 (1974).(*Achromobacter denitrificans*; *Alcaligenes xylosoxidans* subsp *denitrificans*). Strain B 425; CCUG 2072; IAM 12559 (Medium 41, 30°C)

Achromobacter denitrificans

5404 Deposited by Dr. Bhushan Chaudhari, NMU, Jalgaon (2010). Isolated from Bajra plant rhizosphere, Gene bank no. HQ176464 ((Medium 41, 28-37°C)

Achromobacter lacticum

2433 NRRL B-551 (1972). (*Acinetobacter* sp, *Acinetobacter calcoaceticus*) J. Appl. Bacteriol, **23**, 37, 1960; J. Gen. Microbiol. **49**, 215 and 248, 1967.ATCC 23220, NCIB 8208; LMG 1049.(Medium 41, 30°C)

2884 NRRL B-551 (1978). Same as NCIM 2433

Achromobacter xylosoxidans

5429 Deposited by Dr. Kodam, Pune University (2011). Isolated from garden soil, strain no SPB 31, Arsenite oxidation (Medium 41, 30°C)

ACIDIPHILIUM

ACIDIPHILIUM

Acidiphilium acidophilum

5344 NCIMB 12628 (2009). ATCC 27807; DSM 700 (Medium 53, 30°C)

ACIDITHIOBACILLUS

ACIDITHIOBACILLUS

Acidithiobacillus ferrooxidans

5370 NCIMB 8455 (2009). ATCC 23270 (Medium 54, 30°C, stationary condition)

5371 NCIMB 9490 (2009). ATCC 19859 (Medium 54, 30°C, stationary condition)

ACINETOBACTER

ACINETOBACTER (Brisou & Prevot*)*

Acinetobacter baumanii

5152 A-25 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol., **202-203**, 21, 2002). (Medium 26, 28˚C)

5154 A-30 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5156 A-16 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5157 A-18 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5158 A-13 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5159 A-28 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5180 A-32 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5186 A-1 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

5189 A-33 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

5190 A-23 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

5349 NCIMB 12457 (2009). ATCC 19606; DSM 30007; LMG 1041 (Medium 41, 37˚C)

***Acinetobacter calcoaceticus* (Beijerinck) Baumann et al.**

2886 NCIB 8250 (*Acinetobacter* sp*; Vibrio* sp). Used in the breakdown aromatic rings and can metabolize phenol as a carbon source. Oxidises p-hydroxy -benzoate esters and 3- and 4-flurophenols. Produces wax esters. (J. Bacteriol. **95**, 1520, 1968). ATCC 11171; DSM 590, LMG 988. (Medium 41, 30°C)

2890 NCIB 9205 (1974). (*Acinetobacter* sp*; Micrococcs cerificans Bacteriumanitratium*). Utilises C-10 to C-20 n-alkanes, produces wax esters from greater than C12, n-alkanes (Z. Allg. Mikrobiol. **2**,169, 1962; Int. J. Syst. Bact. **18**, 211, 1968). ATCC 14987, DSM 1139, LMG 1056. (Medium 41, 30°C)

5165 A-2 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5179 A-5 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5184 A-3 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

Acinetobacter genospecies

5151 3A-15 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (Appl. Biochem. Biotechnol. **102-103**, 21, 2002). (Medium 26, 28˚C)

5169 A-12 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5192 A-28 Deposited by Dr. B. A. Chopade (2002). Transformed in *E. coli* HB 101 (Medium 26, 28˚C)

Acinetobacter haemolyticus

5155 A-19 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (Appl. Biochem. Biotechnol. **102-103**, 21, 2002). (Medium 26, 28˚C)

5171 A-17 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5173 A-21 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5174 A-22 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5175 A-24 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5176 A-26 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5177 A-27 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5178 A-29 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5181 A-34 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5182 A-36 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5183 A-37 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5191 A-19 Deposited by Dr. B. A. Chopade (2002). Transformed in *E. coli* HB 101 (Medium 26, 28˚C)

Acinetobacter junii

5150 SC 14 Deposited by Dr. B. A. Chopade (2002). Production of bioemulsifier (J. Appl. Microbiol. **91**, 290, 2001). (Medium 26, 37˚C)

5153 A-6 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5166 A-28 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5167 A-8 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5170 A-14 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5172 A-20 Deposited by Dr. B. A. Chopade (2002). Production of Indole-3-acetic acid (J. Appl. Biochem. Biotechnol. **202-203**, 21, 2002). (Medium 26, 28˚C)

5185 A-3 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

5187 A-10 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

5188 A-9 Deposited by Dr. B. A. Chopade (2002). (Medium 26, 28˚C)

***Acinetobacter* sp.**

5083 BP 8 NEERI. Deposited by P. Kumaran (1989). Isolated from oxidation ditch (Medium 36 or 41, 30°C)

5353 Deposited by Dr. Tapas SenGupta, IISER, Kolkatta (2010). Isolated from water sample of Kolkatta port, Gene bank no. GU056315, strain no. KPWO1P, Novobiocin, Streptomycin and Ampicillin resistant, Arsenate tolerating strain ((Medium 41, 37˚C)

5355 Deposited by Dr. Tapas SenGupta, IISER, Kolkatta (2010). Isolated from water sample of Kolkatta port, Gene bank no. GU056314, strain no. KTWO1N, Novobiocin, Streptomycin and Ampicillin resistant, Arsenate tolerating strain ((Medium 41, 37˚C)

ACTINOBACTER

ACTINOBACTER

***Actinobacter* sp**

5222 Deposited by Dr. Murli Shastry, NCL(2005). Isolated frommixture of potassium ferricyanide and potassium ferrocyanide. Gene bank no. AY336600. (Medium 26 & 41, 37^{o}C)

ACTINOPLANES

ACTINOPLANES (Couch)

***Actinoplanes missouriensis* Couch**

2838 NRRL B-3342. Glucose isomerase. (Medium 29, 30°C)

2892 J.N.Couch 431 Type strain (Sci. Soc.**79**, 70, 1963). ATCC 14538; IFO 13243; DSM 43046. (Medium 29, 30°C)

AEQUORIVITA

AEQUORIVITA

***Aequorivita* sp**

5504 Deposited by Dr. C. Mohandass, NIO (2013). Isolated from azores. GeneBank No. KC 534174 (Medium 69, 30°C)

AEROBACTER

AEROBACTER Beijerinck

***Aerobacter cloacae* (Jordan) Bergey et al**

See *Enterobacter cloacae*

AEROMONAS

AEROMONAS Kluyver and van Niel

Aeromonas culicicola* sp. *nov.

5147 Deposited by Y. S. Shouche (2001). Type strain. Isolated from midgut of *Culex quinquefasiatus*. (Int. J. Syst. Evolu. Microbiol. **52**, 1723, 2002). Gene bank no. AY347680. MTCC 3249. (Medium 41, 30˚C)

***Aeromonas formicans* Crawford.**

2319 NCIB 9232 (1971). (*Aeromonas caviae*; *Aeromonas hydrophila* subsp *hydrophila*). LMG 3742, Strain CDC-RH1.CDC monograph, 1961. (Medium 41, 30°C)

Aeromonas hydrophila

5286 Deposited by Microexpress, Goa (2010), MTCC 646, NCTC 8049, ATCC 7966, NCIB 9240, DSM 30187 ((Medium 41, 30°C)

***Aeromonas* sp.**

5084 1033 NEERI Deposited by P. Kumaran (1989) (Medium 41, 30°C)

5105 2210 NEERI Deposited by P. Kumaran (1989) (Medium 41, 30°C)

AGROBACTERIUM

AGROBACTERIUM Conn

***Agrobacterium radiobacter* (Beijerinck and van Delden) Conn**.

2443 NCIB 8149 (1973). (*Achromobacter radiobacter*). Variation succinoglycan and curdlan-type polysaccharide production (Nature, Lond., **197**, 406, 1963). ATCC 6466, IFO 13127 and 12665, Strain 36. (Medium 48, 30°C)

2986 NRRL B-11291 (1987). Production of hydantoinase (Enz. Microbiol. Tech. **1**, 201, 1979; Biotechnol Bioeng. **XXIII**, 2173, 1981). (Medium 48, 30°C)

***Agrobacterium rhizogenes* (*Rhizobium rhizogenes*)(Riker et al.) Conn**

5140 MTCC 532 (2000) Virulent strain. Produces isoprene, 3-ketolactose formation negative, (J. Appl. Bacteriol. **50:** 443-467,1981.) ATCC 15834. (Medium 48, 30°C)

***Agrobacterium tumefaciens* (Smith and Townsend) Conn**.

2145 IISc. B-6 (1964) Tumor inducer in plants. (Medium 48, 30°C)

2146 IISc. II BV7 (1964). Tumor inducer in plants; Produces restriction endonuclease Atu BVI (Nucleic Acids Res. **12**, 167, 1984). (Medium 48, 30°C)

2147 IISc. T-37 (1964). Tumor inducer in plants (Medium 48, 30°C)

2148 IISc. II BNV6 (1964). Avirulent strain (Medium 48, 30°C)

2232 IISc. sp.(1964).Tumor inducer in plants; tomato specific virulent strain. (Medium 48, 30°C)

2822 PC 2599 (1982) Hooykaas strain (TiB6S3, RP4). Produces ketolase; senstitive to streptomycin, virulent strain. (J. Gen. Microbiol. **98**, 477, 1977). LBA 601 (Medium 48, 30°C)

2939 B6S3 (1985) Deposited by C. P. Joshi. Wild type Octopine strain. (Medium 48, 30°C)

2940 pGV 2298 (1985) Deposited by C. P. Joshi. Mutant in the T-region of pTi B6S3.Nature **300**, 752 (1982) . (Medium 48, 30°C)

2941 pGV 2219 (1985) Deposited by C.P.Joshi . (Medium 48, 30°C)

2942 pGV 2235 (1985) Deposited by C.P.Joshi. (Medium 48, 30°C)

2943 pGV 2215 (1985) Deposited by C.P.Joshi. resistant, Shooter mutant in the T-region of pTiB6S (EMBO J. **1**, 147, 1982). Preparation of protoplast (Biotech. Lett. **11**, 716, 1989; Biotech. Tech. **6**, 473, 1992).(Medium 48, 30°C)

2944 pGV 2260 (1985) Deposited by C. P. Joshi. Derivative of pTiB6S3 in which entire T-region including border sequences deleted and substituted by pBR 322 (Nucleic Acids Res **13**, 4777, 1985).(Medium 48, 30°C)

ALCALIGENES

ALCALIGENES Castellani and Chalmers

***Alcaligenes faecalis* Castellani and Chalmers.**

2105 NCIB 8156 (1960) (*Alcaligenes faecalis* subsp. *faecalis*) . J. Appl. Bacteriol. **23**, 37, 1960) Type strain (Int. J. Syst. Bact. **30**, 247, 1980).

Assay of cephalosporin C in fermentation broth. Produces nitrilase, Quality control strain, Quality control strain for API and Autobac products. (J. Ferment. Bioeng. 73: 425-430, 1992; Biophys Res Commun, 239, 74-79, 1997).ATCC 8750; CCM 1052; DSM 30030; IFO 13111; Strain 16; LMG 1229. (Medium 41, 30°C)

2262 BARC (1970). Same as NCIM 2105

2444 ATCC 21400 (1973). (*Agrobacterium* sp) Produces β- glucosidase, Acid Glucosidase, glucocerebrosidase production of edible protein for use as animal feed stuff from cellulose, in conjunction with *Cellulomonas* sp ATCC 21399 (U.S.Pat 3,627,095). Structure and transcription analysis of gene for cellobiase (J. Bacteriol. 1**70**, 301, 1988). Induces β-glucosidase. (Medium 41, 30°C)

2949 QM 1483 (1985) Deposited by Dr. A. H. Lachke. Production of exopolysaccharide. (Medium 41, 30°C)

***Alcaligenes* sp.**

5085 1051 NEERI Deposited by P. Kumaran (1989) (Medium 41, 30°C)

5431 Deposited by Dr. Kodam, Pune University (2011). Isolated from garden soil, strain no. KMK-B, Biotransformation of Azo dyes ((Medium 41, 37°C)

***Alcaligenes tolerans* Abd-el-Malek and Gibson.**

2445 NCIB 8551 (1973). (*Acinetobacter* sp.) Member of a group which servives pasteurization in milk. (J. Dairy Res. **19**,294, 1952). Reference strain (Int. wazzu J. Syst. Bact. **16**, 24, 1966). Strain A -3, ATCC 19359, DSM 30036. (Medium 41, 30°C)

***Alcaligenes viscosus* (Mez) Breed.**

2446 NCIB 8154 (1973). (*Acinetobacter* sp.*; Acinetobacter johnsonii; Acinetobacter lwoffii*). Production of 5'-nucleotides (U.S.Pat.3,296,087; J. Appl. Bacteriol. **23**, 37,1960; J.Bacteriol. **95**, 1521 and 1536, 1968. Produces carnitine L-carnitine (U.S.Pat.3,296,087; US Patent 4,650,759. J. Appl. Bacteriol. **23**, 37,1960; J.Bacteriol. **95**, 1521 and 1536, 1968)ATCC 9036; NCDO 715; LMG 983. (Medium 41, 30°C)

ALISHEWANELLA

ALISHEWANELLA

Alishewanella aestuarii

5337 Deposited by Dr. Yogesh Kolekar, Pune University (2009), Isolated from marine water, KCTC 22051 (Medium 57, 37°C)

Alishewanella agri

5437 Deposited by Dr. Kodam, Pune University (2012). Isolated from soil strain no. KCTC 22400, JCM15597 ((Medium 26, 37°C)

Alishewanella fetalis

5324 Deposited by Dr. Kodam, Pune University (2009), Isolated from human fetus autopsy, Type strain B3843 (Int. J. Syst. Evol. MIcrobiol. 3, 1133-42, 2000) DSMZ 16032, ATCC BAA-284, CCUG 30811, CIP 106648, BCRC 17873 (Medium 58, 37°C)

Alishewanella contaminisoli

5295 Deposited by Dr. Kodam, Pune University (2008), Isolated from soil sediment of textile effluent disposal site, Ichalkaranji, Biodegradation of Azo dyes. ((Curr Microbiol. 2013 67(4):454-9) BCRC 17848.) Gene bank no. EU574916. (Medium 41, 37°C)

AMYCOLATOPSIS

AMYCOLATOPSIS

***Amycolatopsis mediterranei* (Margalith and Beretta) Lechevalier et al.**

5008 ATCC 13685. (*Streptomyces mediterranei*) Type strain. Production of rifamycin SV (Int. J. Syst. Bact. **36**, 29, 1986; Mycopath. Appl. **13**, 321, 1960; Arch. Microbiol. **67**, 147, 1969)(U.S.Pat. 2,988,490) NCIM 5016; IFO 13415, NRRL B- 3240. (Medium 29, 30°C)

ANOXYBACILLUS

ANOXYBACILLUS

***Amoxybacillus* sp**

5502 Deposited by Prof. Ved Pal Singh, Univesity of Delhi (2013). Isolated from water sample, Manikaran, HP, India. GeneBank No. KC 608863 (Medium 41, 60°C)

AQUASPIRILLUM

AQUASPIRILLUM

***Aquaspirillium intersonii* (Gieberger) Hyleman et al**

2887 NCIB 9071 (*Novispirillum itersonii* subsp. *itersonii*; *A. intersonii* subsp *intersonii*).Type strain of *Spirillumintersonii* subsp *vulgatum* (Int. J. Bull. Bact. Nomen. Taxon. **7**, 87,1957). Grows anaerobically in the presence of nitrate as hydrogen acceptor. (Int. J. Syst. Bact. **23**, 240, 1973). ATCC 11331, NCIB 58, NRRL B- 2054. (Medium 41, 30°C)

ARTHROBACTER

ARTHROBACTER Cohn and Dimmick

Arthrobacter albidus

2447 (*Corynebacterium* sp). Production of 5 amino-imidazole carboxamide riboside and related compounds (U.S. Pat. 3,173,848). Produces AICA ribonucleotide 5-amino-imidazolecarboxamide, AICAR ATCC 15243, Strain Pfizer 2-018, DSM 20128. (Medium 41, 30°C)

***Arthrobacter citreus*Sacks**.

2320 NCIB 8915 (1971). Type strain (Int. J. Syst. Bact. **30**, 253, 1980). Assay of subtilin. (Proc. Soc exp. Biol. N.Y. **71**, 700, 1949; Anal. Chem. **29**, 1802, 1957; Nature, Lond 184, 831, 1959; J.Gen Microbiol. **28**, 35, 1962; Can. J. Microbiol. **8**, 588, 1962). Production of L-serine (U. S. Pat. 3,623,952). Produces L-aspartyl-L-phenylalanine

esters(US Patent 4,666,838 dated May 19 1987) Strain C-7, ATCC 11624, CDA 837, DSM 20133.(Medium 41, 30°C)

Arthrobacter defluvii

5469 Deposited by Dr. Syed Dastager (2012). Type strain. Isolated from sewage. KCTC 19209; (Int. J. Syst. Microbiol. **58**, 1916, 2008). (Medium 41, 30°C)

***Arthrobacter luteus Kaneko,* Kitamura and Yamamoto**

2800 (*Micrococcus luteus*) Produces endonuclease Alu 1.(Medium 41, 30°C)

Arthrobacter mysorens

5470 Deposited by Dr. Syed Dastager (2012). Type strain. Isolated from sewage. Production of L-glutamic acid (Zentralbl. Bakteriol. Parasitenkd. Infektionskr. Hyg., II Abt. 127: 324-331, 1972) KCTC 3381, ATCC 33408, JCM 11565; Gene Bank No. AJ639831. (Medium 41, 30°C)

***Arthrobacter nicotianae* Giovannozzi-Sermanni**

2460 ATCC 15236. Type culture (Int. J. Syst. Bact. **30**, 253,1980). Produces adenylate cyclase (J.Bact.**124**, 1106, 1975; ibid.,**84**,1, 1962). Nicotin degradation. Produces restriction endonuclease AniI(Roberts RJNew England Biolabs Catalog 1986/87pp. 68-81, 1987)DSM 20123, NCIB 9458. (Medium 41, 30°C)

***Arthrobacter polychromogenes* Schippers-Lammertse.**

2448 NCIB 10267 (1973). Produces blue pigments. Type strain. (Antonie van Leeuw. **29**, 1, 1963). Has been observed to produce phage-like plaques. ATCC 15216; DSM 20136; ICP 2568. (Medium 41, 30°C)

***Arthrobacter simplex* (Jensen) Lochead.**

2449 NCIB 8929 (1973). (*Nocardioides simplex*; *Corynebacterium simplex*). Degradation of levulinic acid (U. S. Pat 3,663,368). Production of dienes (U.S. Pat. 2,837,464); 7-Cyano steroids (U. S. Pat. 3,050,534); steriod conversions; dehydroxylation of cholic acid. (J. Amer.Chem. Soc.**77**, 4184, 1955; J. Gen. Appl Microbiol.Tokyo, **7**, 113, 1961; J. Bacteriol. **83**, 551, 1962; J. Gen. Microbiol. **28**, 35, 1962); 5'-nucleotides by cell-culture on hydrocarbons and subsequent degradation of intracellular RNA at alkaline pH (U. S. Pat. 3,652,395) and 3-keto $\Delta^{1,4}$ steroids (U. S. Pat. 3,010,876; listed herein as *Corynebacterium simplex*). Type strain (Int. J. Syst. Bact. **30**, 254, 1980) NCIB 8913, ATCC 6946, NCTC 4215, IFO 3530, DSM 20130. (Medium 41, 30°C)

***Arthrobacter* sp.**

2263 CDRI (1970).Utlizes alpha-picoline.(Medium 41, 30°C)

2934 NRRL 3724. Produces Glucose isomerase. (Medium 41, 30°C)

2935 NRRL 3725. Produces Glucose isomerase. (Medium 41, 30°C)

2936 NRRL 3726. Produces Glucose isomerase. (Medium 41, 30°C)

2937 NRRL 3727. Produces Glucose isomerase. (Medium 41, 30°C)

2938 NRRL 3728. Produces Glucose isomerase. (Medium 41, 30°C)

5453 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25280; NIO 1957. Gene bank no. JF 421613. (Medium 41, 30°C)

5488 Deposited by Dr. Syed Dastager (2013). Isolated from marine sediment sample. NIO 1008. (Medium 41 or 65, 28°C)

***Arthrobacter ureafaciens* (Krebs and Eggleston) Clakr.**

2450 NCIB 7811 (1973). (*Corynebacterium creatinovorans*). Type strain (Int. J. Syst. Bact. **30**, 254, 1980) Decomposition of creatinine and creatine. (Proc. Soc. exp. Biol., N.Y., **35**, 335, 1936; J. Biol. Chem. **121**, 429, 1937; Enzymologia, **7**, 310, 1939; Proc. Soc. exp. Biol., N.Y. **74**, 767, 1950; J. Bact**. 82**, 882,1961; J.Gen. Microbiol. **29**, 389, 1962) Strain Dubos N. C. NCTC 7811, CDA 846, ATCC 7562, DSM 20126 (Medium 41, 30°C).

***Arthrobacter viscosus* Gasdorf et al**

2451 Produces penicillin G amidase; used in preparation of 6-aminopenicillianic acid (U.S. Pat.3,239,428) A-9722, ATCC 15294, DSM 20159 (Medium 41, 30°C)

AZOMONAS

AZOMONAS Winogradsky

***Azomonas macrocytogenes* (e. x. Ballie et al) New and Tchan**

2896 NCIB 8700. Original strain *Azotobacter macrocytogenes.* Type strain. (Int J. Syst. Bact. **30**, 255, 1980; Int. J. Syst. Bact. **32**, 381, 1984). H. L. Jensen O, WR 111, ATCC 12335, DSM 721. (Medium 5, 30°C)

AZOSPIRILLUM

AZOSPIRILLUM

***Azospirillum brasilense* Tarrand et al**

5135 MTCC 125 (2000). Type strain. (Int. J. Syst. Bact. **29**, 80, 1979; Can. J. Microbiol. **24**, 979, 1978). Nitrate reduction and nitrogenase activity (J. Bact. **128**, 592, 1976). Symbiont with grasses in nitrogen fixation. L-arabinose metabolism (J. Bact. **149**, 364, 1982). Exopolysaccharides and cyst formation (J. Bact. **163**, 716, 1983). Carbon source metabolism (J. Bact. **156***,* 1369, 1984). Cytochromes (Curr. Microbiol. **11**, 343, 1984). (Medium 5 or 56, 30°C). ATCC 29145

***Azospirillum lipoferum* (Beijerinck) Tarrand et al**

2907 FS IARI (Manila) Non symbiotic Nitrogen Fixation(Appl. Environ. Microbiol. **37,** 813, 1979). (Medium 5 or 56, 30°C)

Azospirillum oryzae

5489 Deposited by Dr.Mahesh Dharne, NCL (2013). Isolated from roots of rice plant. GeneBank No. AB185395, IAM 15130^{T}, LMG 23844^{T}. Nitrogen fixation (Xie et al IJSEM **55**: 1435-1438, 2005) (Medium 41 or 67, 37°C)

Azospirillum zeae

5493* Deposited by Dr.Mahesh Dharne, NCL (2013). Received from BCCM-LMG Culture Collection. Isolated from Corn rhizosphere. GeneBank No. DQ682470, LMG 23989^{T}, NCCB 100147^{T}. Nitrogen fixation (Mehnaz et al IJSEM **57**: 2805-2809, 2007) (Medium 67 or 70, 37°C)

AZOTOBACTER

AZOTOBACTER Beijerinck

Azotobacter agilis

2819 PRL 576 (1979). (Medium 5, 30°C)

***Azotobacter chroococcum* Beijerinck**

2452 NCIB 8003 (1973) (J. Gen. Microbiol. **24**, 273, 1961) Strain X-50 Fred; Smith 7, ATCC 4412 (Medium 5, 30°C)

5161 NCIM isolate ST-1 (2002) (Medium 5, 30°C)

5162 NCIM isolate ST-2 (2002) (Medium 5, 30°C)

***Azotobacter indicum* Starkey and De**

See *Beijerinckia indica*

Azotobacter lacticogenes

See *Beijerinckia lactiocogenes*

***Azotobacter macrocytogenes* Jensen.**

2454 Same as NCIM 2896

Azotobacter sp.

2632 NCIM isolate (1975). (Medium 5, 30°C)

***Azotobacter vinelandii* Lipman**

2821 DSM 87 (1982) Green fluorescens under UV light, cyst formation, phage host, fixes nitrogen (Appl. Microbiol. **5**, 103, 1957) ATCC 12837, NCIB 8789. (Medium 5, 30°C)

AZOTOMONAS

AZOTOMONAS Stapp

***Azotomonas insolita* Stapp.**

2435 ATCC 12210 (1972) (*Azotomonas* sp*; Agrobacterium* sp) Do not fix nitrogen. NCIB 8627. (Medium 41, 30°C)

BACILLUS

BACILLUS Cohn

***Bacillus aminovorans* den Dooran de Jong**

2456 NCIB 8292 (1973). Isolated from soil enriched with trimethyl amine. Strain Dooren de Jong 299; N.R. Smith 341; NCTC 2870; ATCC 7046; DSM 1314. (Medium 41, 30°C)

***Bacillus amyloliquefaciens* (Fukumoto) Priest et al**

2829 Deposited by Dr. D. N. Deobagkar (1980) Produces restriction endonuclease Bam HI (Medium 41, 30°C)

***Bacillus amylolyticus* Nakamura**

5211 ATCC 9995. (*Paenibacillus amylolyticus)*.Type strain (Int. J. Syst. Bacteriol. **34**, 224, 1984; *ibid*. **45**, 197, 1995; *ibid***47**, 299, 1997). (Medium 41, 30°C)

***Bacillus aneurinolyticus* Kimura and Aoyama**.

2233 Z.Yamaguchi (1969) Releases thiaminase into culture medium. (Medium 41, 30°C)

***Bacillus aporrhoeus* Fuller and Norman**.

2234 NCIB 9555 (1969) (*Bacillus* sp.;*Bacillus circulans*). Decomposes cellulose (J. Bact. **46**, 277, 1943) Strain W.H.Fuller, ATCC 9500 (Medium 41, 30°C)

Bacillus aryabhattai

5503 Deposited by Dr. Yogendra Singh and Prof. S. K. Srivastava, BHU, IIT Varanashi (2013). GeneBank No. JQ 673559.1 L-asparaginase production (Singh Y et al. Ind. J. Expt. Biol. **51**:322-335,2013) (Medium 41, 37°C)

***Bacillus brevis* Migula**

2216 PRL (1967) NRRL B-34. (Medium 41, 30°C)

2531 NCIB 7096 (1974) (*Aneurinibacillus migulanus*) Production of gramicidin "S" (Biochim. Biophys. Acta **49**, 451, 1961; Biochem. Biophys Acta. **76**, 465,1963; J. Bacteriol. **106**, 739, 1971). Produces gramicidin S synthetase (J. Gen. Microbiol. **90**, 415, 1976).Produces restriction endonuclease BbvI (Nucleic Acids Res. 5: 4105-4127, 1978.) N. R. Smith 1137, NCTC 7096, ATCC 9999, IFO 3864, DSM 2895 (Medium 41, 30°C)

2532 NCIB 8146 (1974) (*Brevibacillus brevis*) Production of gramicidin and tyrocidin. ATCC 10068. (Medium 41, 30°C)

2533 NRC (1974). Original gramicidin strain. Production of gramicidin and tyrocidin.(J.Exp. Med. **73**, 629, 1941; J. Bacteriol. **46**, 83, 1943; J. Gen. Microbiol. **4**, 508, 1950; J. Bacteriol. **70**, 192, 1955; J.Bacteriol. **85**, 329, 1963; J. Bacteriol. **106**, 739, 1971). Strain B.G., N. R. Smith 751, ATCC 8185, NCIB 8598(*Brevibacillus brevis*) , IFO 3331. (Medium 41, 30°C)

2534 NCIB 8698 (1974). (*Aneurinibacillus aneurinilyticus*,*Bacillus aneurinolyticus, B. thiaminolyticus*). Production of thiaminase. ATCC 11376 (Medium 41, 30°C)

2798 Deposited by Dr. D. N. Deobagkar (1982). Produces endonuclease *Bbv*I. (Medium 41, 30°C)

***Bacillus cereus* Frankland and Frankland**

2155 ATCC 6630 (1965) (J. Gen. Microbiol. **4**, 508, 1950; ibid. **8**, 481, 1953) N. R. Smith 305; NCTC 6349; NCIB 6349 (Medium 41, 30°C)

2156 NRRL B-569 (1965) Production of penicillinase. Parent strain. (Biochim. Biophys. Acta **59**, 749, 1962; ibid. **76**, 80, 1963; Arch. Biochem. **8**, 377, 1945) Strain N. R. Smith 1256; Hankey B-43; NCTC 7464; ATCC 10876; NCIB 7464 (*Bacillus* sp). (Medium 41, 30°C)

2157 Same as NCIM 2156

2158 NCIB 3329 (1965) (J. Infec. Dis. **42**, 93, 1928) Strain Soule; Hankey B-11; NCTC 3329 (Medium 41, 30°C)

2185 PRL B-1 (1966). Production of butanediol and penicillinase (Nature **194**, 446, 1962) (Medium 41, 30°C)

2217 ATCC 10876 (1967). Production of penicillinase. R. G. Benedict et al., Arch. Biochem. **8**, 337, 1945; Margot Kogut et al., Biochem. J., **62**, 391, 1956; M. R. Pollock and M. H. Richmond, Nature, Lond., **194**, 446, 1962; Rachel Neumark and N. Citri, Biochim. Biophys. Acta, **59**, 749, 1962; M. R. Pollock, Biochim. Biophys. Acta **76**, 80, 1963. Strain

N. R. Smith 1256; NRRL B-569; Hankey B-43; NCTC 7464; NCIB 7464*(Bacillus* sp). (Medium 41, 30°C)

2322 NCIB 8122 (1971) Assay of aureomycin level in body fluids. Assay of oxy and chlortetracycline (Nature 196, 1336, 1962); Ann. N. Y. Acad. Sci. **51**, 218, 1948. NCTC 8035; ATCC 10702; BUCSAV 154; DSM 487; Strain Lederle 5 (Medium 41, 30°C)

2456 B 8849 (1973) Same as NCIM 2106 and 2459

2457 ATCC 13061 (1973) Produces penicillinase; penicillin index : 700 (J.Gen. Microbiol. **4** , 508, 1950; ibid., **13**, 561, 1955; ibid., **14**, 90, 1956; Biochem. J. **62**, 387, 391 and 401, 1956; Antibiot. Chemother. **10**, 508, 1960) PCI 246; NCTC 9946; P.H.A. Sneath 5/B; NRRL B-3537; NCIB 8967; DSM 6127 (Medium 41, 30°C)

2458 ATCC 9634 (1973) Same as NCIM 2106 and 2457

2461 ATCC 10876 (1973) Same as NCIM 2156 and 2217

2700 NCIM isolate. (Medium 41, 30°C)

2701 NCIM isolate. (Medium 41, 30°C)

2702 NCIM isolate. (Medium 41, 30°C)

2703 NCIM isolate. (Medium 41, 30°C)

2797 Deposited by D. N. Deobagkar (1983). Produces restriction endonuclease BceR. (Medium 41, 30°C).

5293 Deposited by R. Dhanasekar, Sri. Ramakrishna Institute of Paramedical Sciences, Coimbatore. Isolated from vacuum packed meat, Bacteriocin production, (Medium 41, 30°C).

5391 Deposited by Mital Jadhav, Shivaji University, Kolhapur, Isolated from Diesel contaminated soil, Strain no. MUJ. Gene bank no. GU325714, Biosurfactant production, (Medium 41, 30°C).

Bacillus cereus* subsp *mycoides* (Flugge*)

2106 ATCC 11778 (1960). (*Bacillus cereus, B. mycoides*). Same as NCIM 2457 and 2459. Assay of chlortetracycline and oxytetracycline (Analytical Microbiology, Vol **2**, F. Kavanagh, ed., Academic Press, New York, pp. 374-379, 1972); tetracycline (ibid. pp. 375 and 377); rolitetracycline, demeclocycline, doxycycline, methacycline and minocycline (ibid. p. 377); chlortetracycline in feeds (AOAC Methods 42.203-42.208 and 42.232-42.42.235, 1984); oxytetracycline in feeds (ibid. 42.203-42.208 and 42.293-42.298, 1984); demeclocycline and doxycycline (British Pharmacopoei 1980, v **2**, p. A123, 1980). Cylinder-plate assay of tetracycline, chlortetracycline and oxytetracycline in body fluids feeds and milk.(Antibiot. Chemother. **7**, 640, 1957; ibid. **9**(10), 614,1959). Cylinder-plate assay of vancomycin. Microbioassay of tetracycline, deoxycycline, oxytertracyline and minocycline.(Appl. Microbiol. **19**, 573, 1970). Gene bank no. EU487785. FDA Strain PCI 213; ATCC 9634; ATCC 19637; NCTC 10320; Walksman strain 0. (Medium 41, 30°C).

***5436** Deposited by Agri Life, Bollaram (A.P.), Isolated from Quartz mines, Telangana (A.P.), Solubilization of silica and Zinc. (Medium 41, 30°C).

***Bacillus cereus var thuringienisis* Berliner**

See *Bacillus thuringienisis*

***Bacillus circulans* Jordon emend Ford.**

2107 ATCC 9966 (1960). (*Paenibacillus amylolyticus*; *B. amylolyticus*). FDA Strain. Assay of streptomycin. (Proc. Soc. Exptl. Biol. Med. **59**, 255, 1946) Strain PCI 221; NCIB 8144; DSM 329; NRRL B-14; N. R. Smith 1136 (Medium 41, 30°C).

2160 ATCC 13403 (1964). Production of L-glutamic acid.(U.S. Pat. 3,042,585; British Pat. 935,607). NCIB 9556. (Medium 41, 30°C)

5035 Strain B-30. Produces starch degrading enzymes. (Medium 41, 30°C)

5036 Strain B-132. Produces starch degrading enzymes.(Medium 41, 30°C)

5044 NCIM isolate(Medium 41, 30°C)

5045 NRC-9023. Produces starch degrading enzymes. (Medium 41, 30°C)

5046 NRC-9090. Produces starch degrading enzymes. (Medium 41, 30°C)

5047 Strain 513 Dept. Env. Biol, Univ Guelph, Ontario, Canada. (Medium 41, 30°C)

5048 Strain 360. Produces starch degrading enzymes. (Medium 41, 30°C)

5049 DSM 596. Production of glucanases, lysis of yeast cell walls. (Medium 41, 30°C)

5052 NCIM isolate (Medium 41, 30°C)

5057 NCIM isolate (Medium 41, 30°C)

Bacillus clausii

5448 Deposited by Dr. G.R. Naik, Gulbarga University, Gulbarga (2012). Isolated from dump site of poultry waste. Keratinolytic protease production. Gene bank no. JX155855 (Medium 41 with pH 9.0 or Medium 72, 30°C)

***5450** Deposited by Microbax India Limited, Hyderabad (2012). Isolated from soil. Strain no. MBX 101. (Medium 41, 30°C)

***Bacillus coagulans* Hammer**.

2030 NCIM isolate (1951). (Medium 41, 30°C)

2323 ATCC 12245 (1971) (*B. stearothermophilus, B. thermoacidurans*). Assay of folic acid. (Analytical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp 465-467, 1963; Proc Soc. expt. Biol., N.Y.,**89**, 210, 1955; Brit. Med J.**I**, 978, 1958; Can J. Microbiol., **6**, 557, 1960) Strain NCA 3084; NCIB 8870; DSM 308. (Medium 41, 30°C)

5320 Deposited by Microexpress, Goa (2010), (Medium 41, 37°C)

***5451** Deposited by Microbax India Limited, Hyderabad (2012). Isolated from soil. Strain no. MBX 121. (Medium 41, 30°C).

***Bacillus firmus* Warner**.

2264 ATCC 8247 (1970). (J. Gen. Microbiol. **13**, 474, 1955; USDA Agr. Monogr. **16**, 95, 1952). Produces lipases active at pH 5.5 and 7.5. Produces lipases active at pH 9.0 at 60°C (J. Ind. Microbiol. 13: 242-248, 1994.) DSM 359; N. R. Smith 854; NCIB 8162; CN 2196 (Medium 41, 30°C)

2462 NCIB 9366 (1973) .Type culture, phage host (Int. Bull. Bact. Nomen. Taxon. **12**, 74, 1962; J. Gen. Microbiol. **34**, 269, 1964; ibid., **13**, 474,1955). Strain N.R.Smith 613; ATCC 14575; NCTC 10335; DSM 12 (Medium 41, 30°C)

2636 Code No. LcBl CMI Code Herb DMI No.7647. Solubilizes phosphatic nodules in soil. (Medium 41, 30°C)

2637 Code No. AcB5 CHI Code Herb DMI No.B 7650. Solubilizes phosphatic nodules in soil. (Medium 41, 30°C)

5119 Deposited by Dr. Nene, NCL, Pune (1997). Isolated from soil. Cyclodextrin glucanotransferase production (Biotechnol. Lett. **17**, 411-416, 1995). (Medium 41, 30°C)

***Bacillus freudenreichii* (Miquel) Chester.**

2463 ATCC 7053 (1973). (J. Bact. **29**, 491, 1935) N.R. Smith 671; Gibson 68; NCTC 4823; NCIB 8293.(Medium 41, 30°C)

Bacillus fusiformis

5294 Deposited by Dr. Kodam, Pune University (2008), Isolated from soil sediment of textile effluent disposal site, Ichalkaranji, Strain no. KMK5, Biodegradation of Azo dyes, (Medium 41, 37°C)

Bacillus globigii

2792 Deposited by D. N. Deobagkar (1982) Produces restriction endonuclease Bgl I^- Bgl II+ (Medium 41, 30°C)

2793 Deposited by D. N. Deobagkar (1982) Produces restriction endonuclease Bgl I+ Bgl II- (Medium 41, 30°C)

Bacillus halodurans

5292 Deposited by K. Sreeramulu, Gulbarga University (2008), Strain no. PPKS2, (Medium 71, 30°C).

5439 Deposited by Dr. Anita Rajor, Thaper University, Patiala (2012). Gene bank no. JQ307184, Strain no. KG1 (Medium 41 containing 1% Na_2CO_3, 37°C)

5441 Deposited by Dr. Anita Rajor, Thaper University, Patiala (2012). Isolated from textile industry waste water, Gene bank no. JN969987, Strain no. KGMD1 (Medium 41 containing 1% Na_2CO_3, 37°C)

***Bacillus laevolacticus* Nakayama and Yanoshi**

2464 ATCC 23492 (1973). (*Sporolactobacillus laevolacticus*) Produces D-lactic acid (J. Gen. Appl. Microbiol. **13,** 139, 1967). M-8; NCIB 10269; DSM 422 (Medium 41, 30°C)

***Bacillus laterosporus* Laubach**.

2465 NCIB 9367 (1973). (*Brevibacillus laterosporus*) Type culture (J. Gen. Microbiol. **34**, 269, 1964). Ford 6; NCTC 6357 and 2613; AMNH 797; ATCC 64, 4517, 8248; DSM 25; Produces carnitine L-carnitineQuality control strain. Reduces 3-methoxy-8(14)-seco-1,3,5(10),9(11)-estratetraene-14,17-dione N.R. Smith 314, 340, 347 and 882; NCIB 8213. (Medium 41, 30°C)

***Bacillus lentus* Gibson**.

2018 IDRI, Bangalore (1950) (Medium 41, 30°C)

2466 NCIB 8773 (1983). (*Bacillus graminis*)Type culture (J. Gen. Microbiol. **34**, 270, 1964) Gibson 165;N.R. Smith 670; CN 3323; CCM 2214; NCTC 4824; ATCC 10840; NCIB 8713; DSM 9 (Medium 41, 30°C)

5327 Deposited by Chetan Oturkar, Pune University (2009), Isolated from Lonar soil, Gene Bank no. HM439778 Alkaline phosphatase production, (Medium 41 with pH 8.0, 37°C)

***Bacillus licheniformis* (Weigmann) Chester**.

2042 PRL B-511 (1953). Production of protease. (Medium 41, 30°C)

2044 Used in the study of proteinase. Strain P-8; ATCC 11560 and 12759; N.R. Smith 1415. (Medium 41, 30°C)

2051 NCIB 6346 (1954) Same as NCIM 2325; 2536; 2471 and 2715 Production of penicillinase (Nature, Lon **194**, 446,1962; J. Gen. Microbiol. **1**, 370, 1947); 2,3-butanediol; glycerol (Science **101**, 245, 1945); thermostable α-amylase; α-acetolactate-D-carboxylate. Produces 2,3-butylene glycol 2,3-butanediol, Produces glycerol glycerin, glycerine, Produces penicillinase beta-lactamase I;(Nature, Lon **194**, 446,1962; J. Gen. Microbiol. **1**, 370, 1947)N.R.Smith 243; BUCSAV 171 NCTC 6346; ATCC 102, 4527, 8243, 9789 and 9800; IFO 12195 and 12196 (Medium 41, 30°C)

2324 NCIB 8062 (1971) (*B. subtilis*) Production of D-glutamic acid polypeptide (J. Biol. Chem. **145**, 415, 1942, Can. J. Microbiol. **8**, 565, 1962) Novobiocin resistant (J. Bact.**129**, 1045, 1977), Role of teichuronic acid (ibid, 1051) N. R. Smith 712; ATCC 9945; IFO 12197; NCTC 7467 (Medium 41, 30°C)

2325 ATCC 9789 (1971) Same as NCIM 2051; 2471; 2536 and 2715

2467 NCIB 8874 (1973) (*Bacillus* sp). Production of bacitracin (Biochim. Biophys. Acta **62**, 114, 1962; J. Bacteriol. **80**, 552, 1960) N.R. Smith 1330; ATCC 10716 and 11944; IFO 12199; DSM 603 (Medium 41, 30°C)

2468 NCIM isolate (1973) (Medium 41, 30°C)

2471 NCIB 8059 (1973) Same as NCIM 2051; 2325; 2536 and 2715. (Medium 41, 30°C)

2472 PRL B-479 (1973). NRRL B-100. (Medium 41, 30°C)

2536 NCIB 6346 (1974). Same as NCIM 2051; 2325; 2471 and 2715

2537 NCIB 6816 (1974) Production of penicillinase (Nature, Lond. **154**, 236, 1944) Glaxo 417; CCM 2182; NCTC 6816.(Medium 41, 30°C)

2689 ATCC 11560 (1951) Same as NCIM 2044. (Medium 41, 30°C)

2715 ATCC 9800; Same as NCIM 2051; 2325; 2471 and 2536 (Medium 41, 30°C)

5343 Deposited by Dr. Jai Ghosh, Shivaji University, Kolhapur (2010), Isolated from mushroom cultivation bed, strain no. JS, Gene bank no GU172369, (Medium 41, 50°C)

5373 Deposited by Dr. Saroj Bhosale, Goa University (2009), Isolated from marine sediment, strain no. BHR-1/A7 (Medium 41, 30°C)

5377 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from costal beach sediment, strain no. L4/A3 ((Medium 41, 37°C)

5440 Deposited by Dr. Anita Rajor, Thaper University, Patiala (2012). Gene bank no. JN969986, Strain no. KG4 (Medium 41 plus 1% Na_2CO_3, 37°C)

***Bacillus macerans* Schardinger**

2131 NCIB 9368 (1963). (*Paenibacillus macerans*) Type strain (J. Gen. Microbiol. **34**, 270, 1964). Produces cyclodextrin glycosyltransferase and pullulanase; hemicellulose degrading enzymes. Fixes nitrogen (Nature, Lond, **154**, 236, 1944) Produces cyclodextrin glycosyltransferase and pullulanase; hemicellulose degrading enzymes. Fixes nitrogen (Nature, Lond, **154**, 236, 1944) ATCC 8244; DSM 24; LMG 6324; N. R. Smith 888 (Medium 41, 30°C)

2186 PRL B-93 (1966). Deposited as *B. acetoethylicus*. (Medium 41, 30°C)

5053 NCIM isolate (Medium 41, 30°C)

5054 BKMB - 506 (1989) (Medium 41, 30°C)

5055 BKMB - 697 (1989) (Medium 41, 30°C)

5056 BKMB - 698 (1989) (Medium 41, 30°C)

Bacillus marscescens

5037 Strain B-61 Deposited by L. M. Nelson NRC Canada (1988) Produces starch degrading enzymes. (Medium 41, 30°C)

5038 Strain B-96.Same as NCIM 5037 (Medium 41, 30°C)

5039 Strain B-4036. Mikrobiologisches Inst.Eidg. Techn. Hochschute ETH - Zentrum. Produces starch degrading enzymes (Medium 41, 30°C)

5040 Strain NRC 5563. NRC, Canada (1988) Starch degradation. (Medium 41, 30°C)

5041 NRC 9073. (Medium 41, 30°C)

5042 NRC 9074. (Medium 41, 30°C)

5043 NRC 9075. (Medium 41, 30°C)

***Bacillus macquariensis* Marshall and Ohye**

2474 (*B. macerance*) B.J.Marshall, CSIRO, Division of Food Preservation, North Ryde, N.S.W., Australia (1973). Type strain (J.Gen.Microbiol. **44**, 41, 1966). ATCC 23464 (Medium 41, 30°C)

***Bacillus megaterium* De Bary**

2032 NRRL B 1366 (1951). (Medium 41, 30°C)

2033 IISc., Bangalore (1951) (Medium 41, 30°C)

2034 NRRL B-1372 (1953).(Medium 41, 30°C)

2052 NRRL B-350 (1954).(Medium 41, 30°C)

2054 NRRL B-349 (1955).(Medium 41, 30°C)

2087 NRRL B-938 (1958). Production of vitamin B12 and riboflavin (Biochem. J. **70**, 520, 1958; J. Gen. Microbiol. **71**, 505, 1972) ATCC 10778; NCIB 8508; BUCSAV 160; NRRL B-938; DSM 509 (Medium 41, 30°C)

2187 PRL (1986) ATCC 8245; USDA 234. (Medium 41, 30°C)

2326 NCIB 8291 (1971) Assay of steptomycin. Preparation of protoplasts with lysozyme. ATCC 9885; Merck 4R 6259; Cornell 90; BUCSAV 159. (Medium 41, 30°C)

2475 Dept. Biochem., Univ. Cambridge (1973). Asporogenous; preparation of protoplast with lysozyme.(J. Bact. **66**, 633, 688 and 696, 1964) Strain KM; NCIB 9521; ATCC 13632 (Medium 41, 30°C)

2670 Same as NCIM 2087

5334 Deposited by Dr. Saroj Bhosale, Goa University (2009), Isolated from marine sediment, strain no. NQ-11/A2 (Medium 41, 30°C)

5374 Deposited by Dr. Saroj Bhosale, Goa University (2009), Isolated from marine sediment, strain no. BLQ-2/A7 (Medium 41, 30°C)

5376 Deposited by Dr. Saroj Bhosale, Goa University (2009), Isolated from coastal beach sediment, strain no. L2/A1 (Medium 41, 30°C)

5378 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from coastal beach sediment, strain no. L4/A4 (Medium 41, 30°C)

5379 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from coastal beach sediment, strain no. L5/A1 (Medium 41, 30°C)

5380 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from coastal beach sediment, strain no. L7/A2 (Medium 41, 30°C)

5383 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from plant leaf litter sediment, strain no. COL1/A6 (Medium 41, 30°C)

5384 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from plant leaf litter sediment, strain no. COL1/A11 (Medium 41, 30°C)

5385 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from plant leaf litter sediment, strain no. COL2/A2 (Medium 41, 30°C)

5386 Deposited by Dr. Saroj Bhosale, Goa University (2010), Isolated from plant leaf litter sediment, strain no. COL2/A6 (Medium 41, 30°C)

5393 Deposited by Dr. V.H. Mulimani, Gulbarga University (2010), Isolated from soil sample, extracellular alpha-galactosidase production (Medium 41, 30°C)

5472 Deposited by Dr. Syed Dastger (2012). KCTC 3007, ATCC 14581, DSM 32. ROM J. Biol. Plant Biol. 49-50: 31 (2004-2005)

Bacillus mesentericus

2019 IDRI, Bangalore (1950). (Medium 41, 30°C)

***Bacillus pantothenticus* Proom and Knight**

2476 NCIB 8775 (1973) (*Virgibacillus pantothenticus*) Type strain (Int.Bull. Bact. Nomen.Taxon **12**, 75, 1962; J. Gen. Microbiol. **34**, 270, 1964) Strain CN 3028; ATCC 14576; LMG 7129; NCTC 8162; NR. Smith 1321; DSM 26 (Medium 41, 30°C)

***Bacillus pasteurii* (Miquel) Chester**

2477 NCIB 8841 (1973). (*Sporosarcina pasteurii*) Type strain (Int. J. Syst. Bact. **30**, 257, 1980). Produces urease (J. Gen. Microbiol. **34**, 271, 1964) Gibson 22; N.R. Smith 673 and 929; NCTC 4822; CCM 2180; ATCC 11859; DSM 33 (Medium 41, 30°C)

***Bacillus polymyxa* (Prazmowski) Mace**

2188 PRL B-474 (1966). (Medium 41, 30°C)

2538 NCIB 8094 (1974) (*Paenibacillus polymyxa)* Production of polymyxin (J. Bact. **82**, 933, 1961) N.R. Smith T- 2010; BUCSAV 163; ATCC 10401; CCM 1460. (Medium 41, 30°C)

2539 *Paenibacillus polymyxa*. NCIB 8158 (1974) Type strain (Int J. Syst. Bact, **30**, 257, 1980); polysaccharide synthesis (J. Gen. Microbiol. **34**, 272,1964); Produces β-amylase, pullulanase, xylanase and pectolytic enzymes ATCC 842; N.R. Smith 1105; BUCSAV 162; NCTC 10343; DSM 36 (Medium 41, 30°C)

2540 Wellcome Res. Lab, Kent (1974).Production of polymyxin (J. Gen. Microbiol. **3**, 425, 1949) NCIB 8228(*Paenibacillus polymyxa*); Strain CN 1984. (Medium 41, 30°C)

2541 NRCC 3.2 (1974) Production of 2,3-butanediol (Can. J. Res. **F23**, 48, 1945) NCIB 8524 (*Paenibacillus polymyxa*) (Medium 41, 30°C)

2725 NCIB 8526 (*Paenibacillus polymyxa*) Production of 2,3- butanediol . (Medium 41, 30°C)

2726 ATCC 12321 Production of 2, 3 butylene glycol. Fixes nitrogen NCIB 8599 (*Paenibacillus polymyxa*) ; NRRL B-510. (Medium 41, 30°C)

2846 Received from A. C. Gaur IARI, New Delhi.(Medium 41, 30°C)

2955 NCIB 8527 (*Paenibacillus polymyxa*) Produces polymyxin; NRRL B-369. (Medium 41, 30°C)

5479 MTCC 122. Same as NCIM 2539

***Bacillus pumilus* Meyer and Gottheil**

2108 Medical Research Council, London (1960) Production of pumilin (Nature, Lond. **175**, 722, 1955) NCIB 8738. (Medium 41, 30°C)

2189 PRL B-47 (1966), (Medium 41, 30°C)

2190 PRL 332 (1966), (Medium 41, 30°C)

2327 NCIB 8982 (1971) Assay of neomycin and chlortetracycline; kanamycin; gentamycin; erythromycin; lymecycline; oxytetracycline; framycetin and tetracycline (British Pharmocopia 1980, 2, A123, 1980); Sterility testing (British pharmacopia 1980, Addendum 1983, p. A58, 1983).NCTC 8241; Strain Mill Hill; ATCC 14884; DSM 361; IFO 3813 and 12102 (Medium 41, 30°C)

5319 Deposited by Microexpress, Goa, Same as NCIM 2327 (Medium 41, 30°C)

***Bacillus pumilus* Meyer and Gottheil**

5217 ATCC 27142 (2004). This strain is recommended by ATCC for use in the tests described in U.S. Pharmacopeia, 23rd rev., <1211>, pp. 1976-1 981, 1995 where only the taxon is specified. Radiation resistance of spores (Appl. Microbiol. 4: 149-152,1956; Appl. Microbiol. 15: 785-789, 1967; Proc. Int. Conf. Sterilization of Medical Products 169-180, 1967). Ionizing radiation-sterilization control (British Pharmacopoeia 1993. vol. 2: London (UK): British Pharmacopoeia Commission; 1993, Appendix XVIII, pp. A197-A199; European Pharmacopoeia. 3rd ed. Strasbourg, France: European Pharmacopoeia Commission; 1997, EP 5.1.2). Sterility assurance (U.S. Pharmacopeia. 23rd rev. Rockville, MD: U.S. Pharmacopeia; 1995, 1211, pp. 1976-1981). DSM 492; NCIMB 10692; NCTC 10327 (Medium 41, 30^{o}C)

Bacillus rigui

5471 Deposited by Dr. Syed Dastger (2012). Type strain. Isolated from water. KCTC 13278. Int. J. Syst. Evol. Microbiol. 60: 2204 (2010) (Medium 58, 30°C)

Bacillus solisalsi

5478 Deposited by Dr. Syed Dastger (2012). Type strain. KCTC 13181, Int. J. Syst. Evolu. Microbiol. 59:1460 (2009) (Medium 26, 5-52^{o}C, Optimum 30°C)

***Bacillus* sp.**

***2128** Strain ALK-XY-4. Produces xylanase. (Medium 41 with alkaline pH, 30°C).

***2129** Strain ALK-XY-4. Produces xylanase. (Medium 41 with alkaline pH, 30°C).

2191 PRL B-359 (1966). (Medium 41, 30°C)

2722 NCL isolate. Deposited by M. C. Srinivasan (1958). Antifungal activity. (Medium 41, 30°C)

2812 NCIB 8796 (*Bacillus simplex*; *B. macroides*). Type strain of *Lineola longa* (Arch.Microbiol. **52**,197, 1965) ATCC 12905. (Medium 41, 30°C)

5106 1101 NEERI Deposited by P. Kumaran (1989). (Medium 41, 30°C)

5199 NCIM isolate (Medium 41, 30°C)

5201 Deposited by S. D. Patankar (2003). Isolated from rice based fermented food. Production of Vit B_{12} (Medium 41, 37°C)

5220 Gulberga University(2005**).** Deposited by Dr. Karegoudar. Isolated from garden soil. Degradation of 4-hydroxybenzoic acid (Indian J. Environ. Health **37,** 88-94, 1995), 3- hydroxybenzoic acid (Indian J. Biochem. Biophys. **33,** 145-148, 1996), dimethylphthalate (J. Environ. Science Health **A36(6),** 1135-1144, 2001; FEMS microbial. Lett. **196,** 201-205, 2001). (Medium 41, 30^{o}C).

5248 Deposited by Dr. S. Bhosale, Department of Microbiology, Goa University. Strain no. MF-A4, (Medium PPYG with pH 10, 30°C).

5249 Deposited by Prof. T.S. Chandra, Biochemistry Laboratory, IIT, Madras. Halophilic, (Medium 6, 30°C).

5250 Deposited by Meenakshi Suresh, Fergusson College, Pune. (Medium 41, 30°C).

5291 Deposited by Dr. T. S. Chandra, Department of Biotechnology, IIT, Madras. Strain No. Bacillus ATSKP. (Medium 41, 30°C).

5330 Deposited by Dr. Kodam, Pune University. Isolated from Lonar Crater Lake. Strain No. KMK-S1. (Medium 41, 37°C).

5342 Deposited by Dr. Vishal Dawkar, Biochemistry Department, Shivaji University, Kolhapur. Isolated from soil contaminated with Textile effluent. (J. Appl. Microbiol. **105**, 14-24, 2008; Biotechnol. Bioproc. Eng. **14**, 361-368, 2009; Biodegradation **20**, 777-782,2009). (Medium 41, 40°C).

5361 Deposited by dr. Tapas K. Sengupta, IISER, Kolkatta. Isolated from soil of petrol service station. Oil degradation activity. Amp^{R}. Strain no. MSM-S1. (Medium 41, 30°C).

5375 Deposited by Dr. S. Bhosale, Goa University. Isolated from marine sediment. Strain no. PPA/Z6. (Medium 41, 30°C).

5381 Deposited by Dr. S. Bhosale, Goa University. Isolated from mangrove sediment. Strain no. MGP/A5. (Medium 41, 30°C).

5382 Deposited by Dr. S. Bhosale, Goa University, Isolated from plant leaf litter sediment. Strain no. COL1/A1. (Medium 41, 30°C).

5430 Deposited by Dr. Kodam, Pune University. Isolated from gardon soil. Gene bank accession number JN225518. Strain no. KMK-A. Biotransformation of Azo dyes. (Medium 41, 37°C)

5332 Deposited by Dr. T.B. Karegoudar, Gulbarga University (2009), Isolated from soil of textile industry, Gene Bank no. FJ888394, Decolorization of metanil yellow dye and other Azo dyes. (Medium 41, 26, 30°C or 37^{o}C)

5442 Deposited by Dr. Anita Rajor, Thaper University, Patiala (2012). Gene bank no. JQ033395, Strain no. KG5 (Medium 41 plus 1% Na_2CO_3, 37°C)

5447 Deposited by dr. G.R. naik, Gulbarga University, Gulbarga (2012). Isolated from sugarcane molasses. Alkaline theromostable Keratinolytic protease production (Int. Bioterioration and Biodeg. 65, 29-35, 2011; Proc. Biochem. 39, 139-144, 2001). Strain no. JB99. (Medium 41 at pH 10, 37°C)

5458 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25142; NIO 1003. Gene bank no. JF 893461. (Medium 41, 30°C)

5459 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25146; NIO 1027. Gene bank no. JF 893458. (Medium 41, 30°C)

5460 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25147; CCTCCAB 2011123; NIO 1030. Gene bank no. HQ 858013. (Medium 41, 30°C)

5461 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25145; CCTCCAB 2011121; NIO 1130. Gene bank no. JF 893465. (Medium 41, 30°C)

5462 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25149; CCTCCAB 2011126; NIO 1016. Gene bank no. JF 893466. (Medium 41, 30°C)

5490 Deposited by Dr. Syed Dastager (2013). Isolated from marine sediment. CCTCCAB 2011125; NIO 1023. (Medium 57, 30°C)

5491 Deposited by Dr. Syed Dastager (2013). Isolated from soil sample. (Medium 57, 30°C)

5507 Deposited by Dr. Syed Dastager (2013). Isolated from Veraval sediment, Gujrath. GeneBank No. KF265348; NIO V88 (Medium 41 or 57, 30-37°C)

5509 Deposited by Dr. Syed Dastager (2013). Isolated from Chorao island, Goa. GeneBank No. KF265357; NIO 1013 (Medium 41 or 65, 30°C)

5510 Deposited by Dr. Syed Dastager (2013). Isolated from Veraval coast, Gujrath. GeneBank No. KF413434 (Medium 41 or 65, 30°C)

5511 Deposited by Dr. Syed Dastager (2013). Isolated from Veraval coast, Gujrath. GeneBank No. KF265349 (Medium 41 or 65, 30°C)

5512 Deposited by Dr. Syed Dastager (2013). Isolated from Veraval coast, Gujrath. GeneBank No. KF413433 (Medium 41 or 65, 30°C)

5513 Deposited by Dr. Syed Dastager (2013). Isolated from Veraval coast, Gujrath. GeneBank No. KF413435 (Medium 41 or 65, 30°C)

***Bacillus sphaericus* Meyer and Neide.**

2478 NCIB 9370 (1973). (*Lysinibacillus sphaericus*) Type culture (Int. Bull. Bact. Nomen. Taxon. **12**, 75, 1962; J. Gen. Microbiol. **34**, 270 (1964). ATCC 14577; DSM 28; NCTC 10338.(Medium 41, 30°C)

5149 Deposited by Dr. H. H. Patel (2002). Inorganic phosphate solubilization (Medium 43d, 28°C)

***Bacillus stearothermophilus* Donk**

2235 ATCC 7953 (1969). Flat-sour spoilage of canned foods (Appl. Microbiol.**11**, 453, 1963; J. Bacteriol. **70**, 192, 1954; J. Appl. Bacteriol. **23**, 136, 1960; J. Bacteriol.**79**, 625,1960); Steam sterilization control.(British Pharmacopoeia 1980, Addendum 1983, p. A58, 1983). Comment: Stated to grow at 35 °C (Arch. Biochem. Biophys. **54**, 154, 1955) NCTC 10007, NCIB 8157 (*Geobacillus stearothermophilus*); Sterility assurance, Sterilization control, Pharmaceutical and Personal Care N. R. Smith T-17 (Medium 41, 50°C; Thermophilic)

2328 NCIB 8919 (1971). (*Geobacillus stearothermophilus*) Used in preperation of spore papers for testing of steam sterilizer, spoilage of canned foods (J.Clin. Pathol. **14**, 313, 1961). N.R.Smith T-73; NCA 1356;CCM 2183; ATCC 12976; DSM 297.(Medium 41, 50°C ; Thermophilic)

2542 NCIB 8920 (1974). (*Geobacillus* stearothermophilus) Spoilage of canned foods. Strain N.R. Smith T-2026; NCA 1492; ATCC 12977.(Medium 41, 50°C; Thermophilic)

2922 NCIB 8923 (1981). (*Geobacillus stearothermophilus*) Type strain. (Can. J. Micro. **6**, 557, 1960; J. Gen. Microbiol. **34**, 270, 1964); Deteriorated canned food.N. R. Smith T-18; ATCC 12980; DSM 22; NCTC 10339; IFO 12550. (Medium 41, 50°C; Thermophilic)

5146 Deposited by J. M. Khire (2001). Thermophilic, Production of α-galactosidase (Process Biochem. **39**, 1723-1729, 2004) (Medium 41, 50°C)

***Bacillus subtilis* (Ehrenberg) Cohn.**

2010 NCIM isolate (1950). Diastatic activity. (Medium 41, 30°C)

2045 UNBA 23 (1953). Diastatic acitivity. (Medium 41, 30°C)

2063 ATCC 6633 (1956). Sterility testing (British Pharmacopeia 1980, **2**, p A186, 1980; U. S. Pharmacopeia, 21st rev., p 1156-1157,1985; Code of Federal Regulations, Title 21, Part 436, 1987); assay of dactinomycin, dihydrostreptomycin, mitomycin, rifampin and vancomycin, kanamycin B and streptomycin (ibid.,); kanamycin sulfate (ibid., Part 444.30); vancomycin hydrochloride (ibid., Part 455.85). Susceptibility-disc-testing of novobiocin and rifampin (ibid. Part 460). Assay of: hygromycin B, monensin, streptomycin, and lasalocid in feeds (AOAC Methods 42.203-42.208, 42.247-42.251, 42.266-42.270, 42.308-42.315, 42.252-42.257,1984).Media testing (British Pharmacopoeia 1980, Addendum 1986, pp. A106-A107, 1986). No longer used in kanamycin B assay (U. S. Pharmacopeia, 20th rev., 5t suppl.,pp. 1098-1102,1984).Assay of dihydrostreptomycin (Analytical Microbiology, F.Kavanagh, ed., Academic Press, New York, pp. 286-287, 1963); hygromycin B (ibid., pp. 303-307); ristocetin (ibid., pp. 357-360) and vancomycin (ibid., pp. 377-379); cephalexin (ibid., Vol. **2**, p. 208, 1972); cephaloglycin (ibid., pp. 212-213); cephaloridine (ibid. pp. 216 and 221-225); cephalothin (ibid. p.218); cetrimide (ibid. p. 322); gentamycin (ibid pp.237-245 and 272-274); hexachlorophene (ibid., p. 323) and neomycin (ibid., p. 312); gentamycin, kanamycin, neomycin, penicillin and streptomycin in live virus vaccines (J. Biol. Stand. **10**, 157, 1982). Bioautography of: capreomycin (Chromatography of Antibiotics, G. H.Wagman and M. J. Weinstein, Elsevier, Amsterdam, pp. 42-43, 1973); cefazolin (ibid., p.44); desacetyl cephalothin (ibid. p.48); cephalothin (ibid. pp. 48-49); desertomycin (ibid. p. 65); kundrymycin (ibid. p.102); monensin (ibid. p. 120); oleandomycin (ibid., p.131-132); penicillins (ibid., pp 140 and 143); chelocardin (ibid., p.53); erythromycin (ibid. p. 71).Production of subtilin (Arch. Biochem. **4**, 297, 1944).Cylinder-plate assay of streptomycin and dihydrostreptomycin (Antibiot. Chemother. **9**, 613, 1959). Microbioassay of neomycin, kanamycin and streptomycin (Appl.

Microbiol. **19**, 573, 1970). Assay of streptonigrin in body fluids and tissues of mice (Antimicrob. Ag. Chemother. **5**, 82, 1974); assay of amoxicillin in blood and urine (J. Infect. Dis. **129**, (supplement) S156-S168, 1974). Taxonomy (R. Gordon et al., The Genus *Bacillus*. USDA Handbook No. 427: 182-183, 1973). Enzymes (Arch. Microbiol. **110**, 49, 1976). NCIB 8054 (*Bacillus subtilis* subsp. *spizizenii*) ; NCTC 10400; PCI 219; N.R. Smith 231; BUCSAV 425; Hankey B-14; DSM 347;IFO 13720; (Medium 41, 30°C)

2088 HAL (1958) Same as NCIM 2063

2097 HAL (1959) Same as NCIM 2063

2117 NRRL B-558 (1961).Assay of penicillin F and X, streptomycin (J. Bacteriol.**49**, 411, 1945; Science **101**, 365, 1945) NCIB 8159 **(***Bacillus subtilis* subsp. *subtilis***)** ; ATCC 9466; N.R.Smith 1088; PCI 220; BUSCAV 170. (Medium 41, 30°C)

2124 BR 151 (PPL 708).BGSC (1987) Base strain IE 36. Genotype PPL 708 Km Lys^S met trp C2 (Gene **24**, 171, 1983). (Medium 41, 30°C)

2162 NRRL B-2612 (1965).Production of polyglutamic acid direct from wheat gluten (Biotechnol. Bioeng. **5**, 41, 1963). NCIB 9590 **(***Bacillus subtilis* subsp. *subtilis*). (Medium 41, 30°C)

2192 PRL 468 (1966). (Medium 41, 30°C)

2193 PRL B-42 (1966). (Medium 41, 30°C)

2195 PRL B-44 (1966). (Medium 41, 30°C)

2196 PRL B-95 (1966). (Medium 41, 30°C)

2197 PRL B-100 (1966). (Medium 41, 30°C)

2236 ATCC 10774 (1969). Production of bacillomycin B.(Proc. Soc. Exp. Biol, N.Y.**67**, 539, 1948). NCIB 8872 (Medium 41, 30°C)

2250 ICRC 168 (1965). Parent strain of mutant. Indole- and try - (Medium 41, 30°C)

2255 Inst. of Animal Genetics, Edinburgh (1969).Mutant strain:leu-,his-, ala-, try-, uracil-. (Medium 41, 30°C)

2266 NCIB 8054 (1971). Same as NCIM 2063, 2329

2284 NCIM isolate. (Medium 41, 30°C)

2329 NCIB 8054 (1971). Same as NCIM 2063, 2266 and 2284

2439 PRL 464 (1966). Production of amylase. (Medium 41, 30°C)

2479 NCIB 8646 (*Bacillus subtilis* subsp. *subtilis*) (1963) Production of amylase and pentosanases used to remove pentosan gum from wheat flour (U. S. Pat. 2,821,501). NRC 92. ATCC 12711. (Medium 41, 30°C)

2480 NCIB 8533 (*Bacillus subtilis* subsp. *subtilis*) (1973) Assay of streptomycin and chlortetracycline Strain Glaxo 841. (Medium 41, 30°C)

2545 NCIB 8057 (*Bacillus subtilis* subsp. *subtilis)* (1994) Assay of penicillin, streptomycin and streptothricin. (J.Bact.**47**,43, 1944; J. Agric. Food Chem., **2**, 298, 1954; J. Bact.,**70**, 192,1955). Strain Merck 3R 9675; N. R. Smith 1109; NRRL B-314; ATCC 9524 (Medium 41, 30°C)

2546 ATCC 10707 (1974). Assay of streptomycin and ristocetin. NCIB 8577 (*Bacillus subtilis* subsp. *subtilis*) (Medium 41, 30°C)

2547 Glaxo Labs. Ltd. (1974). Assay of novobiocin. Strain MB 32; NCIB 8993(*Bacillus subtilis* subsp. *subtilis*) ; ATCC 12432, 13597; NCTC 10315 (Medium 41, 30°C)

2548 NRRL B-543 (1974). Production of subtilin. NCIB 8703(*Bacillus subtilis* subsp. *subtilis*) ; NRRL B-543. (Medium 41, 30°C)

2549 NCIB 7198 (1974) (*B. licheniformis*; *B. pumilis*) Production of penicillinase. Glaxo 6; NCTC 7198; CCM 2175. (Medium 41, 30°C)

2635 ICRC (1968). Mutant strain: indole and try. (Medium 41, 30°C)

2655 NCIM isolate (Medium 41, 30°C)

2697 NCIM isolate (Medium 41, 30°C)

2698 NCIM isolate (Medium 41, 30°C)

2699 NCIM isolate (Medium 41, 30°C)

2708 PRL 479. (Medium 41, 30°C)

2709 ICI Recd from HAL (Pimpri) (1958). Assay of streptomycin (Medium 41, 30°C)

2710 Notanis muntant. (Medium 41, 30°C)

2711 NCIM isolate (Medium 41, 30°C)

2712 NCIM isolate. Production of phytase. Gene bank no. AF298179. (Medium 41, 30°C)

2713 NCIM isolate (Medium 41, 30°C)

2717 Strain G5. Production of amylase. NCIB 8565. . Assay of dihydrostreptomycin sulfate, dihydrostreptomycin, streptomycin, tobramycin, and vancomycin.Pharmaceutical and Personal Care.(J. Biol. Stand. 10: 157-168, 1982.) (Medium 41,30°C)

2718 Strain ICI 2/4. Weak production of penicillinase. Assay of streptomycin, tobramycin and vancomycin (Brit. Pharmacopeia 1980, v.**2**, A123, 1980); tobramycin (J. Biol. Stand. **10**, 157, 1982) and penicillin, phenoxymethylpenicillin. ATCC 11774; DSM 2109; NCTC 8236; NCIB 8739 and 9269. (Medium 41, 30°C)

2724 NCIM isolate. Studies on protease. (Medium 41, 30°C)

2796 X-5 BSU RI (HaeIII) endo nuclease (1982).(Medium 41, 30°C)

2920 ATCC 6051; Type strain (J. Gen. Microbiol. **34**,270,1964). Bacterial resistance testing of latex paint (Dev. Ind. Microbiol. **20**, 25, 1979) Assay of antibacterial agents in urine. Blood screening of phenylketonuria (J. Bacteriol. **33**, 445,1937; J. Gen. Microbiol . **4**, 38,1950; Biochem. J. **69**, 403, 1958; Biochem. Biophys. Acta **76**, 410, 1963). Phage host. Marburg strain; DSM 10; NCIB 3610 (*Bacillus subtilis* subsp. *subtilis*) ; IFO 13719; ATCC 15563. (Medium 41, 30°C)

2921 ATCC 9372*; (B. subtilis* subsp. *niger; B. golbigii*) Red strain. Biological indicator for hot sterilization control (Biochem. Biophys. Acta **62**, 145, 1962); sterilizing effects of air borne sound waves (Appl. Microbiol.**14**, 732, 1966). Ethylene oxide and dry heat sterilization control (Brit. Pharmacopeia 1980). Production of inhibitors for glycoside hydrolase (L-deoxynojirimycin). NCIB 8058 (*Bacillus atrophaeus*) ; DSM 675;IFO 13 (Medium 41, 30°C)

2983 ATCC 15830 (*Brevibacterium luteum; Curtobacteriumleuteum*) Type strain.(K. Komagata 2Y - 12)(Int. J. Syst. Bact. **30**, 288, 1980; J.

Agr. Chem. Soc. Japan **38**, 499 and 503, 1964). Produces restriction endonuclease BluI,Produces restriction endonuclease BluII (K. Komagata 2Y - 12)(Int. J. Syst. Bact. **30**, 288, 1980; J. Agr. Chem. Soc. Japan **38**, 499 and 503, 1964) (Medium 41, 30°C)

5009 Strain BGSC lA510, Original code: PSL1 Genotype:arg A15 LeuA8 r(-) m(-) recE4step thrA. (Medium 41, 30°C)

5247 Deposited by Dr. S. Bhosale, Microbiology Department, Goa University. (Medium 41, 30°C).

5251 Deposited by Microexpress, Goa. Same as NCIM 2063. (Medium 41, 30°C).

5433 Deposited by Rajesh Sawhney, Department of Microbiology, Bhojia Institute of Life Sciences, Solan (H.P.). Strain No. RA-29. (Medium 41, 37°C).

Bacillus thuringiensis

5467 Deposited by Reshmi Raj, University of Kerala, Thiruvananthapuram (2012). Gene Bank Accession No. HQ832565 (Medium 41, 30°C)

***Bacillus thuringiensis* Berliner.**

2130 ATCC 10792 (1963) (*Bacillus cereus* subsp. *thuringienis*) Type strain (Ind. J. Syst. Bact. **30**, 258, 1980). Insect pathogen. (J. Gen. Microbiol. **13**, 474, 1955). NCIB 9134; DSM 2046;strain N.R. Smith 996; Mattes; CN 3624; LBG B-4034. (Medium 41, 30°C)

2159 Insect pathogen. Strain CCM-19. (Medium 41, 30°C)

2979 HD 187. Deposited by A. A. Khatri (Medium 41, 30°C)

5019 Insect pathogen. (Medium 41, 30°C)

5352 Deposited by Dr. Tapan SenGupta, IISER, Kolkatta (2010), Isolated from port water, Gene bank accession no. FJ897722, strain no. KPWP1, novobiocin and streptomycin resistant ((Medium 41, 37°C)

Bacillus thuringiensis* subsp. *aizawai

5116 BGSC 4J3 (1997). Serotype 7. Wild type isolate HD-133 (H.T.Dulmage). (Medium 41, 30°C)

Bacillus thuringiensis* subsp.*entomocidus

5111 Insect pathogen.(Medium 41, 30°C)

5117 BGSC 4J4 (1997). Serotype 6 or 7. (Medium 41, 30°C)

Bacillus thuringiensis* subsp. *finitimus

2977 Serotype 2. Deposited by A. A. Khatri Insect pathogen. (Medium 41, 30°C)

Bacillus thuringiensis* subsp. *galleriae

5112 Insect pathogen. (Medium 41, 30°C)

Bacillus thuringiensis* subsp. *israelensis

2513 Serotype 14. Deposited by A. A. Khatri. Toxic to dipteran larvae. (Medium 41, 30°C)

5132 Deposited by A.A. Khatri (Medium 41, 30°C)

Bacillus thuringiensis* subsp. *kenyae

2976 Serotype 4a, 4b. Deposited by A. A. Khatri. Insect pathogen. (Medium 41, 30°C)

Bacillus thuringiensis* subsp. *kurstaki

2514 Serotype 3a3b. Deposited by A.A. Khatri. Produces toxic crystals and spores. Toxic to lepidopteran larvae (Letts. Appl. Microbiol. **21**, 348, 1995) Protoplast preparation by lysozyme (Biotech. Letts. **11**, 717, 1989; Biotech. Techniq. **6**, 473, 1992). (Medium 41, 30°C)

5110 HD-73 Insect pathogen. (Medium 41, 30°C)

5118 BGSC 4D 21 (1997). Original code 4432 (pC 194). PC (194). Serotype 3a, 3b.(Arch Microbiol. **139**, 213, 1984).(Medium 41, 30°C)

Bacillus thuringiensis* subsp. *subtoxicus

2515 Serotype 6. Deposited by A. A. Khatri Insect pathogen. (Medium 41, 30°C)

2975 Insect pathogen. Deposited by A.A. Khatri. (Medium 41, 30°C)

Bacillus thuringiensis* subsp. *thompsoni

2978 Serotype 12. Deposited by A. A. Khatri. Insect pathogen. (Medium 41, 30°C)

***Bacillus zopfii* Kurth, Bericht**

2021 NCIM isolate (1950) (Medium 41, 30°C)

2354 NCIB 8603 (1971) (*Bacteirum zenkari*; *Kurthia gibsoni* strain DB-113). (Medium 41, 30°C)

BACTEROIDES

BACTEROIDES

Bacteroides fragilis

5273 Deposited by Microexpress, Goa (date), Quality control strain, Susceptibility testing (Int. J. Syst. Bacteriol. 26: 230-237, 1976.). MTCC 1045, NCTC 9343, ATCC25285, DSM 2151 (Medium 41, 37°C)

BEIJERINCKIA

BEIJERINCKIA Derx

***Beijerinckia indica* (Starkey and De) emend Derx 1950.**

(*Syn. Azotobacter indicus*).

2055 ATCC 9540 (1955). *B. indica* subsp. *indica* N2 fixation. Smith 57; D. Burk 10A: BUSCAV 354 IFO 3745;NCIB 8005. (Medium 5, 30°C)

2096 NCIB 8597 (1989). (*Beijerinckia indica* subsp. *indica*) Fixes nitrogen Strain Starkey 10.1: CDA 535; HMS M.B. 5.1; IFO 3744; DSM 724; BUSCAV 355; ATCC 9037. (Medium 5, 30°C)

***Beijerinckia lacticogenes* (Kauffmann and Toussaint)Techan.**

(*Syn. Azotobacter lacticogenes*).

2633 NCIB 8846 (1975). Deposited as (*A. indicus; B. indica* subsp. *lacticogenes*). Type strain (Int. J. Syst. Bact. **30**, 213, 1980). N2 fixation (Rev. Gen. Bot. **58**, 553, 1951). ATCC 19361; DSM 1719. (Medium 5, 30°C)

BORDETELLA

BORDETELLA Moreno - Lopez

***Bordetella bronchiseptica* (Ferry) Moreno-Lopez**.

5389 NCIMB 9935 (2009). ATCC 4617; DSM 10303 (Medium 41, 37°C)

5390 NCIMB 9936 (2009). ATCC 14455, mutant strain derived from NCIMB 9935 (Medium 41, 37°C)

Bordetella sp.

5428 Deposited by Dr. Kodam, Pune University (2011), Isolated from garden soil, Arsenate oxidation strain no. SPB-24 ((Medium 41, 30°C)

5372 Deposited by Nilesh Dahanukar, IISER, Pune (2010). Isolated from rusted iron pipes in Pashan Lake, strain no. IPJ1, Gene bank no. HM593901.1, degradation of ferrocene and its derivatives. (Medium 41, 37°C)

BRADYRHIZOBIUM

BRADYRHIZOBIUM

Bradyrhizobium japonicum

5350 NCIMB 11477 (2009); ATCC 10324; DSM 30131(Medium 25, 25°C)

BREVIBACTERIUM

BREVIBACTERIUM Breed

***Brevibacterium ammoniagenes* (Cooke and Keith) Breed.**

2268 ATCC 6871 (1970). Attacks urea (J. Bact. **13**, 315, 1927) Production of L-isoleucine (U. S. Pat. 3,262,861); 5'- inosinic acid (U. S. Pat. 3,268,415); 5'-ribosyl phosphates of 8-azapurine derivatives (U. S. Pat. 3,296,089). Phosphorylation of the OA-6129 group of carbapemem compounds (J. Antibiot. **38**, 333, 1985); Type strain (Int. Syst. Bact. **30**, 268,1980). Strain Cooke 9,6; NCTC 2398; NCIB 8143; DSM 2398 and 20306. (Medium 41, 30°C)

***Brevibacterium divericatum* Su and Yamuda**.

2634 NRRL B-2312 (1956).(*Corynebacterium* sp).Type strain (Int. J.Syst Bact. **30**, 268,1980); Production of L -glutamic acid (Bull. Agri. Chem. Soc., Japan, **24**, 69 and 140, 1960; U.S. Pat. 2,978,384 1961). ATCC 14020; NCIB 9379; DSM 20279.(Medium 41, 30°C)

***Brevibacterium immariophilium* Okumura et al**.

2237 NCIB 9544 (1959) (*Corynebacterium* sp).Type strain (NCDO monotypy : J. Agr. Chem. Soc. Japan **36**, 141,1962) Production of L-glutamic acid (U.S. Pat. 3,096,252; British Pat. 905,973).ATCC 14068; IFO 12185; Ajinomoto 2237. (Medium 41, 30°C)

***Brevibacterium imperiale* Steinahaus.**

2222 ATCC 8365 (1968). (*Microbacterium imperiale; Bacteri imperiale*). Type strain (J. Bact. **42**, 757, 1941; Int. J. Syst. Bact. **30**, 269, 1980). Strain 72; NCIB 9888; DSM 20530; IFO 12610 (Medium 41, 30°C)

***Brevibacterium linens* (Wolff) Breed.**

2149 NCIB 8546 (1964). (*Bacterium linens*). Production of flavin-adenine dinucleotid (U.S. Pat. 3,647,627). J. Bacteriol.**82**, 241, 1961. ATCC 9175; 739; Strain K.C; DSM 20426; IFO 12171. (Medium 41, 30°C)

***Brevibacterium liquefaciens* Okabayashi et al.**

2269 ATCC 14929 (1970).(*Corynebacterium liquefaciens*).Type strain (Int. J. Syst. Bact. **30**, 544, 1980); Produces adenylate cyclase

(J.Bact.**124**, 1106, 1975; ibid.,**84**,1, 1962). NCIB 9545 (*Arthrobacter nicotianae*); DSM 20579. (Medium 41, 30°C)

***Brevibacterium luteum* Komagata and Iizuka**

2923 ATCC 15830 (*Curtobacterium luteum*) Type strain (J. Agr. Chem. Soc. Japan **38**, 499 and 503-508, 1964). See *Curtobacterium luteum* (Medium 41, 30°C).

***Brevibacterium roseum* Okumura et al.**

2270 NCIB 9564 (1970). (*Corynebacterium* sp). Production of L-glutamic acid (U.S.Pat. 3,117,915; British Pat.905,973 and 935,607). ATCC 13825; Aijnomoto 7. (Medium 41, 30°C)

***Brevibacterium saccharolyticum* Okumura et al.**

2238 ATCC 14066 (1969). Type strain (monotypy : J. Agr. Chem. Soc. Japan **36**, 141, 1962). Production of L-glutamic acid (U.S.Pat. 3,117, 915; British Pat. 905,973 and 935,607). Ajinomoto 7636. (Medium 41, 30°C)

***Brevibacterium vitarumen* (Bechdel et al) Laneelle**

2330 NCIB 9291 (1971).(*Flavobacterium vitarumen; Corynebacteriumistarumen*; *Corynebacterium vitaeruminis*) Type strain Reduces 3-methoxy-8(14)-seco-1,3,5(10),9(11)-estratetraene-14,17-dione (Int. J. Syst. Bact. **30**, 542, 1980). ATCC 10234; CCEB 252; DSM 20294; IFO 12143 (Medium 41, 30°C)

BRUCELLA

BRUCELLA

Brucella abortus

5282 Deposited by Microexpress, Goa (2010) (Medium 41, 37°C)

Brucella melitensis

5283 Deposited by Microexpress, Goa (2010), strain no. M16 (Medium 41, 37°C)

BURKHOLDERIA

BURKHOLDERIA

Burkholderia cepacia

5465 ATCC 25416, MTCC 438 (2012) (Medium 41, 30°C)

CELLULOMONAS

CELLULOMONAS Bergey et al. emend. Clark.

***Cellulomonas biazotea* Kellerman et al.**

2550 NCIB 8077 (1974).Type strain (Int J. Syst. Bact. **30**, 272, 1980). Cellulose and cellulosic textiles degradation.NCIB 8978; N.R. Smith 127; QM B-525; ATCC 486. DSM 20112.(Medium 13 or 42, 30°C)

***Cellulomonas bibula* (McBeth and Scales) Bergey et al.**

2333 NCIB 8142 (1971). (*Bacterium bibum*) Unidentified bacterium. Decomposes cellulose.N.R. Smith 122; ATCC 483. (Medium 13 or 42, 30°C)

***Cellulomonas cartae* Stackebrandt and Kandler**

2551 Type strain (Int. J. Syst. Bact. **30**, 186, 1980). Cellulose degradation; Production of single cell protein (U. S. Pat. 3,778,349) (Medium 13 or 42, 30°C)

***Cellulomonas fimi* (McBeth and Scales) Bergey et al.**

5015 MTCC 24 (1988).Type culture (Int J. Syst. Bact. **30**, 273, 1980). Cellulose degradation (J. Gen. Microbiol. **130**, 1385, 1984). ATCC 484; DSM 20113; NCIB 8980 (*Curtobacterium* sp.); NCTC 7547. (Medium 13 or 42, 30°C)

***Cellulomonas flavigena* (Kellerman and McBeth) Bergey et al.**

2481 NCIB 8073 (1973).Type strain (Int. J. Syst Bact. **30**, 273, 1980); Cellulose and xylanolytic degradation. N.R.Smith 134; ATCC 482; IFO 3754; DSM 2010 (Medium 13 or 42, 30°C)

***Cellulomonas gelida* (Kellerman et al) Bergey et al**.

2482 NCIB 8076. Type strain (Int. J. Syst. Bact. **30**, 273,1980). Decomposes cellulose. N. R. Smith 126; ATCC 488; DSM 20111; IFO 3748 (Medium 13 or 42, 30°C)

2483 NCIB 8075 (1973).Type strain (Int. J. Syst. Bact. **30**, 273,1980); Cellulose and cellulose textiles degradation. (J. Gen. Microbiol. **110**, 127, 1979) N.R. Smith 129; ATCC 489; DSM 20110.(Medium 13 or 42, 30°C)

***Cellulomonas uda* (Kellerman et al.) Bergey et al**.

2353 ATCC 21399 (1971) Deposited by V. R. Srinivasan (*Cellulomonas* sp). Produces active cellulase with cellobiose as final breakdown product (Appl. Microbiol.**16**,1140, 1968); xylanse and intracellular β-glucosidase (Appl. Environ. Microbiol. **55**, 2685, 1989); production of edible protein (for use as animal feed stuff) for cellulose in conjuction with *Agrobacterium* sp ATCC 21400 (U. S. Pat. 3,627,095); Production of single cell protein (U. S. Pat. 4,278,766) NCIB 11494 (*Agrobacterium* sp.) (Medium 13 or 42, 30°C)

5351 NCIMB 11497 (2009). Same as NCIM 2353 (Medium 13 or 42, 30°C)

CHAINIA

CHAINIA

***Chainia* sp.**

2980 Isolated and deposited by M.C.Srinivasan. Produces cellulase free xylanase (Biotech. Lett. **11**, 715, 1984; Am.Chem.Soc.Sym.Series **460**, 417, 1991) and extracellular glucose (xylose) isomerase (Biotech. Lett. **5**, 611, 1983; ibid., **6**, 493, 1984; Appl. Biochem. Biotechnol. **23**, 41, 1990). (Medium 29, 30°C)

CHROMATIUM

CHROMATIUM Perty.

***Chromatium* sp.**

2336 NCL, Teddington (1971). Application of bacterial photosynthesis. Tiber strain; NCIB 8348 (*Chromatium vinosum*).(Medium 41, 30°C)

CHROMOBACTREIUM

CHROMOBACTERIUM Bergonzini.

***Choromobacterium lividum* (Eisenberg) Holland.**

(See *Janthinobacterium lividum*)

Chromobacterium sp.

***5341** Deposited by Dr. Krishnakumar, NIIST, Thiruvananthapuram (2009). Isolated from clay mine lake sediment, Gene accession no. FJ982784 (Medium 26, 35°C)

CITROBACTER

CITROBACTER Werkman and Gillen

***Citrobacter fruendii* (Braak) Werkman and Gillen**

2488 NCIB 3735 (1973). (*Escherichia intermedia*). Production of trimethylene glycol from glycerol (J. Bact. **23**, 167, 1932). ATCC 8454; IFO 13546; NCTC 3735. (Medium 41, 37°C)

2489 NCTC 7020 (1973). (*Escherichia coli; Escherichia intermedia*) Decarboxylation and assay of arginine (Nature **41**,vii, 1947; Biochem. J. **58**, 480, 1954; J. Med. Lab. Tech. **20**, 26, 1963). ATCC 10787(*C. braakii*); BUCSAV 193; NCIB 7020.(Medium 41, 37°C)

2578 NCIB 6071 (1974). IFO 13547; NCTC 6071. (Medium 41, 37°C)

5315 Deposited by Microexpress, Goa (date). ATCC 8090 (Medium 41, 37°C)

CLOSTRIDIUM

CLOSTRIDIUM Prazmowski 1880.

***Clostridium acetobutylicum* McCoy et al.**

2841 R-S Wolf strain (1952). (Medium 9 or 10, 37°C, Anaerobic)

2842 W-15; B-32 (1952). (Medium 9 or 10, 37°C, Anaerobic)

2877 NRRL 13 - 591 Acetone butanol and ethanol fermentation. (Medium 9 or 10, 37°C, Anaerobic)

2878 NRRL B - 594 Acetone, butanol and ethanol fermentation. ATCC 10132. (Medium 9 or 10, 37°C, Anaerobic)

2879 PRL A-1. Acetone butanol fermentation. (Medium 9 or 10, 37°C, anaerobic)

2918 DSM 1732 Production of butanol, acetone and assay of p - aminobenzoic acid (J. Med. Lab. Tech. **20**, 26, 1963; J.Ind. Microbiol. **3**, 49, 1988); Produces autobacterium (Curr. Microbiol. **13**, 163, 1986); degradation of xylan (Appl. Environ. Microbiol. **50**, 1068, 1985) (Medium 9 or 10, 37°C, anaerobic)

***Clostridium butyricum* Prazmowski**

2825 PRL A-6 (Medium 9 or 10, 37°C, Anaerobic)

Clostridium felsineum* (Carbone & Tombolato) Bergy *et. al.

2836 NCIB 9540. ATCC 17789; L.S. McClung 638. (Medium 9 or 10, 37°C, Anaerobic)

2845 Same as NCIM 2836.

***Clostridium pasteurianum* Winogradsky**

2880 PRL A-5 (1952) . (Medium 9 or 10, 37°C, Anaerobic)

2882 NRRL (1952). (Medium 9 or 10, 37°C Anaerobic)

Clostridium perfringens* (Veillon & Zuber) Hauduroy *et. al.

2677 ATCC 13124. (*Clostridium welchii*). Type strain. (Int. J. Syst. Bact **30**, 282,1980) (J. Appl. Bact. **22**, 1, 1959). Production of phospholipase C, haemolysins and lethal toxins (J. Gen. Microbiol. **96**, 137, 1976). Type A, alpha-toxigenic, produces lecithinase C., ATCC 19408, NCTC 6125 DSM 2720 (Medium 9 or 10, 37°C Anaerobic)

Clostridium roseum* (McCoy & McClung) Cato *et. al.

2840 ATCC 17797 (1952). Type strain (Int. J. Syst. Bact. **38**, 220, 1988). L.S. McClung 653; DSM 51. (Medium 9 or 10, 37°C, Anaerobic)

2844 PRL B-575 Recd. from USDA Illinois (1959) (Medium 9 or 10, 37°C, Anaerobic)

2881 NRRL-2 (1952) (Medium 9 or 10, 37°C, Anaerobic)

Clostridium sporogenes* (Metchnikoff) Bergey *et al.

2337 Earlier deposited as *Clostridium acetobutylicum*. Reidentified as *Clostridium sporogenes* in 2013 by molecular sequencing analysis. NCIB 8052 (1971) (*Clostridium beijerinckii*) Type strain (Int. J. Syst. Bact. **30**, 277, 1980); Production of butanol, acetone and assay of p - aminobenzoic acid (J. Med. Lab. Tech. **20**, 26, 1963; J.Ind. Microbiol. **3**, 49, 1988); Produces autobacterium (Curr. Microbiol. **13**, 163, 1986); degradation of xylan (Appl. Environ. Microbiol. **50**, 1068, 1985) Elizaeth McCoy and McClung W; ATCC 824; ATCC 51743. (Medium 9 or 10, 37°C, Anaerobic)

2559 NCIB 8053 (1974) Putrefaction (J. Infect. Dis. **60**, 1938; *ibid,* **11**, 405, 1946). Preparation of cleaned spores (J. Bact. **89**, 929, 1965). Sterility testing (British Pharmacopoeia 1980. Addendum 1983, p. A58, 1983). NCA 3679; ATCC 7955, NCTC 8594, DSM 767 (Medium 9 or 10, 37°C, Anaerobic)

2560 Long Ashton Res. Station, University of Briston, U.S.A. Putrefaction. NCIB 8053 and 8243, NCTC 8594, ATCC 7955 (Medium 9 or 10, 37°C, Anaerobic)

2824 Strain 603 Recd from Department of Bacteriology Queen's University of Kingston, Ontario (1959).(Medium 9 or 10, 37°C, Anaerobic)

5113 ATCC 11437 (1995). Sterility testing (U.S.Pharmacopiaea, 21st rev., pp.1156-1157,1985). NCIB 12343 (Medium 9 & 10, 37°C Anaerobic)

5114 ATCC 3584 (1995) .Type strain.(Int. J. Syst. Bact. **30**, 283, 1980). Sporocidal testing (AOAC Methods 4.033-4.035, 1984). Sterility assurance, Testing, Testing disinfectants, Quality control of ENDO-SPOR™ hydrogen peroxide sterilization IFO 13950. (Medium 9 or 10, 37°C, Anaerobic)

5125 ATCC 19404 (1995) Sterility testing (British Pharmacopoiea 1980, v. 2, p. A186, 1980). NCIB 532, DSM 1664, NCTC 532 (Medium 9 or 10, 37°C, Anaerobic)

Clostridium tetanomorphum* (Bulloch *et al.*) Bergey *et al.

2132 University of California U.S.A. (1963). Isolation of coenzyme forms of vitamin B12.(J. Biol. Chem., **235**, 181, 1960; ibid, **239**, 3260, 1964) (Medium 9 or 10, 37°C, Anaerobic)

2835 DSM 528 (1982) Used for isolation of coenzyme forms of B_{12} vitamins. (J. Biol. Chem. **235**, 181, 1960; *ibid*, **239**, 3260, 1964). Production of β-methyl aspartase (Methods in Enzymology S.P.Kolowik and N.O.Kaplan, eds., volume **V**, pp. 827-832, Academic Press, N. Y., 1962). Glutamate fermentation (J. Bact. **117**, 1248, 1974). (Medium 9 or 10, 37°C, Anaerobic)

COHNELLA

COHNELLA

***Cohnella* sp**

5498 Deposited by Dr. Syed Dastager, NCL (2013). Isoalted from Veraval coast, Gujrath. GeneBank No.KF 413430 (Medium 69, 30-37°C)

CORYNEBACTERIUM

CORYNEBACTERIUM Lehmann and Neumann

Corynebacterium glutamicum

(See *Micrococcus glutamicus*)

***Corynebacterium* rubrum A. J. Crowle**

2253 ATCC 14898 (1972).(*Gordona rubropertinctus; Nocardia corynebacteriodes*) High lipid content; useful as an immunologic adjuvant (Anotonie van Leewenhock, **28**, 183, 1962). Type strain (Int. J. Syst. Bact. **30**, 337, 1980). Taxonomy (J. Gen. Microbiol. **70**, 339, 1980) NCIB 9433; IFO 14404; DSM 20151; NCTC 10391. (Medium 41, 30°C or 37°C)

***Corynebacterium* sp.**

2640 1966 Deposited by M.R. Raghavendra Rao From Dr. I.C.Gunsalus University of Illinois (Medium 41, 30°C)

5212 ATCC 9739. (*Corynebacterium pseudodiphthericum*). NCTC 7550. (Medium 41, 30°C).

CURTOBACTERIUM

CURTOBACTERIUM

***Curtobacterium luteum*(Komagata and Lizuka) Yamada and Komagata**

2923 ATCC 15830; (*Deposited as Brevibacterium luteum*) Type strain (Int. J. Syst. Bact **30**, 288,1980); Restriction endonucleases BluI & BluII (Nucleic Acids Res. **10**, 117, 1985). See also *Brevibacterium luteum. Brevibacterium luteum* DSM 2054 (Medium 41, 30°C)

CYTOPHAGA

CYTOPHAGA Winogradsky.

***Cytophaga hutchinsonii* Winogradsky**.

2338 Bhavan's College, Bombay (1971) Cellulolytic strain. (Medium 11, 37°C)

DEINOCOCCUS

DEINOCOCCUS

Deinococcus sp.

5456 Deposited by Dr. Syed Dastager (2012). DSM 25127; NIO 1023. Gene bank no. HQ858011. (Medium 41, 30°C)

DESULFOVIBRIO

DESULFOVIBRIO Kluyver and van Niel.

***Desulfovibrio desulfuricans* (Beijerinck) Kluyver and van Niel**

2047 NCL, Teddington (1953). *Desulfovibrio vulgaris* subsp. *vulgaris*. Produces soluble and stable hydrogenase; iron removal from solutions; metal sulfide formation (J. Gen. Microbiol, **5**, 714, 1951; Biochim. Biophys. Acta **19**, 440,1 956); Appl. Microbial., **11**, 265, 1963); Type strain (Int. J. Syst. Bact. **30**, 291,1980) ATCC 29579; NCIB 8303; DSM 644 (Medium 4, 37°C Anaerobic)

***Desulfotomaculum nigrificans* (Werkman and Weaver) Campbell and Postgate**

2834 NCIB 8788 (1971). Deposited as *Clostridium nigrificans*. DSM 7438 (Medium 4, 55°C, Anaerobic)

DIETZIA

DIETZIA

***Dietzia* sp**

5497 Deposited by Dr. Syed Dastager, NCL (2013). Isolated from Chorao island, Goa. GeneBank No. KF 413429 (Medium 69, 30-37°C)

ENTEROBACTER

ENTEROBACTER Hormaeche and Edwards.

***Enterobacter aerogenes* Hormaeche and Edwards.**

2340 NCIB 366 (1971) (J. Bacteriol. **68** ,680,1954).NCMB 366; McLeed Strain A - 29. (Medium 41, 30°C)

2692 NCIM isolate (*Aerobacter aerogenes)* (Medium 41, 30°C)

2693 NCIM isolate (*Aerobacter aerogenes)* (Medium 41, 30°C)

2694 NCIM isolate (*Aerobacter aerogenes)* (Medium 41, 30°C)

2695 NCIM isolate (*Aerobacter aerogenes)* (Medium 41, 30°C)

5139 MTCC 111 (2000). (*Aerobacter aerogenes).* Type strain (Int. J. Syst. Bact. **30**, 293, 1980). Assay of antimicrobial preservatives (ANSI/ASTM E640-78). Bacterial resistance testing of latex paint (Dev Ind. Microbiol. **20**, 25, 1979). Pathogenic, fermentative co-metabolism of r-HCH. NCIB10102; ATCC13048; DSM30053; IFO 13534; JCM 1235; NCTC 10006. (Medium 41, 30°C)

5267 Deposited by Microexpress, Goa (2010). Same as NCIM 5139 (Medium 41, 30°C)

***Enterobacter cloacae* (Jordon) Hormaeche and Edwards.**

2014 NCIB 8151 (1950).(*Aerobacter cloacae*) (J. Bacteriol.**51**, 19, 1946).Strain PC 3B; ATCC 10699, BUCSAV 323 . (Medium 41, 30°C)

2015 NDRI, Bangalore (1950). (Medium 41, 30°C)

2164 NRC, Division of Applied Biology, Canada. (1965). Production of 2-3, butanediol; phosphorylation of xylose (Can. J. Technol. **29**, 413, 1951; Nature, Lond. **170**, 357, 1952) ; NCIB 8529; NRC 492. (Medium 41, 30°C)

2562 NCIB 8530 (1974). Production of 2,3-butanediol (Can. J. Microbiol. **29**, 413 (1951); Can. J. Microbiol., **6**, 591, 1960). NRC 491; (Medium 41, 30°C)

2661 NRC 3008. (Medium 41, 30°C)

2690 NCIM isolate (*Aerobacter cloacae)* (Medium 41, 30°C)

2691 NCIM isolate (*Aerobacter cloacae)* (Medium 41, 30°C)

2696 NCIM isolate (*Aerobacter cloacae)* (Medium 41, 30°C)

Enterobacter sp.

5221 VKGH12, Gulberga University(2005).Deposited by Dr. Karegoudar. Isolated from soil. Alkanol degradatrion. Adapted to toxic compounds (Extremophiles **9,** 163-168, 2005) (Medium 41, 30^{o}C)

5392 Deposited by Mital Jadhav, Shivaji University, Kolhapur (2010). Strain no. MS 16, Gene bank accession no. GU325715, Biosurfactant production (Medium 41 30°C)

ENTEROCOCCUS

ENTEROCOCCUS

Enterococcus durans

5427 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2011). Isolated from fermented vegetables, production of bacteriocin, pediocin PA-1, Strain no. RL10 (Medium 14 or 32, 37°C)

Enterococcus faecalis

5253 Deposited by Microexpress, Goa (2010). Same as 5025 (Medium 14 or 32, 37°C)

5443 Deposited by Dr. Utpal Roy, BITS Pillani, Goa (2012). Isolated from penguin rookery sample from Antarctica, Gene bank accession no. HM481246,strain no. APR210 (Medium 14 or 32, 37°C)

Enterococcus faecium

5335 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2009). Strain no. HAB01, Gene bank no. FJ418568 (Appl. Microbiol. Biotechnol. 83, 757, 2009) (Medium 14 or 32, 37°C)

5336 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2009). Strain no. HAB02 (Medium 14 or 32, 37°C)

5363 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2010). Isolated from fish processing waste, Strain no. VLP1 (Medium 14 or 32, 37°C)

5364 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2010). Isolated from fish processing waste, Strain no. VLP2 (Medium 14 or 32, 37°C)

5365 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2010). Isolated from fish processing waste, Strain no. RLB (Medium 14 or 32, 37°C)

5366 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2010). Isolated from fish processing waste, Strain no. RLL (Medium 14 or 32, 37°C)

5367 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2010). Isolated from fish processing waste, Strain no. FJ1 (Medium 14 or 32, 37°C)

5421 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2011). Isolated from fermented vegetables, Strain no. V3 (Medium 14 or 32, 37°C)

5422 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2011). Isolated from fish processing waste, Strain no. BL1 (Medium 14 or 32, 37°C)

5423 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2011). Isolated from fish processing waste, Strain no. Acr4. Gene bank no. JQ434263/262 (Medium 14 or 32, 37°C)

Enterococcus hirae

2611 NCIB 8192 (1974).(*Enterococcus durans; Enterococcus faecium; Streptococcus faecium*). Turbiditimetric assay of tyrothricin (Antibiot. Chemother. **7**, 639, 1957; Code of Federal Regulations, Title 21, Part 436, 1987) and gramicidine (ibid.; U. S. Pharmacoepeia, 21st rev, pp1160-1165, 1985). Assay of thiostreptone (Analytical Microbiology, vol. **2**, F. Kavanagh, ed. Academic Press, New York, pp 351-352, 1972). Strain FDA M-19; PCI 1341; ATCC 10541; DSM 3320. (Medium 14 or 32, 37°C)

5299 Deposited by Microexpress, Goa (2010). Same as 2611 (Medium 14 or 32, 37°C)

5318 Deposited by Microexpress, Goa (2010). Same as NCIM 2080 (Medium 14 or 32, 37°C)

5416 NCIMB 8192 (2009). Same as NCIM2611 ((Medium 14 or 32, 37°C)

ERWINIA

ERWINIA

Erwinia chrysanthemi* Burkholder *et. al.

5213 ATCC 11663. (*Pectobacterium chrysanthemi)*. Type strain (Int. J. syst. Bacteriol. **30**, 225, 1980; *ibid*, **49**, 1, 1999). (Medium 41, 30°C).

ESCHERICHIA

ESHERICHIA Castellania and Chalmers.

***Escherichia coli.* (Migula) Castellani and Chalmers**

2064 Strain V 517 having 8 (ccc) plasmids Deposited by Santosh Kumar (Medium 41, 37°C)

2065 ATCC 8739 (1956).Assay of antimicrobial preservatives in parental and ophthalmic preparations (U. S. Pharmacopeia, 21st rev., p1151, 1985; Brit. Pharmacopoeia 1980, addendum 1986, pp. A109-A110, 1986); Media testing (ibid., pp.106-A107, 1986); Reduces de-hydro-ascorbic acid (J. Biol. Chem. **141**, 853, 1941) Assay of anti-microbial agents in aqueous metal working fluids (ASTM E686-80); used in preservative-testing of parental and ophthalmic preparations.

NCIB 8545; Strain Crookes; DSM 1576; IFO 3972; NCIM 2140. (Medium 41, 37°C)

2066 ATCC 10799 (1956).UV mutant of strain W (ATCC 9637) Assay of vitamin B12 (J. Soc. Chem Ind., Land **28**, 561, 1950; J. Med. Laboratory Tehnol., **20**, 26, 1963). NCIM 2350 and 2400 NCIB 8134; Davis113-3 C181; DSM 4261 (Medium 41, 37°C)

2067 ATCC 4157 (1956). Lysine decarboxylase (Biochem. J. **38**, 232, 1944; J. Bacteriol. **85**, 1061, 1963); Original Escherich strain. contains both smooth and rough colonies. Estimation of arginine, glutamic acid and histidine. Produces amino acid decarboxylases. Disinfectant test strain. Quality control strain for Sensititre products Not suitable for Eijkman test. NCTC 86, NCIB 86; Strain *Escherichia*. (Medium 41, 37°C)

2068 ATCC 11105 (1956). Derived from ***E. coli*** strain W (ATCC 9637). Turbidimetric assay of vitamin B12 (Science, **114**, 459,1951; J. Bacteriol. **104**, 1958); Not recommended for Vit B12 assay as per ATCC catalogue, 1989 edition. Davis 113-3; BUSCAV 429.. (Medium 41, 37°C)

2089 University of Illinois, USA (1958). Classical host for range of virulent phages T1-T7; prototrophic and streptomycin-sensitive (J. Bacteriol. **83**, 720, 1962). StrainB; NCIB 9484. NCTC 10537. Medium 41, 37°C)

2109 Haffkine Institute, Bombay (1960). Requires methionine. Strain F+. (Medium 41, 37°C)

2110 Haffkine Institute, Bombay (1960). Requires methionine. Strain F-. (Medium 41, 37°C)

2118 Biology and Medicine Division. Atomic Energy Establishment, Bombay (1961). Classical high frequency chromosome donor on conjugation; requires B1; sensitive to streptomycin and phages T1 and T6; lysogenic for phage lambda. (Cold spring Harbour Symp. Quant. Biology.,**18**, 75,1953;"Sexuality and the Genetics of Bacteria", London, Academic Press; Nature, Lond. **200**, 384, 1963). Strain K12; Hfr H. (Medium 41, 37°C)

2133 NCIB 8110 (1963). Requires nicotinamide or nicotinic acid (J. Bacteriol. **48**, 401, 1944); Strain 303-138; ATCC 9723b; BUSCAV 431. (Medium 41, 37°C)

2134 Requires thiamine. Strain 754T-171; ATCC 9723c; BUSCAV 432. (Medium 41, 37°C)

2135 NCIB 8112 (1963). Requires threonine. (J. Bacteriol. **48**, 401, 1944). Strain 558-228; ATCC 9723d; BUSCAV 432. (Medium 41, 37°C)

2136 NCIB 8113 (1963). Requires glycine or serine (J. Bacteriol. **48**, 401, 1944). Strain 403-230; ATCC 9723e; BUSCAV 384. (Medium 41, 37°C)

2137 NCIB 8242 (1963). Assay of purine. UV mutant from ATCC 9661. Strain No. 9661-01. (Medium 41, 37°C)

2138 NCIB 8522 (1963). Assay of platulin (claviformin) (Can. J.Res. E **24**,1, 1946). Strain CC 201; NRC 482; No.117. (Medium 41, 37°C)

2139 NCIB 8571 (1963). Estimation of ornithine by means of ornithine decarboxylase (J. Bacteriol.,**64**, 455, 1952; J. Med. Lab. Technol. **20**, 26, 1963). BUSCAV 430. (Medium 41, 37°C)

2140 NCIB 8545 (1963). Same as NCIM 2065.

2184 J.M-83 Host. Received from Department of Bacteriology. E. B. Fred Hall.Madison.Wiscosin. (Medium 41, 37°C)

2256 NCTC 9002 (1987). Serotypes; Pathogenic to chicks, British Pharmacoepcia 1973 Appendix XV1 Bp. A121. U 9/41;cn 4383. (Medium 41, 37°C)

2272 CPHERI-I (1970). (Medium 41, 37°C)

2274 Department of Biological Sciences, Stanford University, California, B-8 mutant (1970). Estimation of lambda-subunits of tryptophane synthetase. (Medium 41, 37°C)

2275 Department of Biological Sciences, Stanford University, A-2 mutant (1970). Estimation of B-2 subunits of tryptophane synthetase. (Medium 41, 37°C)

2341 NCIB 8581 (1971). Requires phenyl-alanine. Strain 632-460; ATCC 9723f. (Medium 41, 37°C)

2342 ATCC 9723g (1971). Requires uracil, cytosine or isocytosine. Strain 550-460; NCIB 8582; BUSCAV 382. (Medium 41, 37°C)

2343 NCIB 8876 (1971). Assay of arginine. (J. Bacteriol. **48**, 401, 1944). Strain 1572-228; ATCC 9661; BUSCAV 427. (Medium 41, 37°C)

2344 NCIB 8877 (1971). Assay of methionine. (J.Bacteriol. **48**, 401, 1944). Strain 532-171; ATCC 9663; BUSCAV 428; DSM 46333 (Medium 41, 37°C)

2345 NCIB (1971). Assay of chloroamphenicol and spectinomycin (U.S. Pharmacopiea, 21st rev., pp.1160-1165, 1985; Code of Federal Regilations, Title **21**, Part 436, 1987); tetracyline and tetracycline hydrochloride (ibid) rifamycin (Brit. Pharmacopiea 1980,v.**2**,p. A124, 1980) and spectinomycin (ibid., Addendum 1982, p.A12, 1982). Turbidimetric assay of chloramphenicol, polymyxin, tetracycline, chlortetracycline and oxytetracycline in pharmaceutic preparations (Antibiot. Chemother.**7**,189 and 639,1957; ibid, **12**, 545, 1962; J. Bacteriol. **54**, 549, 1947). ATCC 10536; NCTC 10418. (Medium 41, 37°C)

2346 NCIB 9132 (1971). Used in disinfectant assay and evaluation of quaternary ammonium compounds. Used for control in Eijkman test. NCTC 5934; Strain 107. (Medium 41, 37°C)

2347 NCIB 9342 (1971). Commercial production of L-lysine. (U.S. Pat 2,771,396). Produces diaminopimelic acid. Strain Pfizer 1965-108; ATCC 12408. (Medium 41, 37°C)

2348 NCIB 8583 (1971). Requires thymine. Assay of thymine. (Biochem. Biophys. Acta. **53**, 132, 1961; J. Med. Lab. Technol. **20**, 26, 1963; J. Gen. Phys. **40**, 73, 1956). ATCC 9723h; R.R.Roepke 70-462; BUSCAV 383. (Medium 41, 37°C)

2349 NCIB 8584 (1971).Decarboxylates lysine, histidine, glutamine and arginine. (Fed. Proc.**11**, 264, 1952). ATCC 11246. (Medium 41, 37°C)

2350 NCIB 8134 (1971). Same as NCIM 2066 and 2400. (Medium 41, 37°C)

2400 HAL-61 (1971) 8879 Acylase activity; assay of vitamin B12. Same as NCIM 2066 and 2350. ATCC 10799; NCDO 744; Strain Davis C-181. (Medium 41, 37°C)

2563 NCIB 8666 (1974) Oxidative phosphorylation; assay of streptomycin and streptothricin (J. Bacteriol. **76**, 104, 1058, 1962; J.Bacteriol. **84**, 1148, 1962; Biochim. Biophys. Acta, **78**, 52, 1963); assay of colistin (British Pharmacopoeia 1980, Addendum 1986, p. A98, 1986); deacylation of benzyl-and phenoxymethyl penicillin tetrazoles (U.S.Pat. 3,905,868); diaminopimelate decarboxylase activity (J. Gen. Microbiol. **96**, 51, 1976); production of cephalosporins by conversion (U. S. Pat. 3,945,888); 6 aminopenicillanic acid amides (U. S. Pat. 3,088,880); 6-aminopenicillanic acid (U.S. Pat. 3,239,427); ampicillin production (Ind. J. Expt. Biol. **32**, 672, 1994) Strain W; ATCC 9637; DSM 1116. (Medium 41, 37°C)

2564 NCIB 8949 (1974) Requires serine, glycine or histidine. Strain M 42-24; HMS P.A.1.14.(Medium 41, 37°C)

2565 NCIB 8950 (1974) Requires histidine, serine and glycine. Strain K-12 mutant; Lederberg W-826; HMS P.A. 1.16 (Medium 41, 37°C)

2566 NCIB 9264 (1974) Assay of panthenol in pharmaceutical preparations (Anal.Chem., **32**, 1662, 1960; Pharmazie, **17**, 529, 1962) Strain 99-4. (Medium 41, 37°C)

2567 NCIB 9270 (1974) Assay of vitamin B12 by the cup-plate method. Supposed varient (improved zone definition at 27°C) of but possibly same as C181=NCIB 8134) ATCC 14169; M-200. (Medium 41, 37°C)

2568 NCIB 9464 (1974) Production of amidase. Strain C14/63. (Medium 41, 37°C)

2569 NCIB 9465 (1974) Production of amidase. Strain C15/63. (Medium 41, 37°C)

2570 NCIB 9466 (1974) Production of amidase. Strain C33/63. (Medium 41, 37°C)

2571 NCIB 9472 (1974) (Unnamed enterobacteriaceae) Formation of β-lactamase; hydrolyses most penicillins including methicillin.Strain C-48. (Medium 41, 37°C)

2572 Department of Biological Sciences, Stanford University, California Strain (1974) Possesses high indole glycerol phosphate synthetase activity. Strain A2/F'A2 . Medium 41, 37°C)

2573 NCIB 8109 (1974) Requires p-aminobenzoic acid (J. Biol. Chem.**164**, 789, 1986; Can. J. Microbiol. **8**, 429, 1962) Strain 273-384; ATCC 9723a; BUSCAV 192.(Medium 41, 37°C)

2574 PRL R-2 (1974). Anibiotic assay. (Medium 41, 37°C)

2575 PRL 34 (1974). Accumulates dehydroshikimic acid. (Medium 41, 37°C)

2576 PRL 36 (1974). Assay of shikimic acid. (Medium 41, 37°C)

2642 594 λ CI 857, S7. Deposited by N.C. Mandal, Bose Institute, Calcutta (1980). Lytic upon phage induction. Temperature sensitive. (Medium 26, 30°C)

2644 T4 λ lysogen, with T4 DNA ligase gene. For purification of *E. coli* : T4 DNA ligase enzyme. Deposited by Gopinathan. I.I. Sc. Bangalore. (Medium 26, 30°C)

2645 HB 101 with pBR 322. *E. coli* HB 101 host harbouring plasmid pBR 322 (Ampicillin and tetracylinR. Deposited by Gopinathan. I.I. Sc. Bangalore. (Medium 26, 37°C)

2662 1965 Tipo I-34. From collection De cultivas Microbianos Universidad De Buenos Aires, N.E. Cordel. (Medium 41, 37°C)

2664 C7 M.CE- Deficient in UDPG-4-epimerase (PNSA **48**, 21487, 1962). (Medium 41, 37°C)

2665 ATCC 27325. Derived from strain K-12. Lambda-, F-, prototrophic.transformation host Strain W 3110. (Medium 41, 37°C)

2666 ATCC 27161. J. Lederberg. W 3104 Gal-4 (galT). Derived from *E. coli* strain K-12 established as standard tester for Gal4 (GalT) in transduction homology tests. (Medium 41, 37°C)

2674 K12 W3092(K-). Deposited by A. Rapin Harward University Cambridge(1966).Deficient in galactokinase. (Proc. Natl. Acad. Sci. **45**,1776, 1959). (Medium 41, 37°C)

2680 ATCC 13024 (1968) L-Lysine-requiring auxotroph. Production of diaminopimelic acid (U.S. Patent 2,968,594). (Medium 41, 37°C)

2681 ATCC 14561(1968) Derived from ATCC 9637.Requiress either pantothenic acid or pantoic acid. (Medium 41, 37°C)

2682 P-881. (Medium 41, 37°C)

2683 W 4597. Received from A. Rapin, Harward University, Cambridge (1966).(UDPG-pp-) Gal 23 , Deficient in UDPG pyrophosphorylase. (Medium 41, 37°C)

2684 Received from R.F. Gesteland Harward University Cambridge, Mass U.S.A., 6-3-1968. Production of RNase I. (Medium 41, 37°C)

2685 Host MS2. (Medium 41, 37°C)

2686 K-10. (Medium 41, 37°C)

2687 Received from Dr.Omprakash, Columbia University N.Y. (1977) K12 Leu- Thr- contains no plasmids. (Medium 41, 37°C)

2688 EcoRI, RY13. (Medium 41, 30°C)

2735 Green Deposited by D. N. Deobagkar (1980) *E coli* host for phage O 174 and to obtain single stranded phage DNA (unreplicated form) (Medium 26, 37°C)

2739 (Strain 00258 Y-Mcl). Reced from Dr. R.J. Sharp, Microbiol.Res. Establishment, U.K.Witshire (1981) Indicator strain for phage C1857 ts. (Medium 26, 37°C)

2803 (Strain CR-63). Wild type. (Medium 26, 37°C)

2804 (Strain Ry-13). For the production restriction endonuclease Eco RI. Same as NCIM 2688 (Medium 26, 37°C)

2805 (Strain BHB 2688) A bacteriophage lambda lysogen used to prepare packaging extract. (N 205 rec A-, lambda imm434, cIts, b2, red Mandal , Eam, Sam lambda). (Medium 26, 37°C)

2806 (Yellow strain) Special host for phage O x 174 (Medium 26, 37°C)

2807 (Red strain) O x 174 Non suppressor host for isolating replicative for m DNA (K12, Sup-, lysozyme amber). (Medium 26, 37°C)

2808 (Strain D 10) Met- culture. (Medium 26, 37°C)

2809 (Strain C-600) cloning host, also considered as wild type.(F-, thi-1, thr-1, leu B6, lac Y1, ton A21, Sup E44 hsdR-). (Medium 26, 37°C)

2810 (HB 101) Host for plasmid transformation and basic rDNA work (F- hsd S20 (r-B, M-B), rec A13 ara-14, pro A2, lac Yl, gal K2, rps L20, xyl-5 mtl-l Sup E44. (Medium 26, 37°C)

2831 Same as NCIM 2805. (Medium 26, 37°C)

2832 (BHB 2690) Deposited by Deobagkar (1982). Host strain for in vitro packaging of lambda DNA. (N205, rec A- (lambda imm434, c Its, b2, red, Dam, Sam lambda) (Medium 26, 37°C)

2833 (K-802) Deposited by D. N. Deobagkar (1982). Host strain for bacteriophage λ vectors and their recombinants (hsd R^-, hsd M^+, gal, met^-, Sup E) (Medium 26, 37°C).

2849 (434) Deposited by Deobagkar (1983). Host for packaging of DNA. (Medium 26, 37°C)

2889 Received from Public Health Laboratory Service Salisbury Wiltshire SP4 OJG. (1-4-82) (0029 CoIE1). Strain harbouring CoIEI plasmid. Plasmid ColEl bearing. (Medium 26, 37°C)

2893 Same as NCIM 2645

2911 (C-90, CGCS strain # 4680). Consititutive for alkaline phosphatase (J. Mol. Biol. **6**, 433, 1963). Strain: Hfr. Point of origin: PO2A of Hfr Cavalli.Chromosomal markers: ton A22, phoT9, omp F627 (R2), re lAl, pit-10, spo Tl. Received E-Coli Genetic Culture Centre 60511. Genetic strain. (Medium 26, 37°C)

2924 Received from Dr. E.V. Nester Department of Microbiology and Immunology University of Washington 98195. (1985) Derived from pRK 290 and pHK 17. Size : 21 kb; genetic markers: Tcr, Kmr; unique resistriction sites : EcoRI, XhoI, Hind III (Plasmid **8**, 45, 1982). Broad host range cloning vector. produces isoprene.(Curr. Microbiol. 30: 97-103, 1995) Distributed in HB 101. ATCC 33694 (Medium 26, 37°C)

2925 Received from University of Washington (1985). Constructed from pRK 290 and pHK 17. Size: 23 kb; genetic markers: Tcr, sites : Hind III, XhoI. (Plasmid **8**, 45, 1982). (Medium 26, 37°C)

2926 From University of Washington. Constructed from pRK 212.2 and pDF 1. Size : 48 kb; genetic markers: Kmr.(Proc. Natl.Acad. Sci. USA. **76**, 1648, 1979; Plasmid **8**, 45, 1982). Helper plasmid for mobilization of non-self transmissible plasmids. Distributed in *E. coli* HB 101. (Medium 26, 37°C)

2931 (ATCC 25922) Control organism for sensitivity testing of bacteria to sodium cephalothin, cephaloridine, cephaloglycin dihydrate and cephalexin monohydrate. Recommended as international reference standard strain for antibiotic disc-succeptibility testing of amikacin, ampicillin, carbenicillin, cefalothin, chloramphenicol colistin, erythromycin , gentamycin, kanamycin, neomycin, polymyxin B, streptomycin tetracycline and tabromycin B, streptomycin, tetracycline and tabromycin (WHO Tech. Rep. Series **610**, 122, 1977). Modified kirby-bauer susceptibility testing of chloramphenicol, colimycin kanamycin, tetracycline, neomycin, gentamicin and nalidixic acid discs (Antimicrob. Agents Chemother. **3**, 48, (1973). NCIB 12210; DSM 1103. (Medium 26, 37°C)

2981 NCTC 7362. Deposited by Dr. D. D. Karad (1986). Reference strain for determination of Trimethoprim and Sulphanomides and penicillin Bio-assay. (Medium 26, 37°C)

2982 Isolated and deposited by Dr. D.D. Karad (1986). Reference strain for minimum inhibition concentration of sulphamethaxazole and sulphadiazene (Medium 26, 37°C).

2995 Strain pUC18-JM 185 Ampr Promoter probe plasmid (Gene **33**,103, 1985). (Medium 26, 37°C)

2996 Strain pUC19 Ampr Promoter probe plasmid.(Gene **33** 103, 1985). (Medium 26, 37°C)

5010 KCC 008, K-12, HB 101/pBR 322/Ampr, Strr, Tetr (PI). Deposited by Dr. I.I. Sutar (1987). (Medium 26, 37°C)

5011 KCC 026, K-12, HB 101/pBR 327/Ampr, Strr, Tetr. Deposited by I.I. Sutar (1987). (Medium 26, 37°C).

5012 KCC 029, R-245 Eco RII. Deposited by Dr. I.I. Sutar (1987). Medium 26, 37°C).

5013 KCC 032, K-12 JMI 05/pkk223/Ampr, Strr, Tetr . Deposited by Dr. I.I. Sutar (1987). Medium 26, 37°C).

5023 NCIM isolate. (Medium 26, 37°C)

5033 Deposited by K.N. Ganesh (1988). Strain MS 2282. Plasmid pMS 282 isolated from Salmonella Phage P22 was transferred into *Escherichia coli* Strain N4830 to construct the mutant producing strain MS 2282. (Medium 26, 37°C).

5051 MRE 600. Received from D.P. Burma (1988). (Medium 26, 37°C)

5258 Deposited by Microexpress, Goa (2010). Same as NCIM 2345 (Medium 41, 37°C)

5268 Deposited by Microexpress, Goa (2010). Same as NCIM 2068 (Medium 41, 37°C)

5275 Deposited by Microexpress, Goa (2010). Same as NCIM 2931.

5346 NCIMB 8134 (2009). Davis 113-3 C181, ATCC 10799; DSM 4261 (Medium 41, 37°C)

5347 NCIMB 12210 (2009). Same as NCIM 2931 (Medium 41, 37°C)

5466 MTCC 1687. Same as 2065 (Medium 41, 37°C)

***Escherichia intermedia*(Werkman and Gillen) Vaughn and Levine Type I.**

2488 See (*Citrobacter fruendii*)

2489 See (*Citrobacter fruendii*)

2490 NCIB 9139 (1973) (*Kluyvera cryocrescens; K. citrophila*). Production of alpha-ketoglutaric acid (J.Gen. Appl. Microbiol.Tokyo, **3**, 13, 1957; J. Gen. Appl.Microbiol. Tokyo **8**, 187, 1962). Comment :Transfered to genus *Escherichia* by Asai et al (ibid., **8**, 187, 1962) Strain 84c; Type II. ATCC 14237, NCTC 10484. (Medium 41, 37°C)

2578 See (*Citrobacter fruendii*)

Escherichia irregular

2276 CPHERI (1970). Irregular II. (Medium 41, 37°C)

2277 CPHERI (1970). Irregular VI. (Medium 41, 37°C)

2579 NCIB 9138 (1974) (*E. coli*). Production of alpha ketoglutaric acid, (J. Gen. Appl. Microbiol. Tokyo **3**, 13, 1957; J.Gen Appl. Microbiol. Tokyo, **8**, 187, 1962. Strain 4. NCTC 10483. (Medium 41, 37°C)

EXIGUOBACTERIUM

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Exiguobacterium sp.

5362 Deposited by Dr. Tapas K. Sengupta, IISER, Kolkatta (2010). Isolated from soil of petrol service station, engine oil degradation, strain no. MSM-L1, gene bank no. GU056311 (Medium 41,30°C)

5457 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. DSM 25128; CCTCCAB 201124; NIO 1109. Gene bank no. JF 893462. (Medium 41, 30°C)

5463 Deposited by Dr. Gade, University of Pune 2012. Isolated from water sample. Arsenic tolerance and resistant to various heavy metals. Gene Bank Acc. No. BI247-sqn BI247 JQ044680 (Medium 26, 30°C)

FLAVOBACTERIUM

FLAVOBACTERIUM Bergey et al.

Flavobacterium antarticus

5412 Deposited by Sanjay Nene, NCL, Pune (2010). MTCC 676 (Medium 61, 15°C)

Flavobacterium aquatile

5403 Deposited by Sanjay Nene, NCL, Pune (2010). MTCC 7307 (Medium 41, 30°C)

***Flavobacterium dehydrogenans* Arnaudi**.

2278 Institute of Microbiology, University of Milano, Italy (1970). Production of carotenoids (Arch. Biochem. Biophys. **121**, 35, 1967). (Medium 16, 30°C, photosynthetic)

***Flavobacterium devorans* (Zimmermann) Bergey et al.**

2581 NRRL B-54-(1974).(*Pseudomonas paucimobilis*)Production of vitamin B12 (Bacteriol. Proc., Page 21, 1950; U.S. Pat 2,561,364). Type strain (Int. J. Syst. Bact. **30**, 300,1980). Production of flavin adenine dinucleotide (U.S.Pat**.** 3,647,627).Produces xylose isomerase glucose isomerase(US Patent 3,956,066 dated May 11 1976) ATCC 10829; NCIB 8195 (*Sphingomonas paucimobilis*,; DSM 30198; LMG 4017. (Medium 41, 30°C)

Flavobacterium ferrugineum

5408 Deposited by Sanjay Nene, NCL, Pune (2010). MTCC 2955 (Medium 26 or 60, 30°C) Bioresistance testing, Produces carnitine L-carnitine (US Patent 4,650,759 dated Mar 17 1987) (*Terrimonas ferruginea*) DSM30193, ATCC13524,JCM21559 (Medium 41, 30°C)

Flavobacterium multivorum

5407 Deposited by Sanjay Nene, NCL, Pune (2010), MTCC 7504(Medium 41, 30°C)

***Flavobacterium odoratum* Stutzer**

5141 MTCC 489 (2000). Type strain (Int. J. Syst. Bact. **27**, 330, 1977). (Myroides odoratus). Produces 5'-nucleotides.Quality control strain.Quality control strain for API products. (US Patent 3,296,087

dated Jan 3 1967)NCTC 11036, ATCC 4651, DSM2801, JCM7458. (Medium 41, 30°C)

***Flavobacterium* sp.**

5107 1113 Deposited by P. Kumaran (1989) (Medium 41, 30°C)

5399 Deposited by Dr. Sanjay Nene, NCL, Pune (2010). MTCC 2846 (Medium 41, 30°C)

5411 Deposited by Dr. Sanjay Nene, NCL, Pune (2010). MTCC 4664 (Medium 62, 30°C)

5413 Deposited by Dr. Sanjay Nene, NCL, Pune (2010). MTCC 4663 (Medium 62, 30°C)

Flavobacterium thermophilum

5405 Deposited by Dr. Sanjay Nene, NCL, Pune (2010). MTCC 1917, NCTC11526, CCM3496, BKM1325 (Medium 41, 55°C)

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Gluconobacter diazotrophicus

5348 Isolated from sugar cane root. NCIMB 12985 (2009). (*Acetobacter diazotrophicus),* ATCC 49037. LMG7603 DSM5601 (Medium 1 or 55, 30°C)

Gluconobacter hansenii

5415 Deposited by Anu Appaiah, CFTRI, Mysore (2011). Isolated from grape wine (J. Appl Poly Sci. **120,** 2835, 2011; Annals of Microbiol. **61,** 781, 2011). strain no. UAC09 ((Medium 1 or 63, 27°C)

Gluconobacter melanogenus

(Syn. *Gluconobacter liquefaciens*)

2048 NCIB 8035 (1973). (*G.oxydans*subsp *oxydans; Acetobacter suboxydans)* Produces 5-ketogluconic acid; assay of niacin, p-aminobenzoic and pantothenic acid (J.Med. Lab. Tech. **20**, 26, 1963); production of sorbose (J. Biol.Chem. **174**, 273, 1948); membrane formation (J. Bact. **125**, 1163, 1976). NCIB 621 and 7069; ATCC 621, 23774 and 33448; IFO 3172 and 12528; NRRL B-72 and B-755; NCTC 7029; DSM 50049; LMG 1393. (Medium 2, 30°C).

2440 Same as NCIM 2048

2441 NCIB 9099 (1973).(*Gluconobacter* sp*; Acetomonas oxydans; Acetobacter suboxydans var biourgianum, Gluconobacter oxydans*).Used in preparation of 2,5-diketo-gluconate (Antonie van Leeuwenhoek **25**, 241, 1959). ATCC 23776; LMG 1410. (Medium 2, 30°C)

Gluconbacter roseus

(**Syn. *Gluconobacter oxydans*)**

2049 NCIB 9108 (1954) (*Acetomonas oxydans; Acetobacter suboxydans*; *Gluconobacter cerinus,Gluconobacter asaii*) Used in preparation of Ca-5-ketogluconate (Antonie van Leeuwenhoek **25**, 241, 1959). ATCC 23777; LMG 1415. (Medium 2, 30°C)

2050 NRRL B-72 (1954). (*Acetobacter suboxydans; Acetomonas oxydans*). Produces 5-keto-gluconic acid (Appl. Microbiol.

2,183,1954; Antonie van Leeuwenhoek **20**,102, 1954; Arch. Mikrobiol. **41**, 79, 1962). NCIB 6723 (*Gluconobacter oxydans* subsp. *oxydans*, *Gluconobacter oxydans subsp. industrius,Gluconobacter oxydans subsp. melanogenes, Gluconobacter oxydans subsp. sphaericus Gluconobacter oxydans subsp. suboxydans*); NCTC 6723; ATCC 23773; LMG1400. (Medium 2, 30°C)

2095 NCIB 8036 (*Gluconobacter oxydans* subsp. *oxydans*) (1956). (*Acetobacter suboxydans*). Assay of panthenol.Assay of 4-aminobenzoic acid p-aminobenzoic acid, Assay of nicotinic acid niacin Assay of pantothenic acid, Produces Sorbose(J. Med. Lab. Technol. 20: 26-33, 1963. PubMed: 13948188) ATCC 621H; LMG 1403 (Medium 2, 30°C)

2280 NCIB 9137 (1970). (*Gluconobacter oxydans* subsp *oxydans*). Production of isokojic acid (Bull. Agr. Chem. Soc.,Japan **11**, 680, 1935; Proc. Japan Acad. **32**, 600, 1956). ATCC 14960; IFO 3990; LMG 1412 (Medium 1, 30°C)

2430 NRRL B-36 (1972) (*Gluconobacter oxydans*) (J. Appl. Bacteriol. **19**, 31,1956; J. Gen. Appl. Microbiol. Tokyo, **4**, 289, 1958). ATCC 8085 & 9794; NCIB 8085 (*Gluconobacter oxydans* subsp. *oxydans*, *Gluconobacter oxydans* subsp. *industrius, Gluconobacter oxydans*, subsp. *melanogenes, Gluconobacter oxydans* subsp. *sphaericus Gluconobacter oxydans* subsp. *suboxydans*, LMG1405 (Medium 2, 30°C)

2523 NCIB 9119 (1974). (*Acetomonas oxydans; Acetobacter suboxydans; Gluconobacter oxydans* subsp. *oxydans*,*Gluconobacter oxydans* subsp. *industrius ,Gluconobacter oxydans* subsp. *melanogenes,Gluconobacter oxydans* subsp. *sphaericus ,Gluconobacter oxydans* subsp. *suboxydans*). Preparation of fructose (Antonie van Leeuwenhoek **25**, 353, 1959) ATCC 23652; LMG 1411. (Medium 2, 30°C)

2524 NCIB 3734 (1974) (*Acetobacter suboxydans; Acetomonas oxydans; Gluconobacter oxydans* subsp. *oxydans*,*Gluconobacter oxydans* subsp. *industrius ,Gluconobacter oxydans* subsp. *melanogenes,Gluconobacter oxydans* subsp. *sphaericus, Gluconobacter oxydans* subsp. *suboxydans*). Produces gluconic acid; does not produce dihydroxy acetone from glycerol (Nature **192**, 683, 1961; J. Gen. Microbiol. **24**, 34, 1961). ATCC 23771; NCTC 3734; LMG 1396. (Medium 2, 30°C)

2525 NCIB 5595 (1974).(*Acetomonas oxydans; Acetobacter suboxydansvar muciparun; Gluconobacter oxydans* subsp. *oxydans*,*Gluconobacter oxydans* subsp. *industrius, Gluconobacter oxydans* subsp. *melanogenes, Gluconobacter oxydans* subsp. *sphaericus, Gluconobacter oxydans* subsp. *suboxydans*) (J. Appl. Bact.**19**, 31, 1956) ATCC 23772; LMG 1399 (Medium 2, 30°C)

GORDONIA

GORDOINIA

***Gordoinia* sp**

5496 Deposited by Dr. Syed Dastger, NCL (2013). Isoalted from Veraval coast Gujrath. GeneBank No. KA413428 .(Medium 69, 30-37°C)

HAFNIA

HAFNIA Moller

***Hafnia alvei* (Bahr) Moller.**

(*Bacterium cadavaris*).

2351 NCIB 6578 (1971).Assay of lysine by decarboxylation, Produces carnitine L-carnitine, Produces lysine decarboxylase (J. Biol. Chem. **156**, 401, 1944). NCTC 6578; ATCC 9760, IFO 3731. (Medium 41, 30°C)

HALOBACTERIUM

HALOBACTERIUM Elazari-Volcani

***Halobacterium cutirubrum* (Lochhead) Elazari-Volcani**

2850 Strain H4, Halophilic. Received from Dr. J.I. Pitt. Division of Food Research CSIRO North Ryde Now South Wales 2113 Australia (1983). (Medium 6, 37°C)

2851 LMD 8195, Halophilic. Receivedd from Dr. J. Vander, Toom Culture Collection Laboratory Microbiology, Delft. Newzealand (1983). (Medium 6, 37°C)

***Halobacterium halobium* (Petter) Elazari-Volcani**

2852 Strain H6; Halophilic. Address same as 2850 (1983). (Medium 6, 37°C)

2853 LMD 8195, Halophilic. Address same as 2851 (1983) (Medium 6, 37°C)

***Halobacterium salinarium* (Harrison and Kennedy) Elazari-Volcani**

2854 Strain H3; Halophilic. Address as 2850 (1983). (Medium 6, 37°C)

2856 CCM 2148; Halophilic. Received from Dr. M. Kocur Czechoslavak collection of Microorganisms. Tr. Abrama (1983). (Medium 6, 37°C)

***Halobacterium* sp.**

5238 Extremely halophilic strain TSS101, Gulberga University (2005). Deposited by Dr. K. Sreeramulu. Isolated from Solar salterns ponds of Tutikorin. (Medium 6, 30^{o}C)

***Halobacteirum trapanium* (Petter) Elazari-Volcani**

2855 LMD-33-42; Halophilic. Address as 2851 (1983). (Medium 6, 37°C)

HALOMONAS

HALOMONAS

***Halomonas* sp.**

5242 Deposited by Dr. S. Bhosale, Goa University (2006). Isolated from mangrove ecosystem sediment, strain no. NK-2 ((Medium 52, 30°C)

HALOARCHAEM

HALOARCHAEM

***Haloarchea* sp.**

5322 Deposited by Dr. S.B. Bhosale, ARI, Pune (2009). Isolated from crystals of NaCl from waste coast of India, strain no. IAH-1 (Medium 6, 37°C)

HOEFLEA

***Hoeflea* sp**

5494 Deposited by Dr. C.Mohandass, NIO, Goa (2013). Isolated from azores. GeneBank No. KC534148 (Medium 69, 30°C)

IDIOMARINA

IDIOMARINA

***Idiomarina* sp.**

5321 Deposited by Dr. Yogesh Shouche, NCCS, Pune (2009). Isolated from Gorwa Industrial Estate soil, strain no. D-35 (Medium 57, 37°C)

IGNATZSCINERIA

IGNATZSCINERIA

***Ignatzscineria* sp.**

5325 Deposited by Yogesh Shouche, NCCS, Pune (2009).Type strain. DSM22309.KCTC 22643 Isolated from insect gut strain no. FFA1 (Medium 26, 37°C)

5326 Deposited by Yogesh Shouche, NCCS, Pune (2009). Type strain. DSM22310,KCTC 22644. Isolated from insect gut strain no. FFA3 (Medium 26, 37°C)

JANTHINOBACTER

JANTHINOBACTER

***Janthinobacter lividum* (Eisenberg) DeLey et al.**

2335 (*Chromobacterium lividum; C. violaceum, Pseudomonas mephitica*) Freshwater Biological Association, Westmoreland (1949). Isolation of D- fucosamine from the specific polysaccharide; guanosine 2'-3' cyclic phosphate and a new amino sugar (Biochem. J. **70**, 729, 1958; J. Biol. Chem. **238**, 26, 1963); ATCC 13426; IFO 3740. (Medium 41, 30°C).

JENSENIA

JENSENIA

***Jensenia canicruria* Bissett and Moore,**

2352 NCIB 8147 (1971). (*Rhodococcus erythropolis*). (J. Bacteriol. **80**, 281, 1960; J. Bacteriol. **84**, 206, 1962). Type strain of *Jenseniacanicruria* (J. Gen. Microbiol. **19**, 555, 1958; ibid. **4**, 280, 1950). Coments : *Mycobacterium rhodochrous* (Can. J. Microbiol. **7**, 108, 1961) ; *Nocardia erythropolis*, *Arthrobacter picolinophilus, Nocardia canicruria,Nocardia calcarea* (Int. J. Syst. Bact. **20**, 133, 1970). ATCC 11048; NCTC 8036; DSM 43060. (Medium 41, 30°C)

KERSTERSIA

KERSTERSIA

***Kerstersia* sp.**

5312 Deposited by Dr. T.B. Karegoudar, Gulbarga University (2008). Isolated from coconut coir sample, strain no. VKY1 (Medium 41, 37°C)

KLEBSIELLA

KLEBSIELLA Trevisan.

***Klebsiella aerogenes* (Beijerinck) Taylor et al**

(Syn. *Aerobacter aerogenes, Enterobacter aerogenes, Klebsiella steroids, Klebsiella pneumoniae subsp. pneumoniae*).

2098 G.D. Wild, University of Leeds (1959).(Biochem. J., **41**, 389, 1947; Biochem. J. **86**, 197, 1963; Biochim. Biophys. Acta **66**, 237, 1963).ATCC 15380, NCIB 418, DSM2026, NCTC 418; NCDO 711.Assay of clavulanic acidRespiratory research(Chemother. **11**: 852-857, 1977.)(Medium 41, 37°C)

2239 NRRL B-199 (1969).(*Aerobacter aerogenes; K. steroids* subsp *steroids*). Production of 2,3 butane-diol; steroids glycol; produces a maltohexose producing amylase and pullulanase; does not fix nitrogen. Produces carnitine L-carnitine, Respiratory research(US Patent 4,650,759 dated Mar 17 1987)NCIB 8021;ATCC 9621; IFO 3321. (Medium 41, 37°C)

2281 NCIB 8153 (1970).(*Klebsiella planticola; Aerobacter aerogenes;Raoultella planticola*). Enzymatic hydrolysis of ribonucleic acid (U.S. Pat. 3,920,519); production of 5'-nucleotides (U. S. Pat. 3,296,087); production of histamine from histidine. Edwards 1758-51;ATCC 8329; BUSCAV 140. (Medium 41, 37°C)

5481 CPHERI 1 (1970). (Medium 41, 37°C)

2283 CPHERI 2 (1970). (Medium 41, 37°C)

Klebsiella steroids *(Schroeter) Trevisan*

2706 SK 535. K.T.Shanmugam, Univ. Cal.,USA (1977) (Medium 20 or 41, 30°C)

2707 SK 539. K.T.Shanmugam, Univ. Cal.,USA (1977) (Medium 41, 30°C)

2719 Department of Agronomy, University of California (1976). Strain M5 al nif. (Medium 41, 30°C)

2883 Same as NCIM 2239.

2957 ATCC 10031. Does not fix nitrogen. Assay of capreomycin, viomycin Dihydrostreptomycin and streptomycin. (U.S. Pharmacopiea 20th Rev. pp.882-888, 1980). Assay of cefamandole, cefoxitin, cephaloglycin, cephaloridine cephalomycin, cephalothin, dihydrostreptomycinsulfate dihydrostreptomycin,erythromycin, neomycin, spectinomycin ctinospectacin, Respiratory research, Pharmaceutical and Personal Care,Assay of streptomycin,Assay of troleandomycin (USP34-NF29, 2011), DSM 681,NCIB 9111 (*Klebsiella pneumoniae* subsp. *pneumoniae*); NCTC 7427 (Medium 41, 37°C)

5082 NCIM isolate. (Medium 41, 37°C)

5215 ATCC 700603 (2004). (*Klebsiella pneumoniae* subsp. *pneumoniae*) Intermediate resistance to ceftriaxone and gentamicin; resistance to ampicillin, aztreonam, cefoxitin, cefpodoxime, chloramphenicol, piperacillin, tetracycline; sensitive to amoxicillin-clavulanate, cefepime, cefotaxime, ciprofloxacin, imipenem, piperacillin-tazobactam, tobramycin, trimethoprim-sulfamethoxazole; control for extended-spectrum beta-lactamase production; Production of beta-lactamase SHV-18 (Antimicrob. Agents Chemother. **44**, 2382-2388, 2000. (Medium 41, 30^{o}C).

5289 Deposited by Microexpress, Goa (2010). (Medium 41, 37°C)

5432 Deposited by Dr. P. Kodam, Pune University (2011). Gene bank accession no. JN227490, strain no. S3, biotransformation of tributyl phosphate (Medium 41, 37°C)

***Klebsiella* sp.**

5328 Deposited by Dr. P. Kodam, Pune University (2009). Isolated from soil sample contaminated by electroplating effluent, gene ban no. GQ17448, strain no. KMK-L (Medium 41, 37°C)

5338 Deposited by Dr. T.B. Karegoudar, Gulbarga University (2009). Isolated from field soil sample, gene bank no. GU066861 (Medium 41, 37°C)

KLUYVERA

KLUYVERA

***Kluyvera cryocrescens* Farmer et al**

2716 ATCC 21285. (*Kluyvera citrophila*) Deacylation of benzene and phenoxy methyl penicillin tetrazoles (U.S.Pat. 3,905,868). Production of penicillin derivatives (U.S.Pat. 3,682,777) DSM2660. (Medium 41, 37°C)

KOCURIA

KOCURIA

Kocuria marina

5473 Deposited by Dr. Syed Dastager (2012).Type strain. Isolated from marine sediment. DSM 16420; KCTC 9943, JCM 13363. Int. J. Syst. Evol.Microbiol. **54**:1617, 2004 (Medium 57, 30°C).

Kocuria rosea

5245 Deposited by Dr. Saroj Bhosale, Goa University (2006). Isolated from roots of ipomoea pes caprae from sand dune vegetation. Gene bank no. DQ287963 (Medium 51, 37°C)

Kocuria salsicia

5474 Deposited by Dr. Syed Dastager (2012). Isolated from marine traditional self fermented sea food. KCTC 19908, JCM 16361. Int. J. Syst. Evol. Microbiol. **61**:286, 2011 (Medium 57, 30°C).

Kocuria indica

5455 Deposited by Dr. Syed Dastager (2012). Isolated from sediment sample. DSM 25126; CCTCCAB 2011129; NIO 1021. Gene bank no. HQ 858010. (Medium 41, 30°C).

KURTHIA Trevisan.
***Kurthia zopfii* Trevisan1885.**
(See *Bacillus zopfii*)

LACTOBACILLUS

LACTOBACILLUS Bejierinck

***Lactobacillus acidophilus* (Moro) Holland.**

5481 NCIB 8931 (1970). (*Lactobacillus bifidus; Lactobacillus* sp; *Lactobacillus gasseri*) Homology Group B-1(Int. J. Syst. Bact. **30**, 53, 1980) (J.Infec. Dis. **110**, 258, 1962; Biochim. Biophys. Acta. **59**, 273, 1962). ATCC 4963; Rogosa 208XR; Strain Rettger 5. (Medium 14 or 32, 37°C)

2660 ATCC 11975; NCIB 1899. (J.Amer.Med. Assoc. **79**, 609, 1922, ibid, **80**, 602, 1923). (Medium 14 or 32, 37°C)

2902 NDRI CH-9 (1984). For acidophilus milk (fermented milk). Cheese starter culture. (Medium 14 or 32, 37°C)

2903 Dahi culture NDRI-BD-4 Curd making.(Medium 14 or 32, 37°C)

***5306** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from mouth swab. Production of DL-lactic acid, strain no. C404-12-1(ms) (Medium 14 or 32, 37°C)

***5307** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from mouth swab. Production of DL-lactic acid, strain no. C404-11-2 (ms) (Medium 14 or 32, 37°C)

5426 Deposited by Dr. J. Savitha, Bangalore University (2011). Isolated from dairy product. (Medium 14 or 32, 37°C)

***Lactobacillus brevis* (Orla-Jensen) Bergey et al.**

2090 IFO 3345 (1958). Assay of cytosine and uracil (J. Biol. Chem. **168**, 1-22, 1947; J. Med. Lab. Tech. **20**, 26-33, 1963; J. Gen. Microbiol.**13**, 481, 1955; Can. J. Microbiol. **14**, 313,1968).NCIB 8038; ATCC 8287; NCDO 474; BUSCAV 220; NCIM 2732.(Medium 14 or 32, 37°C)

2356 NCIB 947 (1971). (*Lactobacillus pentoaceticus*.) Assay of cytosine and uracil (Arch. Biochem. **16**, 339, 1948; J. Biol. Chem. **39**, 347, 1919; J. Path. Bact.**45**, 367, 1937; J. Gen. Microbiol, **12**, 107, 1955; J. Appl. Bacteriol. **18**, 274,1955; Can. J. Microbiol. **11**, 319, 1965). Strain 118-8; NCTC 947; ATCC 367; NCDO 477; BUSCAV 252; NCIB 367 and 8169. (Medium 14 or 32, 37°C)

2436 NCIB 8038 (1972) Same as NCIM 2090; 2732

5481 Isoalted from cider. NCIB 8664 (1972). T.K.Walker, 1954. Produces dextran like polyglucose; no requirement for lactic acid (J.Gen. Microbiol. **11**, X, 1954). (Medium 14 or 32, 37°C)

2584 NCIB 4617 (1974) (*Lactobacillus brevis var. rudensis*) Rusty spot in cheese (J. Dairy Res., **1**, 50, 1929; J. Gen. Microbiol., **16**, 9, 1957; Nature **187**, 433, 1960) NCTC 4617; ATCC 13648; BUSCAV 221. (Medium 14 or 32, 37°C)

***Lactobacillus buchneri* (Henneberg) Bergey et al.**

2357 NCIB 8007 (1971) (*Lactobacillus lycopersici*). (*Lactobacillus buchneri*) Type strain.Neotype (Int. J. Syst. Bact. **21**, 183, 1971). ATCC 4005; NCDO 110; BUSCAV 222; DSM 20057. (Medium 14 or 32, 37°C)

***Lactobacillus bulgaricus* (Orla-Jensen) Rogosa and Hansen**.

2056 ATCC 8001 (1955). (*Lactobacillus* sp. *Lactobacillus suntoryeus, Lactobacillus helveticus*) (Medium 14 or 32, 37°C)

2057 NDRI 143 (1955). Hansen's strain. (Medium 14 or 32, 37°C)

2359 Strain RTS NDRI, (1971). (*Lactobacillus suntoryeus, Lactobacillus helveticus*) (Medium 14 or 32, 37°C)

2671 IDRI; Bangalore (Medium 14 or 32, 37°C)

***Lactobacillus casei* (Orla-Jensen) Hansen and Lessel**

2651 1951 RPK. (Medium 14 or 32, 37°C)

2732 Same as NCIM 2090

2737 NCIB 4113; (*L. casei.* subsp *casei;Lactobacillus paracasei* subsp. *paracasei, Lactobacillus paracasei, Lactobacillus casei* subsp. *alactosus, Lactobacillus casei* subsp. *pseudoplantarum*). Assay of uracil and thymine. (Arch. Biochem.**16**, 339, 1948). ATCC 335. Same as NCIM 2585 and 2722. (Medium 14 or 32, 37°C)

***5303** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from Curd. Production of L-lactic acid, strain no. C404-19-1 (Medium 14 or 32, 37°C)

***5304** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from Curd. Production of L-lactic acid, strain no. C404-19-2 (Medium 14 or 32, 37°C)

***5305** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from Curd. Production of L-lactic acid, strain no. C404-19-3 (Medium 14 or 32, 37°C)

***Lactobacillus casei var.* rhamnosus Rogosa et al**

2125 ATCC 12116 (1962). (*Lactobacillus casei, Lactobacillus rhamnosus*). Requires D-alanine and D(-) lactic acid (Food Technol **1**, 269-286, 1987; J. Biol. Chem. **201**, 621, 1954).Strain 280-16; ATCC 7469, DSM 20247. (Medium 14 or 32, 37°C)

2151 PRL L-7 (BC-1) (1964). Deposited as *L. casei*. Assay of riboflavin. (Zentralbl. Baketeriol. (Abr. II). **111**, 250, 1958. Strain BC-1 NRC 476,. (Medium 14 or 32, 37°C)

2360 NCIB 7473 (1971).(*L. casei; Lactobacillus rhamnosus*) Assay of aspartic acid, serine and glutamic acid. (J. Gen. Microbiol.13, 481, 1955; Biochim. Biophys. Acta, **64**, 447, 1962; J. Biol.Chem. **157**, 651,1945). Strain Ld-5; 4R 2127; DSM20245; NCTC 7473; ATCC 9595; ATCC 11979; NCDO 207; BUCSAV 226. (Medium 14 or 32, 37°C)

2361 NCIB 8608 (1971) (*L. delbrueckii;Lactobacillus rhamnosus*). Assay of amino acids. Strain 8-R 3233; CDA 609 (Medium 14 or 32, 37°C)

2362 NCIB 8721 (1971). (*Lactobacillus rhamnosus*) Assay of amino acids (K.V. Thimann. The Life of Bacteria", The Macmillan Co., New York, page 423, 1955). Strain 5; 8R 384; HMSF 8-1. (Medium 14 or 32, 37°C)

2363 NCIB 8722 (1971). (*Lactobacillus rhamnosus*) Vitamin and amino acid assays. Strain 8R 367; HMS F3.3. (Medium 14 or 32, 37°C)

2364 ATCC 7469 (1971). (*L. casei; L. helviticus*). Type strain; Assay of folic acid, nicotinic acid and riboflavin (J. Med. Lab. Tech. **20**, 26, 1963); biotin (Anal. Microbiol. F. Kavanagh, ed, Academic Press p428, 1963, incorrectly cited herein as ATCC 7649); glucose (ibid, pp 675-677); folic acid (ibid pp 461-463); folic acid in animal tissue (ibid, **2**, pp429-436, 1972); folic acid in blood (ibid, pp 441-445. The bioautography of folic acid (ibid, pp 176 480-482); assay of riboflavin (AOAC Methods 43.167-43.174, 1980 and 43.209-43.217, 1984). Microbiological assay of azathioprine and 6- mercaptopurine in aqueous solution (J. Gen. Microbiol. **79**, 351, 1973); determination of Strepogenin factor (J. Exp. Med. **80**, 213, 1944); enzymatic determination of optically active isomers of lactic acid (Can. J. Microbiol. **11**, 319, 1965); produces folate transport protein (J. Bact. **163**, 1147, 1985); pyruvate utilization (Curr. Microbiol. **15**, 259, 1987) NCIB 6375; NCIB 8010 (*Lactobacillus rhamnosus*); NCTC 6375; NRC 488;DSM 20021 NCDO 243; BUSCAV 227.(Medium 14 or 32, 37°C)

2586 NCIB 9282 (1974). (*L. delbrueckii*; *Lactobacillus rhamnosus*). Production of bacterial koji for steroi soy sauce (S.C.Prescott and Dunn, C. G., Industrial Microbiology, MacGraw-Hill Book Co. Inc., New York, p676, 1959).NRRL B-445; ATCC 10863; DSM 20711. (Medium 14 or 32, 37°C)

2587 NCIB 8963 (1974). (*L. helveticus; Lactobacillus rhamnosus*) Assay of riboflavin. (Medium 14 or 32, 37°C)

***Lactobacillus delbrueckii* subsp *delbrueckii* (Leichmann) Weiss et al**

2025 Pasteur Institute, Coonoor (1950). Type strain.Neotype (Int. J. Syst. Bact. **21**, 104 and 178, 1971). Produces L-lactic acid from corn sugar and molasses. Assay of alanine (Anal. Microbiololgy, F. Kavanagh, ed., Academic Press, New York, pp 567-763, 1963). Assay of pyridoxal. ATCC 9649; BUCSAV 232; IFO 3202; NCIB 8130; DSM 20074. (Medium 14 or 32, 37°C)

2365 NCIB 8130 (1971). Same as NCIM 2025

***5219** Deposited by Dr. Gokhale, NCL, Pune (2005). Mutant Uc-3 derived from NCIM 2365. Production of L-lactic acid (Proc. Biochem. **41,** 120- 126, 2006). Production of fructose and L-lactic acid (Lett. Appl. Microbiol. **43**, 53-57, 2006). Production of L-lactic acid from cellobiose and cellulose (Appl. Environ. Microbiol. **73**, 5055-5057, 2007; Green Chem. **9**, 58-62, 2007). Production of L-lactic acid from molasses (Appl. Environ. Microbiol. **74**, 333-335, 2008). (Medium 14, 42°C).

***5356** Deposited by Bioasset Technologies Ltd., Mumbai (2010). (*Lactobacillus delbrueckii* subsp. *bulgaricus*). Isolated from curd. (Medium 14 or 32, 37°C)

Lactobacillus farraginis

5394 Deposited by Dr. Yogesh Shouche, NCCS, Pune (2010). Isolated from Asava fermented extract. Strain no. VM2 (Medium 14 or 32, 37°C).

***Lactobacillus fermentum* Beijerinck.**

2165 IFO 3071 (1965). (*Lactobacillus cellobiosus*) Assay of thiamine, histidine and alanine (J. Biol. Chem. **64**, 643, 1925; ibid. **155**, 153, 1944; Arch. Biochem. **16**, 357, 1948; Appl. Microbiol. **1**, 311,1959; J. Appl. Bact. **18**, 274, 1955; J.Gen. Microbiol. **13**, 481, 1955; ibid., **12**, 107, 1955). Assay of histidine and thiamine (J. Med. Lab. Tech. **20**, 26, 1963). Assay of pyrithiamine (Arch. Microbiol. **103**, 83, 1975) ATCC 9338; NCIB 6991 and 8028; NCDO 215; BUSCAV 233; Strain 36. DSM 20391 (Medium 14 or 32, 37°C)

2166 NCIB 6991 (1965). Same as NCIM 2165.

5298 Deposited by Microexpress, Goa (2008) ATCC 9338(Lactobacillus cellobiosus),CCM 91, NCDO 215, NCIB 6991, DSM20391. (Medium 14 or 32, 37°C)

***5358** Deposited by Bioasset Technologies Pvt. Ltd., Mumbai (2010). Isolated from curd (Medium 14 or 32, 37°C)

Lactobacillus gasseri

***5359** Deposited by Bioasset Technologies Pvt., Ltd., Mumbai (2010). Isolated from chicken faeces.Type strain.NCDO 2233, NCIB 1171,DSM20243, LMG9203, ATCC 33323 (Medium 14 or 32, 37°C).

***Lactobacillus helveticus* (Orla-Jensen) Bergy et al**

2126 NCIB 8025 (1962). (J. Gen. Microbiol. **16**, 636,1957). (*Lactobacillus suntoryeus*).LMG 6894,NCIMB 8025, ATCC 8018; NCDO 262. (Medium 14 or 32, 37°C)

2585 Same as NCIM 2737

2733 NCIB 8652 (1964). Starter culture for yoghurt. (Medium 14 or 32, 30°C)

***Lactobacillus jugurti* Holland.**

2366 NCIB 8589 (1971*). (L. bulgaricus; L. helveticus; L.* sp, *Lactobacillus suntoryeus*) Assay of orotic acid. (J. Biol. Chem. **186**, 737, 1950; J. Biol. Chem. **207**, 701, 1954). Strain 09; ATCC 10812 and 13866; NCDO 100; BUSCAV 224; IFO 3809, LMG11447. (Medium 14 or 32, 37°C)

2367 NRC 702 (1971). Same as NCIM 2733

***Lactobacillus lactis* (Orla-Jensen) Holland.**

2368 NCIB 7278 (1917). (*L. delbruekii* subsp*. lactis*).Assay of vitamin B12. (J.Biol.Chem., **14,** 63, 1948). Dorner strain; NCTC 7278; ATCC 8000; NCDO 270. (Medium 14 or 32, 37°C)

2369 ATCC 10697 (1971).(*L. delbruekii* subsp.*lactis, Lactobacillus leichmannii*). Assay of vitamin B12 (J. Biol. Chem. **176**, 1463, 1948).Strain MB 367; NCTC 8048; NCDO 297; NCIB 8170 (. (Medium 14 or 32, 37°C)

2370 NCIB 8170 (1971). Same as NCIM 2369.

2589 ATCC 10705 (1974).(*L. delbrueckii* subsp*. Lactis; L. helveticus, Lactobacillus leichmannii*). Assay of vitamin B12. (Int. Z.Vitaminforsch **20**, 369 and 441, 1949). Strain 1175. (Medium 14 or 32, 37°C)

***5449** Deposited by Dr. Gokhale, NCL, Pune (2012). Mutant RM2-24 derived from NCIM 2368. Production of D-lactic acid from sucrose,

molasses, cellulose (Biotechnol. Lett. **32**, 517-520, 2010; Green Chem. **12**, 1106-1109, 2010). (Medium 14, 42°C).

***Lactobacillus leichmannii* Bergey et al.**

2058 NCIB 8964 (1955). (*Lactobacillus delbrueckii* subsp. *lactis*) Assay of vitamin $B_{12.}$ (Medium 22, 37°C)

2070 ATCC 4797 (1956). (*L. delbrueckii* subsp*. lactis, Lactobacillus lactis*). Assay of cobalamins (Analatical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp.543-544 and 546-547,1963) and vitamin B12(ibid.,pp.551-565). Food testing, Pharmaceutical and Personal Care Arginine metabolism (Curr. Microbiol.**13**, 155, 1986). Probably same as NCIB 8117 but NCIB 7854 is significantly inferior for turbiditimetric assay and reportedly superior for zone definition in diffusion assay. Neotype (Int. J. Syst. Bact. **21**, 181, 1971) NCIB 7854,DSM20076,LMG13136.. (Medium 22, 37°C)

2071 ATCC 7830 (1956). (*L. delbrueckii* subsp*. Lactis, Lactobacillus lactis*). Assay of vitamin B12 (J. Biol. Chem.**176**, 1465, 1948; U.S.Pharmacopeia 21st rev., pp. 1183-1184, 1985; Analatical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp. 551-565, 1963): Cobalamins (ibid.,pp. 543-644 and 546-547,);cystine (ibid., **2**, 494, 1972). Assay of cobalamin (AOAC Methods Vol. **43**, 167-43.182,1984); used as starter for fermented meat product under U.K. Patent. NCIB 8118; DSM 20355; NCDO 302. (Medium 22, 37°C)

2072 NRRL B-735 (1956). (Medium 22, 30°C)

2371 Same as 2071

2590 Same as 2070.

Lactobacillus paracasei* subsp. *Paracasei

5444 Deposited by Malini M, Bangalore University, Bangalore (2012). Isolated from cheese. Strain no. MJ19 (Medium 14 or 32, 37°C)

***Lactobacillus paracasei* subsp. Tolerans**

5445 Deposited by Malini M, Bangalore University, Bangalore (2012). Isolated from cheese. Heat stable bacteriocin production (E3 J. Biotechnol. Pharm. Res. 3, 28-41, 2012.Strain no. MJ53 (Medium 14 or 32, 37°C)

Lactobacillus paraplantarum

***5357** Deposited by Bioasset Technologies Pvt. Ltd, Mumbai (2010). Isolated from human faeces. (Medium 14 or 32, 37°C).

***Lactobacillus pentosus* (Fred et al) Zanoni et al**

2669 NCIM isolate 1951. (Medium 14 & 32, 37°C)

2912 See *Lactobacillus plantarum*

***Lactobacillus plantarum* (Orla-Jensen) Bergey et al.**

2083 ATCC 8014 (1957). (*Lactobacillus arabinosus, Lactobacillus arizonensis*). Assay of biotin, nicotinic acid, p-aminobenzoic acid and pantothenic acid; observation on malic enzyme. (J. Biol. Chem. **150**,305, 1943; Biochem J.,**38**, 314, 1944; J. Bactriol**.85**, 772, 1963; Arch. Biochem.Biophys.**103**, 186, 1963. Assay of: amino acids : (AOAC Methods 43. 218 – 43 . 182, 1984) ; arginine and tryptophan (J. Biol. Chem. **150**, 305, 1943); l(-)-tryptophan (ibid., **157**, 141, 1045); methionine (USDA Misc. Publ. No. 696, Jan. 1950); biotin (Analytical Microbiology, F. Kavanagh, ed., Academic Press, New

York, pp. 421-428, 1963; U. S. Pharmacopeia, 21st rev.,p. 2042, 1986); calcium pantothenate (ibid. pp. 1167-1168, 1985); niacinamide (ibid., Anal. Chem. **24**, 1635,1952; AOAC Methods 43.167-43.174 and 43.191- 43.199, 1984; U. S Pharmacopeia, 20th rev., pp. 923-925, 1980); niacin in orange juice (Appl. Microbiol. **20**, 641, 1970); nicotinic acid (Biochem. J. **38**, 314, 1944; J. Biol. Chem. **139**, 675, 1941); pantothenic acid (AOAC Methods 43.159-43.174 and 43.200-43.208, 1984; Analytical Microbiology, F. Kavanagh, ed. Academic Press, New York, pp. 510-512, 1963; J. Bact. **80**, 626, 1960). Accumulation of biotin (J. Bact. **81**, 65, 1961); D-biotin conversion and metabolism (ibid., 92, 913 and 920, 1966); biotin transport and accumulation (ibid., 90, 843 and 853, 1965); formation of acetylmethylcarbinol (ibid., **66**, 324, 1953); effect of pantothenate derivaties on growth and coenzyme-A synthesis (Biochem. J. **61**, 190, 1955); sulfur nutrition (Arch. Biochem. **16**, 357, 1948; J. Bact. **70**, 339, 1955); nitrate reduction (Science, **121**, 168, 1955); effect of oleic acid on free biotin uptake (J. Bact. **93**, 151, 1967); ribitol-5-phosphate dehydrogenase (Biochim. Biophys. Acta **67**, 525, 1963); synthesis of ribitol teichoic acids (J. Biol. Chem. **239**, 3178, 1964); metabolism of mevalonic acid (J. Bact. **88**, 361, 1964); metabolism of mevalonic acid (J. Bact. **88**, 361, 1964); energy-producing pathways (ibid., **89**, 913, 1965; J. Biol. Chem. **234**, 2789, 1959); DNA base composition (45.1 moles % GC)(ibid., **102**, 278, 1970). Phage host. Strain 17-5; NCDO 82; BUSCAV 449; NCIB 6376, 8014, 8030; DSM 20205; IFO 3070; NCTC 6376; NCIM 2085; 2373 and 2594 (Medium 14 or 32, 37°C)

2084 NCIB 8531 (1957) (*Lactobacillus pentosus*). Lactic acid fermentation of waste sulfite liquor (Ind.Eng. Chem.**40**, 57, 1948) Strain 124-2; NRC 716. (Medium 14 or 32, 37°C)

2085 Same as NCIM 2083

2372 NCIB 8016 (1971). (*Streptobacterium plantarum* 10 S, *Lactobacillus arizonensis*)**.** Assay of p-aminobenzoic acid (J. Appl. Bact. **18**, 274, 1955). ATCC 10012; DSM 20246 , LMG18399 (Medium 14 or 32, 37°C)

2373 Same as NCIM 2083

2374 NCIB 6376 (1971). (*Lactobacillus arizonensis, Lactobacillus arabinosus*). Assay of amino acids, Assay of biotin, Assay of calcium pantothenate, Assay of niacinamide nicotinamide,Assay of nicotinic acid niacin,Assay of pantothenic acid,Assay of tryptophan L-tryptophan,Metabolizes mevalonic acid,Produces lactic acid lactate
Quality control strain, Produces lactic acid from coconut water
Food testing, Pharmaceutical and Personal Care, Bacteriophage host

2375 Synthesis of ribitol teichoic acids, Energy-producing pathways (AACC Niacin--microbiological method. St. Paul, MN, 1999, J. Bacteriol. 81: 65-69, 1961, J. Bacteriol. 88: 361-366, 1964, Proc. Asia-Pacific Biotechnol. Congr. 1986: 93-99, 1986.) ATCC 8014; DSM 20205; Assay of biotin. (Medium 14 or 32, 37°C)

2592 NCIB 6461 (1974). (*Lactobacillus* sp, *Lactobacillus arizonens*) Estimation of antiseptic power of hops (J. Inst. Brew **46**, 235, 1940; J. Gen. Mirobiol.**13**, 481, 1955) Produces acetylcholine (J. Gen.

Microbiol. 1: 279-298, 1947) ATCC 10241, DSM 2601. (Medium 14 or 32, 37°C)

2593 Isolated from Sauerkraut. NCIB 7220 (1974) Synthesis of acetyl choline (J. Gen. Microbiol. **1**, 279, 1947); (*Lactobacillus* sp, *Lactobacillus arizonensis*) serology (ibid., **12**, 107, 1955). J. Appl. Bact. **18**, 274, 1955. NCTC 7220; ATCC 10241; NCDO 343; BUSCAV 248; NCIB 8184; NCIM 2595, DSM2601 (Medium 14 or 32, 37°C)

2594 Same as NCIM 2083

2595 Same as NCIM 2593

2656 NCIM isolate (*Lactobacillus arabinosus*) (Medium 14 or 32, 37°C)

2912 (*Lactobacillus pentosus*) Type strain (Int. J. Syst. Bact. **37**, 339, 1987). Pentose fermentation (J. Biol. Chem. **48**, 385, 1921); hexose fermentation (ibid., **53**, 111, 1922); fermentation of woodsugar remaining after alcoholic fermentation (Ind. Eng. Chem., Ind. Ed. **19**, 1162, 1927); production of acetic and lactic acids from mill sawdust (Ind.Eng.Chem. **21**, 1039, 1929); requirement for pantothenic and nicotinic acids (J. Am. Chem. Soc. **60**, 2825, 1938; J. Bact. **38**, 293, 1939); synthesis of riboflavin (Enzymologia **6**, 186, 1939); purine and pyrimidine base growth substances (Proc. Nat. Acad. Sci. **27**, 1, 1941); sulfanilamide antagonists as growth factors (Arch.Biochem. **21**, 93, 1942); amino-acid requirements (J. Biol. Chem. **168**, 1, 1947); vitamin requirements (ibid., p23); production of lactic acid by fermentation of sulfite waste liquor (Ind. Eng. Chem. **40**, 57, 1948); nutritional requirement (J. Bact. **55**, 683, 1948); metabolism of biotin and oxybiotin (ibid.,p 693); electron transport to oxygen (J. Biol. Chem. **234**, 2789,1959); numerical taxonomy (Can. J. Microbiol.**14**, 313, 1968).NCIB 8026 (*Lactobacillus pentosus*); DSM 20314; NCDO 363; E. E. Snell 124-2; ATCC 8041 (Medium 14 or 32, 37°C)

***5308** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from dosa batter. Production of DL-lactic acid, strain no. C404-3-3 (Medium 14 or 32, 37°C)

5317 Deposited by Microexpress, Goa (2008). Same as NCIM 2083 (Medium 14 or 32, 37°C)

5395 Deposited by Dr. Yogesh Shouche, NCCS, Pune (2010). Isolated from Asava fermented extract. Strain no. VR1. (Medium 14 or 32, 37°C)

5396 Deposited by Dr. Yogesh Shouche, NCCS, Pune (2010). Isolated from Asava fermented extract. Strain no. VRA. (Medium 14 or 32, 37°C)

Lactibacillus rhamnosus

5254 Deposited by Microexpress, Goa (2008). ATCC 9595 (Medium 14 or 32, 37°C)

***5300** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from Curd. Production of L-lactic acid, strain no. C404-9-1 (Medium 14 or 32, 37°C)

***5301** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from Curd. Production of L-lactic acid, strain no. C404-9-2 (Medium 14 or 32, 37°C)

***5302** Deposited by Bioasset Technologies Ltd., Mumbai (2008). Isolated from Curd. Production of L-lactic acid, strain no. C404-10-1 (Medium 14 or 32, 37°C)

***Lactobacillus* sp.**

2658 IFO 3914. Assay of glutamine and pantothenic acid. (Medium 14 or 32, 37°C)

2734 Deposited by M.C. Srinivasan in 1969. Produces Lactic acid. (Medium 14 or 32, 37°C)

Lactobacillus sporogenes

5163 NCIM isolate (Medium 14 or 32, 37°C)

***Lactobacillus viridescens* Niven and Evans.**

2167 CFTRI (1965). Type strain (Int. J. Syst. Bact. **21**, 238, 1971; ibid., **30**, 314, 1980). (Weissella viridescens)Assay of thiamine (J. Bacteriol.**74**, 818, 1957; Appl. Microbiol.**8**,209, 1960; J. Bacteriol., **73**, 758, 1957; Analytical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp. 521-525, 1963). Slime formation (Appl. Microbiol. **23**, 389, 1972) Strain S 38A; ATCC 12706; NCDO 1655, DSM 20410, LMG3507(Medium 14 or 32, 37°C; CO2 [5-10 %] enhances growth)

LEUCONOSTOC

LEUCONOSTOC (van Tieghem) Hucker and Pederson

***Leuconostoc mesenteroides* (Tsenkovskii) van Tieghem**

2073 NRRL B-512 (1956). Dextran producer. (J. Bact. **63**, 293, 1952; J. Dairy Res. , **27**, 284, 1960; Nature, Lond **191**, 277, 1961).Produces dextransucrase, Production of dextran for use as a plasma extender and substitute for mucin,Produces clinical dextran by mixed-culture fermentation with Lipomyces starkeyi (Biotechnol. Bioeng. **37**: 703-707, 1991., Enzyme Microb. Technol. **16**: 844-848, 1994.,) ATCC 10830; BUSCAV 315; NCDO 553.(Medium 14 or 32, 30°C)

2198 PRL L-32 (1966). Dextran producer.(Medium 14 or 32, 37°C)

2199 PRL L-39 (1966). Estimation of lysine. (Medium 14 or 32, 37°C)

2292 ATCC 8042 (See *Pediococcus acidilactici*)

2947 QM B-1617. Produces exopolysaccharide (GUM).(Medium 14 or 32, 37°C)

***Leuconostoc oenos* Garvie**

2219 NCDO 1674 (1967) Type strain (J. Gen. Microbiol. **48**, 431, 1967) (*Oenococcus oeni*) Assay of tomato Juice factor (Arch. Mikrobiol. **55**, 398, 1967) ATCC 23279,DSM20252,LMG9851.. (Medium 23, Anaerobic 30°C)

LIMNOBACTER

LIMNOBACTER

Limnobacter litoralis

5492 Deposited by Dr.Mahesh Dharne, NCL (2013). Type strain.Isoalted from volcanic. Received from Prof. Ohta. Deposit. GeneBank No. NBRC 105857^T , LMG 24869^T (Lu et al, IJSEM 61: 404-407**,** 2011). (Medium 41b or 26, 37°C)

LINEOLA

LINEOLA Pringsheim.

***Lineola longa* Pringsheim**

2596 Isolated from cow dung. NCIB 8796 (1974) Type stran (*Bacillus macroides; Bacillus simplex*, *Lysinibacillus macroides,*) Bennett and Canale-Parola (J. Gen. Microbiol.**1**, 267, 1947; J. Gen. Microbiol. **4**, 198, 1950). Strain 1745-18; LMG 18508, LMG 18474, DSM 54. (Medium 41, 30°C)

LISTERIA

LISTERIA

Listeria monocytogenes

5260 Deposited by Microexpress, goa (2008). Serotype 1, ATCC 19111. Media testing, Enteric Research,Food testing (British Standard DD CEN ISO/TS 11133:2003) (Medium 60, 37°C)

5277 Deposited by Microexpress, goa (2008). Serotype 2. Enteric Research (J. Pathol. Bacteriol. **41**: 239, 1935.) ATCC 19112 (Medium 60, 37°C)

5279 Deposited by Microexpress, Goa (2008). Serotype 4d, Enteric Research (J. Pathol. Bacteriol. **41**: 239, 1935.) ATCC 19117 (Medium 60, 37°C)

LYSINOBACILLUS

LYSINOBACILLUS

***Lysinobacillus* sp.**

5333 Deposited by Dr. Karegoudar, Gulbarga University (2009). Isolated from soil sample of textile industry. Gene bank no. FJ888395. Strain no. AK2 (Medium 26 or 41, 37°C)

MICROBACTERIUM

MICROBACTERIUM

Microbacterium arborescens

5244 Deposited by Dr. Saroj Bhosale, Goa University, Goa. (2006). Isolated from roots of *Ipomia pes caprae.* Gene bank no. DQ287961. (Medium 51, 37°C)

Microbacterium sp.

5454 Deposited by Dr. Syed Dastager (2012). Isolated from sediment sample. DSM 25125; NIO 1002; CCTCCAB 2011120. Gene bank no. JF 421612. (Medium 41, 30°C)

Microbacterium testaceum

5475 Deposited by Dr. Syed Dastager (2012). Isolated from Chinese paddy. KCTC 9103. Current Microbiol. 62:1039, 2011 (Medium 41, 30°C)

MICROCOCCUS

MICROCOCCUS Cohn.

***Micrococcus flavus* Trevisan.**

2376 ATCC 10786 (1971) (*M. luteus."Micrococcus lysodeikticus" ,"Sarcina citrea" ,"Sarcina flava" ,"Sarcina lutea"*) Assay of

bacitracin (Antibiot. Chemother. **7**, 639, 1957;ibid., **9**, 613, 1959; AOAC Methods 42.203-42.226, 1984; U.S. Pharmacopeia, 21st rev. pp 1160-1165, 1985; British Pharmacopeia, 1980, v2, p. A123, 1980); assay of benzalkonium chloride (Anal. Microbiol. Vol. 2, F. Kavanagh, ed. Academic Press, New York, p 322, 1972); chlorhexidine gluconate and chlorhexidine diacetate (ibid., p323); phenylmercuric acetate (ibid.,p323-324); phenylmercuric nitrate and thimerosal (ibid., p324). NCIB 8640 and 8166; Strain PCI 16;DSM 1790; FDA 16; IFO 3242; ATCC 10240; NCIM 2377 (Medium 41, 30°C)

2377 Same as NCIM 2376

2378 NCIB 8994 (1971). (*M. luteus*) Assay of bacitracin in presence of neomycin; neomycin resistant mutant of NCIB 8166. Strain C504NR. (Medium 41, 30°C)

2814 Same as NCIM 2376

2815 Same as NCIM 2376

***Micrococus glutamicus* Kinoshita et al**

2168 CFTRI (1965). (*Corynebacterium glutamicum,*). Produces L-glutamic acid (U.S. Pat.3,002,889 and 3,220,929). LMG 3658, ATCC 13059. (Medium 41, 30°C)

2705 NCIB 10025 (*Corynebacterium glutamicum, Corynebacterium lilium, Brevibacterium flavum, Brevibacterium lactofermentu, Brevibacterium divaricatum, Corynebacterium lilium*). Type strain (Int. J. Syst. Bacteriol. **30**, 286, 1980) Produces L-glutamic acid (Bull. Agr. Chem. Soc. Japan, **22**, 176, 1958) (U.S.Pat., 3,002,889 and 3,003,925 and 3,220,929). ATCC 13032; DSM 20300, LMG3730. (Medium 41, 30°C)

***Micrococcus luteus* (Schroeter) Cohn**

2103 See *Sarcina lutea.* ATCC 9341.

2169 NCIB 8165 (1965). (*Micrococcus* sp*; unnamed Corynefor Bacteria*) Type strain (Antonie van Leeuwenhoek **29**, 313,1963; Int.J. Syst. Bact. **22**, 218, 1972); production of creatinine amidohydrolase and creatinine amidinohydrolase. NCTC 8512; Hucker 426; BS 810; ATCC 398. (Medium 41, 30°C)

2170 NRC 634 (1965).(*Micrococcus lysodeikticus,Micrococcus lysodeikticus, Sarcina citrea, Sarcina flava, Sarcina lutea'*) Test for lysozyme activity (Proc. Roy. Soc. Lond.,Ser. B, **93**, 306, 1922; Lancet **1**, 217, 1929) Production of 6- aminopenicillanic acid (U. S. Pat. 3,239,427) Phage host. ATCC 4698 and 15307; NCIB 9278; IFO 3333; NCTC 2665; NRRL B-287; same as NCIM 2437 (Medium 41, 30°C)

2379 ATCC 11880 (1971). (*Micrococcus sodonensis,*) Type strain (J. Bact. **69**, 67, 1955) Assay of biotin. (J. Bact. **69**, 67, 1955). Peptidoglycan biosynthesis (J. Bact. **127**, 309 and 319, 1976).NCIB 8854; NRRL B-3190 (Medium 41, 30°C)

2673 ATCC 382 (1951). (*Sarcina lutea*) Succeptible to lysozyme (Medium 41, 30°C)

2704 NCIB 8942 (*Sarcina subflava, Micrococcus yunnanensis,Micrococcus lysodeikticus, Sarcina citrea,Sarcina flava, Sarcina lutea*) Cylinder plate assay of bacitracin in body fluids, feeds, milk and

pharmaceutic preparations (Antibiot. Chemother. **7**, 639, 1957; ibid., **9**, 613, 1959; AOAC Methods 42.203 -42.226, 1984) Cylinder plate assay of chloramphenicol in serum (Antibiot. Chemother. **9**, 613, 1959) ibid., **12**, 545, 1962. ATCC 7468; NRRL B-2619; IFO 12992; NCIM 2395 (Medium 41, 30°C)

2721 Same as NCIM 2673.

2800 See *Arthrobacter luteus.*

2871 NCIB 10818 (1983) (*Sarcina subflava*) Cylinder plate assay of Bacitracin in pharmaceutic preparations; dihydrostreptomycin and streptomycin resistant (Code of Federal Reg. Title 21, Part 436, 1987) ATCC 7468D (Medium 41, 30°C)

5262 Deposited by Microexpress, Goa (2010). Same as NCIM 2103. (Medium 41, 30°C).

Micrococcus varians subsp. Halobius

2913 ATCC 21917. (Kocuria varians)Production of halophilic nuclease (U. S. Pat. 3,896,000) Can. J. Microbiol. **22**, 1567, 1976 (Medium 41, 30°C)

MICROCYCLUS

MICROCYCLUS Orskov.

***Microcyclus aquaticus* Orskov**

(*Ancylobacter aquaticus*) **(Orskov)Raj**

2119 Institut of Biology, CSAV, Prague, Czechoslovakia(1961).Type stran.Neotype (Int. J. Syst. Bact. **29**, 414, 1979; ibid., **20**, 61, 1970) Nomenclature (ibid., **33**, 397, 1983) NCIB 9271; Strain Orskov Mc-2; BUSCAV 410; ATCC 25396, DSM101,LMG4052. (Medium 28 or 41, 30°C)

2287 California State College, U.S.A. (1970) . Same as NCIM 2119.

***Microcyclus flavus* Raj.**

(*Spirosoma linguale,Spirosoma* sp) **Migula**

2288 Raj strain Mc1 California State College U.S.A. (1970). Type strain of M.flavus (Int. J. Syst. Bact. **20**, 79, 1970; Bact. Proc. P. 44, 1968) Taxonomy (Arch. Microbiol. **63**, 26, 1968; Int. J. Syst. Bact. **27**, 147, 1977). CCM 2041; ATCC 23276, DSM102. (Medium 28 or 41, 30°C)

MOREXELLA

MOREXELLA

***Morexella* sp.**

2795 Deposited by D.N.Deobagkar (1982). Produces restriction endonuclease MspI (Medium 26, 30°C).

MYCOBACTERIUM

MYCOBACTERIUM Lehmann and Neumann.

Mycobacterium fortuitumsubsp.fortuitum

5239 Deposited by Prof. Sridhar Patil, Devi Ahilya Vishwavidyalaya, Indore (2006). Synthesis of androgens and their derivatives. Mutant of MTCC 929 (Medium 41, 37°C)

***Mycobacterium phlei* Lehmann and Neumann.**

2240 CDRI (1969). (J. Gen. Microbiol., **21**, 736, 1959). NCIB 8573, LMG 4057.; Strain "Crotin". (Medium 33, 37°C)

***Mycobacterium smegmatis* (Trevisan) Lehmann and Neumann**

5138 MTCC 6 (2000). (*Bacillus smegmatis,Mycobacterium friedmannii)* Suggested neotype (J. Gen. Microbiol. **28**, 339, 1962).ATCC 101 & 14468; DSM 43277; NCIB 9953; NCTC 10265 (Medium 33, 37°C)

***Mycobacterium* sp.**

2984 NRRL B-3683. Steriod conversions (U. S. Pat. 3,684, 657 and Appl. Microbiol. **23**, 72, 1972). ATCC 29472, DSM2966. (Medium 33 or 29 with10% glucose, 37°C)

2985 Same as NCIM 2984. (Medium 29 with 10% glucose or 33, 37°C)

5240 Deposited by Prof. Sridhar Patil, Devi Ahilya Vishwavidyalaya, Indore (2006). Synthesis of estrogens and their derivatives. Mutant of NRRL B-3805. (Medium 41, 37°C)

MYCOPLANA

MYCOPLANA Gray and Thornton.

***Mycoplana bullata* Gray and Thornton.**

2382 NCIB 9440 (1971) (*Brevundimonas bullata, Mycoplana ramosa*).Type strain. Attacks phenol and related compounds (Zentr. Backteriol., II Abt, 73, 1928). Strain M – 51; ATCC 49678; DSM 7292; LMG 3026 (Medium 41, 30°C)

***Mycoplana dimorpha* Gray and Thornton.**

2383 NCIB 9439 (1971). Type strain (Int. J. Syst. Bact. **30**, 328, 1980) Attacks phenol and related compounds (Zentr. Backteriol., II Abt, 73, 1928). Strain M-31. ATCC 4279; IFO 13291, DSM7138, LMG 4061. (Medium 41, 30°C)

NITROBACTER

NITROBACTER Winogradsky

***Nitrobacter* sp.**

Isolated from soil encriched with Ammonia fertilizers (Village Manjori, Rajgurunagar and Aundh area Distirct Pune). Deposited by Dr. S.G. Patil

5062 NCIM isolate 06.(Medium 39, 30°C)

5063 NCIM isolate 10.(Medium 39, 30°C)

5064 NCIM isolate 12.(Medium 39, 30°C)

5067 NCIM isolate 17.(Medium 39, 30°C)

5077 NCIM isolate 16.(Medium 39, 30°C)

5078 NCIM isolate 20.(Medium 39, 30°C)

NITROSOMONAS

NITROSOMONAS Winogradsky

***Nitrosomonas* sp.**

Single cell isolate from surrounding area of Pune. Deposited by Dr. I.I. Sutar

5071 3. A-1 (Medium 40, 30°C)

5072 4. A-2 (Medium 40, 30°C)
5073 5. A-1 (Medium 40, 30°C)
5074 6. A-2 (Medium 40, 30°C)
5075 7. A-1 (Medium 40, 30°C)
5076 8. A-1 (Medium 40, 30°C)

NOCARDIA

NOCARDIA Trevisan

***Nocardia steroids* (Eppinger) Blanchard**

5202 Deposited by V. Chandrika (2003). Isolated from farm marine sediment. (Medium 43c, 30˚C)

5285 Deposited by Microexpress, Goa (2010). MTCC 274, ATCC 19247, DSM 43757, NCTC 11293, NCIB 2082 (*Haloarcula vallismortis*) ; ATCC 29715 (Medium 29, 30°C)

***Nocardia calcarea* Metcalfe and Brown**

(*Rhodococcus erythropolis,* Gray and Thronton) Goodfellow and Anderson

2086 NCIB 8863 (1971) Type strain of *N. calcarea, Arthrobacter picolinophilus Corynebacterium hydrocarboclastum, Nocardia canicruria* (Int. J. Syst. Bact. **30**, 337, 1980) Fixes atmospheric Nitrogen (J.Gen. Microbiol., **17**, 567, 1957). ATCC 19369; DSM 43188. (Medium 41, 30°C)

***Nocardia cellulans* Metcalfe and Brown**

2385 ATCC 12830 (1971). Fixes atmospheric Nitrogen (J. Gen. Microbiol. **17**, 567, 1957). NCIB 8868 (*Cellulosimicrobium cellulans*, *Arthrobacter luteus'' Brevibacterium fermentans, Brevibacterium lyticum, Cellulomonas cartae, Cellulomonas cellulans, Nocardia cellulans, Oerskovia xanthineolytica,*); DSM 43879 (Medium 41, 30°C)

***Nocardia hydrocarbonoxydans* Hirsch and Engel.**

(*Amycolata hydrocarbonoxydans*, Nolof and Hirsch) Lechevalier et al.

2386 NCIB 9436 (1971). (*Pseudonocardia hydrocarbonoxydans*)Type strain (Int. J. Syst. Bact. **30**, 337, 1980; ibid. **36**, 29, 1986) Utlilizes hydrocarbons, organic acids and alcohols (Ber. Deut. Botan. Ges.,**69**, 441, 1956; Arch Mikrobiol., **44**, 266, 1962). Strain Hirsch 70; ATCC 15104; DSM 43281; NRRL B-16171. (Medium 41, 30°C)

***Nocardia mediterranei* (Margalith and Beretta) Thiemann et al**

5016 See *Amylolatopsis mediterranei*

***Nocardia rugosai* DiMarco and Spalla**

2290 Isolated from cattle rumen. NCIB 8926 (1970). A. Di Marco, Farmitalia, Milan, 1957 (*Prauserella rugosa*) Production of vitamin B12. British Pat. 794,151. ATCC 43014; DSM 43194; (Medium 41, 30°C)

2291 ATCC 13178 (1970). Estimation of aspartic acid (Biochem. J. **38**, 221,1958). NCIB 8862 (*Acinetobacter* sp). (Medium 41, 30°C)

NONOMURAEA

NONOMURAEA

Nonomuraea indica

5480 Deposited by Dr. Syed Dastager, NCL (2013) Isolated from lime stone Soil. GeneBank No. GQ357646; CCTCC No. AA209050 (Media 65 or 29, 35°C)

NOVACTINOSYNNEMA

NOVACTINOSYNNEMA

***Novactinosynnema* sp.**

5481 Deposited by Dr. Syed Dastager, NCL (2013) Isolated from lime stone Soil. GeneBank No. JF789453; DSM 45410(Media 65 or 29, 35°C)

NOVOSPHINGOBIUM

NOVOSPHINGOBIUM

Novosphingobium subterraneum

5501 Deposited by Dr. Mahesh Dharne, NCL (2013). Type strain. (*Sphingomonas subterranean*) Received from CIP France. GeneBank No. AB025014. Degrades aromatic compounds, Degrades naphthalene, Degrades toluene (Int. J. Syst. Bacteriol. **47**: 191-201, 1997.) ATCC 700279^{T}, CIP 105153^{T}, DSM 12447^{T}, IFO 16086^{T}, KCTC 2889^{T}, LMG 18306^{T}. Degrades aromatic compounds. (Int. J. Syst. Bacteriol. **47**: 191-201 (1997) (Media 67, 37°C)

OCHROBACTRUM

OCHROBACTRUM

***Ochrobactrum* sp.**

5311 Deposited by Dr. Karegoudar, Gulbarga University (2008). Isolated from cole powder, strain no. BGVK (Medium 41, 37°C)

OERSKOVIA

OERSKOVIA

***Oerskovia xanthineolytica* Lechevalier**

2839 V. R. Srinivasan (1982). For breaking yeast cell walls (Medium 41, 30°C)

PAENIBACILLUS

PAENIBACILLUS

***Paenibacillus* sp.**

5410 Deposited by Dr. J. lalitha, Gulbarga University, Gulbarga, (2011). Strain no. MSL-9. Isolated from marine source, Kolaba, Mumbai. Agar utilization and beta-mannanase production (Int. J. Bioscan. **5**, 75-79, 2010). gene bank no. FJ859876. (Medium 26, 30°C).

PANTOEA

PANTOEA

Pantoea dispersa

5417 Deposited by Dr. T.B. Karegaudar, Gulbarga University, Gulbarga (2011). Isolated from Cheakpea grown agricultural soil sample. Production of IAA (Medium 41, 37°C)

Pantoea septica

5468 Deposited by Sudipta Biswas, CEPD, NCL, Pune, 2012. (Medium 41, 37°C)

PARACOCCUS

PARACOCCUS

Paracoccus bengalense

5398 Deposited by Dr. Sanjay Nene, NCL, Pune (2010). Type strain. MTCC 7003 (Medium 41, 30°C)

Paracoccus niistense

5340 Deposited by NIIST, Trivandrum (2009). Gene bank no. FJ842690, Strain no. NII-0918. (J. Anton. Van Leeuven. **99,** 501-506, 2011) KCTC 22789.(Medium 41, 30°C)

Paracoccus pantotrophus

5400 Deposited by Dr. Sanjay Nene, NCL, Pune (2010). MTCC 7169, (Medium 26, 30°C)

***Paracoccus* sp.**

5313 Deposited by Dr. DT.B. Karegaudar, Gulbarga University, Gulbarga (2008). Isolated from chemical waste samples, strain no. SKG (Medium 41, 37°C)

Paracoccus thioajanapus

5406 Deposited by Dr. Nene, NCL, Pune (2010). (*Paracoccus thiocyanatus*) MTCC 7168, LMG 22699 (Medium 41, 30°C)

Paracoccus versutus

5401 Deposited by Dr. Nene, NCL, Pune (2010). MTCC 7170, (*Paracoccus* sp.) LMG22704 (Medium 26, 30°C)

5402 Deposited by Dr. Nene, NCL, Pune (2010). (*Paracoccus* sp.) MTCC 7172 , LMG22701 (Medium 26, 30°C)

PEDIOCOCCUS

PEDIOCOCCUS Balcke emend , Mees

***Pediococcus acidilactici* Lindner.**

2292 NCIB 8018 (1970) *Leuconostoc mesenteriodes*; *P. cerevisiae; Pediococcus lolii* . Assay of panthenol (Analytical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp. 513-515, 1963). Assay of amino acids (ibid., pp. 567-673; ibid., **2**, 494, 1972 J. Biol.Chem. **156**, 703, 1944; AOAC Methods 43.218-43.228, 1984; USDA Misc. Publ. **696**, 1, 1950). Int. J. Syst. Bact. **24**, 301, 1974. Assay of arginine;Assay of aspartic acid;Assay of dexpanthenol;Assay of glycine;Assay of histidine;Assay of isoleucine;Assay of L-cystine;Assay of leucine; Assay of L-glutamine;Assay of L-lysine;Assay of L-proline;(AOAC International; AOAC Official Method 960.47) NCIB 6990, 7881, 8031; P 60; ATCC 8042; DSM

20238; IFO 3076; BUSCAV 313; NCIM 2293 and 2294 (Medium 14 or 32, 30°C).

Same as NCIM 2292

Same as NCIM 2292

5368 Deposited by Dr. Prakash Halami, CFTRI, Mysore (2010). Strain no. LP3 (Medium 14 or 32, 37°C)

5419 CFTRI, Mysore (2011). Strain no. Cb1 (Medium 14 or 32, 37°C)

5424 CFTRI, Mysore (2011). Strain no K7. Gene bank no. AY917122. (Medium 14 or 32, 37°C)

***Pediococcus cerevisiae* Blacke**

2171 ATCC 11308 (1965) (*Pediococcus damnosus; Streptococcus parvus*) Beer souring (J. Gen. Microbiol. **26**, 185, 1961) NCIB 8519 (Medium 14 or 32, 30°C)

***Pediococcus pentosaceous* Mees.**

2295 Pasteur Institute, Coonoor (1950). (*Leuconostoc citrovorum*; *Pediococcus acidilactici; Streptococcus citrovorus, Pediococcus pentosaceus* subsp. *intermedius*) B. W. Hammer 32 (Proposed neotype of *P. cerevisiae* (Int. Bull. Bact. Nomen. Taxon. **12**, 185, 1962). Assay of : folic acid (Analytical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp. 469-478 and 480-488, 1963); leucovorin (ibid., Vol. **2**, pp 429-436, 1972); folic acid in blood (ibid., pp 441-455); arginine, cystine, methionine, threonine and tyrosine (ibid., 494). Assay of citrovorum factor (J. Biol. Chem. **176**, 165, 1948). Assay of alanine (ibid., 177, 545, 1948). J. Bact. **65**, 482, 1953; ibid., **67**, 484, 1954; Int. J. Syst. Bact. **24**, 301, 1974. Strain Hammer 32; QEC 89; NCTC 7837; NCIB 7837, 8968 and 8124; NCDO 813; ATCC 8081; DSM 20206 (Medium 14 or 32, 37°C)

2296 NCIB 8124 (1970) Same as NCIM 2295

2297 NCIB 8968 (1970) Same as NCIM 2295

5420 CFTRI, Mysore (2011). Strain no. Cb4. (Medium 14 or 32, 37°C)

5425 CFTRI, Mysore (2011). Strain no. R38. Gene bank no. FJ586350 (Medium 14 or 32, 37°C)

PAENIBACILLUS

PAENIBACILLUS

Paenibacillus pasadenensis

5434 Deposited by Prasad Loni, YC College of Science, Karad (2012). Strain no. SBPL-1, gene bank no. HQ222259. (Medium 41 with pH 10, 35-40^{o}C

PONTIBACTER

PONTIBACTER

Pontibacter niistense

5339 Deposited by Syed Dastagi, NIIST, Trivandrum (2009). Gene bank no. FJ897494. Strain no NII-0905 (Int. J. Syst. Evol. Microbiol. **60,** 2867-2870, 2010) (Medium 41, 30^{o}C)

PROPIONIBACTERIUM

PROPIONIBACTERIUM Orla-Jensen.

***Propionibacterium freudenreichii* van Niel.**

2111 ATCC 6207 (1960). Type strain (Int. J. Syst. Bact. **30**, 346, 1980); Production of vitamin B12 (Ind. Eng. Chem. **44**, 2651, 1952; J. Bact. **85**, 870, 1963); cell wall and DNA analyses (J. Bact. **109**, 1047, 1972). NCDO 564;,NCTC 5959; Strain 33 Hitchnerl 53W Werkman; BUSCAV 268; NCIB (Medium 14 or 22 or 32, 30°C)

***Propionibacterium shermanii* van Niel.**

2091 Hopkins Marine Station, Pacific Grove, Calif., U.S.A. (1958). Strain6; NCIB 5964 (*Propionibacterium freudenreichii* subsp. *shermanii*; ATCC 4866; NCTC 5964; NCDO 566. (Medium 14 or 22 or 32, 37°C, Anaerobic)

5137 MTCC 1371 (2000). (Medium 14 or 22 or 32, 37°C, Anaerobic)

***Propionibacterium thoenii* van Niel**

2932 NCIB 5966. Type strain. (Propionibacterium rubrum) (Int. J. Syst. Bact. **30**, 347, 1980). Cell Wall and DNA analyses (J. Bact. **109**, 1047, 1972). ATCC 4874; DSM 20276; CCM 1865. (Medium 14 or 22 or 32, 30°C)

***Propionibacterium zeae* Hitchner**

2092 Hopkins Marine Station, Pacific Grove, Calif., U.S.A. (1958). *Propionibacterium jensenii*. Referred to as the type strain by monotype of *Propionibacterium zeae* (J. Bacteriol. **26,** 393, 1933). Cell wall and DNA analyses (J. Bacteriol. **109**: 1047-1066, 1972). NCDO 569; ATCC 4964; NCIB 5967 (*Propionibacterium jensenii*) (Medium 14 or 22 or 32, 37°C, Anaerobic)

PROTAMINOBACTER

PROTAMINOBACTER den Dooren de Jong.

***Protaminobacter alboflavus* den Dooren de Jong.**

2172 NCIB 8167 (1965). (*Mycobacterium* sp.) Unnamed Coryneform bacteria (*Protaminophagous bacterium*). Utilises alkyl amines and formate. NCTC 2875; ATCC 8458; DSM 762; IFO 3707; NRRL B-1051.(Medium 41, 30°C)

PROTEUS

PROTEUS Hauser

***Proteus mirabillis* Hauser.**

2241 NCIB 8268 (1969). Assay of valine and leucine; digonsis of rickettsial infections. NCIB 8309; Strain OXK. (Medium 41, 37°C)

2300 NCIB 60 (1970). Assay of valine and leucine. (J. Gen.Microbiol.**17**, 602, 1957. NCTC 60. (Medium 41, 37°C)

2387 NCIB 2100 (1971). Assay of valine and leucine. (J. Gen. Microbiol. **17**, 602, 1957). Strain rat; NCTC 2100. (Medium 41, 37°C)

2388 NCIB 5887 (1971) Estimation of glucose; assay of valine and leucine. (Biochem. J.**27**, 1082, 1933; J. Gen. Microbiol. **17**, 602, 1957). NCTC 5887; LMG 2954. (Medium 41, 37°C)

5296 Deposited by Microexpress, Goa (2008). Quality control strain, Quality control strain for IDS productsATCC 25933 (Medium 41, 37°C)

5297 Deposited by Microexpress, Goa (2008).Media testing (Clinical and Laboratory Standards Institute; CLSI M22-A3.) ATCC 12453 ,DSM18254 (Medium 41, 37°C)

***Proteus morganii* (Winslow et al.) Rauss.**

(*Morgenella morganii*)

2040 Lister Institute, Lond. (1952). NCIB 232; Strain Spencer (Medium 41, 37°C)

2860 NCIB 235. Neo type (Int. J. Syst. Bact. **21**, 57, 1971). (*Morganella morganii* subsp. *morganii, Morganella morganii*). Quality control strain (ISO/CD 11133:2009, Annex E) DNA hybridization reference strain. Strain 33M; ATCC 8076 H and 25830; DSM 30164; IFO 3848 (Medium 41, 37°C)

***Proteus vulgaris* Hauser.**

2027 NCIB 4175 (*Proteus hauseri*). Type strain.Neotype (Int. Bull. Bact. Nomen.Taxon **13**, 36,1963) Assay of valine and leucine. (J. Gen.Microbiol.**17**, 682, 1957. ibid., **38**, 417, 1965; J. Bact. **92**, 828, 1966; Can. J. Microbiol. **13**, 243, 1967). Assay of valine L-valine,Produces restriction endonuclease PvuI,Produces restriction endonuclease PvuII,Quality control strain,Testing bactericides,Quality control strain for Abbott, API, and Sensititre products,Water testing (Nucleic Acids Res. 9: 4525-4536, 1981. ,Strain Lehmann; NCTC 4175; ATCC 13315,DSM 30118,LMG2096. (Medium 41, 37°C)

2813 NCIB 8067. Assay of chlortetacycline (J. Bact. **85**, 42, 1963). Non-motile culture. Strain HX 19, ATCC 9484. (Medium 41, 37°C)

2857 NCIB 8261, Typhus diagnosis; Assay of valine and leucine (J. Gen. Microbiol.**17**, 602, 1957). OX 19; NCTC 8313.(Medium 41, 37°C)

5266 Deposited by Microexpress, Goa (2008). Same as NCIM 2027 (Medium 41, 30°C)

PROVIDENCIA

PROVIDENCIA

Providencia rustigianii

5259 Deposited by Microexpress, Goa (2008). ATCC 12013 (Medium 41, 37°C)

***Providencia stuartii* (Buttiaux el al) Ewing**

2799 Deposited by D. N. Deobagkar (1982).164 Pst I Restriction endonuclease Pst I. (Medium 26, 37°C)

PSEUDOMONAS

PSEUDOMONAS Migula

***Pseudomonas acidovorans* den Dooren de Jong**

2861 NCIB 9681 (*Delftia acidovorans*) (*Comamonas acidovorans*) Type Strain (J. Gen.Microbiol. **43**, 242,1966). Production of D-

hydantoinase Enzyme Microbiol . Technol. **18** , 353, 1996) Strain 7; ATCC 15668; DSM 50251; LMG 1226 (Medium 41, 30°C)

***Pseudomonas aeruginosa* (Schroeter) Migula**.

2036 IFO 3755 (1951). Sterility testing (Brit. Pharmacopeia 1980, v. **2**, p. A191, 1980). (J. Gen. Microbiol. **19**, 155, 1958; ibid., **27**, 121, 1962; Int. J. Syst. Bact. **16**, 92, 1966; Biochem. J., **69**, 403, 1958; J. Appl. Bact. **23**, 37, 1960; ibid., **24**, 87, 117, 1961). Produces pyocyanin, pyorubin, pyoveridin and is non motile (Int. J. Syst. Bact. **22**, 54, 1972). Lysogenic strain. NCIB 6750; NCTC 6750; BUSCAV 276; ATCC 19429. (Medium 41, 37°C)

2037 NCIB 6751 (1951) Deposited as *P. fluorecens.* (J. Appl. Bacteriol. **24**, 117, 1961. Strain Radlett; NCTC 6751). Same as NCIM 2659 (Medium 41, 30°C)

2053 NRC F-2 (1954). Production of potent antibiotics(s) and also crystalline metabolic products; lipolysis. NCIB 8650; Strain PRL. (Medium 41, 30°C)

2074 Centre Nationale de Recherche, Maritime et Industr. Marseilles, France (1956). Attacks phenol. (Biochim. Biophys. Acta.**77**, 554, 1963) NCIB 8704.(Medium 41, 30°C)

2200 PRL F-19 (1966). Assay of antimicrobial preservatives (U. S. Pharmacoepiea 21st rev. p1151, 1985; British Pharmacoepiea vol 1980, addendum 1986, pp A109-A110, 1986). Media testing (ibid., pp A106-A107, 1986). Lipolysis. (J. Bact. **51**, 217, 1946; Biochim. Biophys. Acta,**11**, 594, 1953 ; J. Bact. **68**, 77, 1954; J. Bact. **79**, 875, 1960; J. Bact. **86**, 58, 1963). Produces rhamnolipid surfactant (Appl. Environ. Microbiol. 58: 3276-3282, 1992) NCIB 8626; ATCC 9027; IFO 12375; NRRL 800,LMG 8029.(Medium 41, 37°C)

2242 Same as NCIM 2200.

2659 Same as NCIM 2037

2862 NCIB 10421.Disinfectant tetsing (U.S. federal standards and AOAC methods. 4006-4011 and 4.33-4035, 1980). Broad spectrum resistances to various commercial germicides. Pyocyanin not produced. Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996) ATCC 15442; DSM 939 (Medium 41, 30°C)

2863 NCIB 8295. Type strain.Neotype (Int. J. Syst. Bact. **20**, 15, 1970; J. Gen. Microbiol. **25**, 398, 19761; Int. Bull. Nomen. Taxon. **14**, 69, 1964).Bacterial resistance testing of latex paint (Dev. Ind. Microbiol. **20**, 25, 1979).Detection of aerosols, Produces lipases active at pH 5.5 and 7.5, Produces lipases active at pH 9.0 at 60C,Quality control strain,Water testing (J. Ind. Microbiol. 13: 242-248, 1994.,Standards Australia AS 4276.12-1995.ATCC 10145; NRRL B-771; LMG 1242. (Medium 41, 30°C)

2914 FDA stain Beecham; ATCC 29336. Assay of ticarcillin(U.S. Pharmacopeia, 20th rev. pp. 882, 1980). (Medium 41, 30°C)

2945 QMB B-1468. Production of exopolysaccharide (gum). (Medium 41, 30°C)

2948 QMB B-1592. Production of exopolysaccharide (gum). (Medium 41, 30°C)

5029 ATCC 27853. Standard strain for antibiotic testing of Pseudomonads (J. Infect. Dis. **130**, 454, 1974) Recommended as international standard strain for antibiotic-disc-succeptibility testing of amikacin, carbenicillin, gentamycin and tobramycin (WHO Expert Committee on Biological standardization, 28th Report, WHO Tech. Rep. Ser. **610**, 122, 1977). Standard strain for minimum inhibitory concentrations testing of ampicillin, carbenicillin, chloramphenicol, clindamycin, colistin, erythromycin, gentamycin, kanamycin, methicillin, nitrofurantoin, penicillin G, tetracyclin, trimethoprime-sulfa-methoxazole and tobramycin.(Code of Federal Regulations, Title 21, Part 460, 1987). Effect of salt concentration on gentamicin susceptibility (J. Infect.Dis. **124** Supplement, S59, 1971). Gene bank no. EU286532.DSM1117, NCIMB12469,LMG 6395 (Medium 41, 30°C)

5031 ATCC 25619; FDA strain PCI 852.Assay of carbenicillin. Succceptibility-disc-testing of carbenicillin and vancomycin.LMG 10269 (Medium 41, 30°C)

5032 ATCC 9721. N.R.Smith 112 (*Pseudomonas fluorescens*). Assay of adhesive preparation and bonds. Produces lipases active at pH 5.5 and 7.5 (J. Ind. Microbiol. 13: 242-248, 1994) (Medium 41, 30°C)

5210 ATCC 19154. (*Pseudomonas stutzeri).* Production of lipase (US Patent 3,511,753 May 1970). Strain L130 (Medium 41, 30°C)

5223 5Y2, Goa University (2005). Deposited by Dr. Saroj Bhosale. Isolated from marine water, Bombay high oil field area. Growth on tributyltin chloride (TBTC) (Current Science **86(5),** 702-705, 2004). Gene bank no. BQ014539. (Medium 26, 30°C)

5224 USS25, Goa University (2005). Deposited by Dr. Saroj Bhosale. Isolated from marine water, Bombay high oil field area. Growth on tributyltin chloride (TBTC) (Current Science **86(5),** 702-705, 2004). Gene bank no. DQ014538. (Medium 26, 30°C)

5227 25B, Goa University (2005). Deposited by Dr. Saroj Bhosale.Isolated from marine water, Bombay high oil field area. Growth on tributyltin chloride (TBTC) (Current Science **86(5),** 702-705, 2004). Gene bank no. BQ082858. (Medium 26, 30°C)

5264 Deposited by Microexpress, Goa (2008). Same as NCIM 5029 (Medium 41, 30°C)

5271 Deposited by Microexpress, Goa (2008). Same as NCIM 2862 (Medium 41, 30°C)

5409 Deposited by Dr. J Lalitha, Gulbarga University, Gulbarga (2011). Isolated from marine water, Kolaba beach, Mumbai. Agar degradation (Int. J. Bioscan **5**(2), 279-283, 2010). Gene bank no. FJ853495. Strain no ZSL-2 (Medium 26, 30°C)

5446 Deposited by Dr. Sailas Benjamin, Calicut University, Kerala (2012). Isolated from rumen content of malbari goat. Pyoverdine production. Strain no. BUP2. Gene bank no. JQ407054 (Medium 41, 30°C)

***Pseudomonas aureofaciens* Klyver**.

2026 NRRL B-1576 (1950). Type strain.(J. Gen. Microbiol. **25** (3), 398, 1961; J.Bact.**72** (3), 412-417, 1956; J. Gen. Microbiol.**43**(2), 191, 1966). Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996) L-8; ATCC 13985; CCEB 518, NCIB 9030,LMG

16909,DSM6698 (*Pseudomonas chlororaphis* subsp. *aureofaciens*) (Medium 41, 30°C)

***Pseudomonas azotogensis* Paul and Newton**.

2075 Department of Soil Science, University of Saskatchewan (1956). N_2 fixation. (Can. J. Microbiol. **7**, 7, 1961). NCIB 9277 (*Agrobacterium* sp). (Medium 41, 30°C)

Pseudomonas caryophylli

5094 1026 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

Pseudomonas cepacia

5089 1104 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

5090 2011 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

5091 2106 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

5092 3003 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

***Pseudomonas convexa* Chester.**

2175 NRC 5019 (1965). Deposited as *P. mildenbergii*. (J. Appl. Bact.**24**, 117, 1961). NRRL B-21; ATCC 795;Produces lipase, Produces extracellular lipases (World J. Microbiol. Biotechnol. 11: 669-677, 1995.)NCIB 8176 (*Pseudomonas putida*); BUSCAV 289; IFO 3773. (Medium 41, 30°C)

***Pseudomonas cruciviae* Gray and Thornton**.

2004 NRRL B-1021 (1949). Attacks phenol and m-cresol. (Zentralbl. Bacteriol. (Abt. II), **73**, 74, 1928). LMG 2175, NCIB 9432; NCTC 2580. (Medium 41, 30°C) Does not exist in NCIMB.

***Pseudomonas denitrificans* Bergey et al.**

2038 University of Melbourne, Australia (1951). (J. Appl. Bact.**24**, 117, 1961) NCIB 8376 (*Pseudomonas fluorescens*). (Medium 41, 30°C)

***Pseudomonas desmolyticum* Gray and Thornton**.

2028 Rothamsted Exptl. Station, Harpenden Herts (1950). Attacks phenol and naphthalene.(J.Gen. Microbiol. **11**, 341,1954) NCIB 8859 (*Pseudomonas fluorescens, Pseudomonas lemonnieri*); DSM 8369. Strain II. (Medium 41, 30°C)

2112 NRRL B-979 (1960). Attacks naphthalene and other aromatic compounds. (Zentralbl Bacteriol. (Abt II), **73**, 74, 1928). Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996) NCIB 9427 (*Pseudomonas putida*); NCTC 2578. (Medium 41, 30°C)

***Pseudomonas diminuta* Leifson and Hugh**

2865 NCIB 9393 (*Brevundimonas diminuta*); Type strain (J.Gen. Microbiol. **25**, 400, 1961). Production of coenzyme Q-10 (U.S. Pat. 3,066,808) ATCC 11568; NCTC 8245, DSM7234,LMG 2089.(Medium 41, 30°C)

5216 ATCC 19146 (2004). *Brevundimonas dimunita.* Membrane filter testing (ASTM Standard Test Method F838-83; ASTM Standard Test Method D3862-80; U.S. Pharmacopeia; 1995, <1211>, pp. 1976-1981). Sterility assurance (U.S. Pharmacopeia; 1995, <1211>, pp.

1976-1981). FDA strain PCI 818, CCUG 24715; DSM 1635; LMG 10743. (Medium 41, 30°C)

***Pseudomonas fluorescens* Migula**.

2099 University of IIIinois, U.S.A. (1959). Strain 6 bc. (Medium 41, 30°C)

2100 IFO, Japan (1963). Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996) No. 3081. (Medium 41, 30°C)

2141 Department of Micribiol. California University, Berkley, U.S.A., A 312 (1956). Degrades benzonic acid and derivative. (J. Bact. **54**, 339, 1947; J. Bact. **66**, 548, 1953; J. Biol. Chem. **220**, 45, 1956; J.Bact.**81**, 721, 1961; J. Bact. **85**, 1061, 1963). Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996) NCIB 9494 **(***Pseudomonas putida*); ATCC 12633 and 23467. (Medium 41, 30°C)

2173 NCIM isolate. (Medium 41, 30°C)

2174 NCIM isolate. (Medium 41, 30°C)

2390 NRRL B-10 (1917). Oxidizes potassium gluconate to 2 ketogluconate. Production of cholesterol esterase (US Patent 4,011,138 dated Mar 8 1977) ATCC 948, 11251; CCEB 295; NRRL B-10; Stainer 181. IFO 3903. (Medium 41, 30°C)

2638 NCIM isolate. (Medium 41, 30°C)

2639 NCIM isolate. Streptomycin resistant. (Medium 41, 30°C)

2653 NCIM isolate. (Medium 41, 30°C)

2659 NCIB 6751 (*Pseudomonas aeruginosa*). (J. Appl. Bact. **22**, 117, 1961) Produces pyocyanine pyocyanin, Produces pyorubin, Produces pyoverdin. (Int. J. Syst. Bacteriol. **22**: 53-64, 1972) DSM 3227 (Medium 41, 30°C)

5096 2218 NEERI Deposited by P. Kumaran (1989). (Medium 36 0r 41, 30°C)

5101 1109 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

5226 Goa University (2005). Deposited by Dr. Saroj Bhosale.Isolated from Shipyard water. Growth on tributyltin chloride (TBTC) (Current Science **86(5),** 702-705, 2004). Gene bank no. DQ082857. (Medium 26, 30°C)

***Pseudomonas fluorescens var. laevaniformans* Fuchs.**

2059 University of Leyden, Strain No. 7 (1955). Synthesis of Levan. (Nature, Lond. **178**, 921, 1956. NCIB 9053. (Medium 41, 30°C)

***Pseudomonas fragi* Eichllz.**

2201 NRRL B-25 (1971). Produces 2-ketogluconic acid. (J. Bact.**42**, 51, 1941; J. Gen. Microbiol.**11**, 179, 1963) ATCC 4973 & 13221; CCEB 387; NCIB 8542; LMG 2191. (Medium 41, 30°C)

2391 PRL F-27. Produces 2-ketogluconic acid. (Medium 41, 30°C)

Pseudomonas glutaris

2202 PRL (1966).(Medium 41, 30°C)

***Pseudomonas gr.II* sp.**

5095 1069 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

***Pseudomonas hydrophila* (Chester) Stanier.**

2203 PRL F-14 (1966). (Medium 41, 30°C)

***Pseudomonas lemonnieri* (Lasseur) Breed.**

2060 Department of Botany, University of Nottingham (1955). Lipolysis. (J. Bact.**73**, 154, 1957; Ann. Inst. Pasteur, **99**, 253, 1960. ATCC 12983; Strain LA; NCIB 8917, DSM50415 (*Pseudomonas fluorescens*). (Medium 41, 30°C)

***Pseudomonas maltophila* Hugh and Ryschenkow**

2866 NCIB 9201 (*Stenotrophomonas maltophilia*) (*Xanthomonas maltophila*.) (Int. J. Syst. Bact.**33**, 409, 1983). Strain RH 611; ATCC 13843; NCTC 10259, LMG 10872 . (Medium 41, 30°C)

***Pseudomonas mildenbergii* Bergey et al**.

2061 NRRL B-21 (1955). (Medium 41, 30°C)

***Pseudomonas oleovorans* Lee and Chandler**

2867 NCIB 6576 (*Pseudomonas oleovorans* subsp. *oleovorans, Pseudomonas pseudoalcaligenes* subsp. *pseudoalcaligenes*) Type strain (J. Bact.**41**, 373, 1941). Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996) Assay of antimicrobial preservatives Bioresistance testing (ATCC 8062; DSM 1045; LMG 2229. (Medium 41, 30°C)

***Pseudomonas ovalis* Chester.**

2043 CFTRI(1974).Production of a , β-diaminopropionate ammonia lyase. (Medium 41, 30°C)

2101 NRC 709 (1959). Production of ketogluconic acid. (J. Gen. Microbiol **3**, 340, 1949; J. Bact.**82**, 1, 1961). ATCC 8209; IFO 3738; NCIB 8296 (*Pseudomonas putida*); BUSCAV 290. (Medium 41, 30°C)

***Pseudomonas pictorum* Gray and Thornton.**

2077 NCIB 9152 (1956). Attacks phenol. (Zentralbl. Bacteriol.(Abt. II),**73**, 74, 1928. BS 284; ATCC 23328 (Medium 41, 30°C)

***Pseudomonas pisi* Sackett.**

2204 PRL F-5 (1966). (Medium 41, 30°C)

***Pseudomonas pseudoalcaligenes* Stanier.**

2864 NCIB 9946 (*Pseudomonas pseudoalcaligenes* subsp. *pseudoalcaligenes*); Type strain (J. Gen. Microbiol. **43**, 247, 1966). Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353,1996) StrainX-59; ATCC 17440; DSM 50188. (Medium 41, 30°C)

***Pseudomonas pseudoflava*Auling et al**

5100 1087 NEERI (P. Kumaran) (1989) (Medium 36 or 41, 30°C)

***Pseudomonas putida* Trevisan Migula.**

2102 University of IIIiniois, U.S.A., C A (1966). (Medium 41, 30°C)

2152 University of IIIiniois, U.S.A.,CA (1965).Utilizes tricarballylates as a sole source of carbon. (Medium 41, 30°C)

2174 NCIM isolate (Medium 41, 30°C)

2176 NCIM isolate (Medium 41, 30°C)

2205 University of IIIiniois, U.S.A., C B (1964). (Medium 41, 30°C)

2206 University of IIIiniois, U.S.A., C A (1966). (Medium 41, 30°C)

2650 NCIB 729. (Medium 41, 30°C)

2663 NCIM isolate.(Medium 41, 30°C)

2847 I.A.R.I. New Delhi (1983).(*Pseudomonas striata*). Solubilization of phosphatic nodules in soil. (Medium 41, 30°C)

2872 ATCC 12842 (*Pseudomonas fluorescens*) Oxidises caproic acid. NCIB 8865.(Medium 41, 30°C)

5050 NCIM isolate. (Medium 41, 30°C)

5087 1065 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

5088 1118 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

***Pseudomonas reptilivora* Caldwell and Ryerson**.

2597 NRRL B-334 (1971). Deposited as *P. fluorescences*. ATCC 11252 (Medium 41, 30°C)

***Pseudomonas resinovarans*Delaporte et al**.

2599 NCIB 9280 (1974) Attacks phenol; resins.(It. Bull. Bact. Nomen. Taxan, **12**, 71, 1962). ATCC 14235, LMG 2274 . (Medium 41, 30°C)

***Pseudomonas solanacearum*(Smith) Smith**

5103 1111 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

***Pseudomonas* sp.**

2207 NCIM isolate. (Medium 41, 30°C)

2208 NCIB 9289 (1966) (*Delftia acidovorans, Comamonas acidovorans, Pseudomonas acidovorans*). Oxidizes tryptophane via quinoline, pathway.(J. Bact.**62**, 367, 1951).,LMG 8926. (Medium 41, 30°C)

2209 University of Leicester, England B aba (1966). (Medium 41, 30°C)

2220 NCIM isolate (1967). Utlizes citraconic acid. (Medium 41, 30°C)

2221 NCIB isolate, Itaconate 4 (1967). Utilizes itaconic acid as a sole source of carbon. (Medium 41, 30°C)

2223 NCIM isolate (1968). Utilizes mesaconic acid as sole source of carbon. (Medium 41, 30°C)

2245 NCIM isolate (1969). Utilizes tricarballylic acid. (Medium 41, 30°C)

2246 NCIM isolate (1969). Utilize trans aconiate as sole source of carbon; conversion to cis-aconitate. (Medium 41, 30°C)

2248 NCIM isolate (1969). Utilizes meleate as sole source of carbon. (Medium 41, 30°C)

2302 NCIM isolate 3 (1970). Utilizes itaconate as sole source of carbon. (Medium 41, 30°C)

2303 CDRI (1970). Utilizes α-Picolinic acid. (Medium 41, 30°C)

2304 CDRI (1970). Utilizes α-Picolinic acid. (Medium 41, 30°C)

2305 CDRI (1970). Utilizes α-Picolinic acid. (Medium 41, 30°C)

2667 NCIM isolate. Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996). (Medium 41, 30°C)

2668 NCIM isolate. (Medium 41, 30°C)

2875 NCIM isolate. Production of D-hydantoinase (Enzyme Microb. Technol. **18**, 353, 1996). (Medium 41, 30°C)

2876 NCIM isolate. Degradation of camphene. (Medium 41, 30°C)

5070 NCIM isolate (1996). Production of D-hydantoinase. (U.S.Pat. 6,087,136). (Enzyme Microb. Technol. **18**, 353, 1996). ATCC 55940 (Medium 41, 30°C)

***5109** NCIM isolate Strain M-1 (1996). Halophilic. Production of D-hydantoinase (U.S.Pat. 6,121,024) (Appl. Microbiol. Biotechnol. **49,** 594-599, 1998). ATCC PTA 901 (Medium 43a, 30°C).

5123 Deposited by R. A. Gadre (1998). Production of lipase. (Medium 41, 30°C)

5235 IIT, Chennai (2005). Deposited by Dr. Satyanarayana. Isolated from soil from coffee cultivation area. Degradation of xanthines. (Medium 41, 30°C)

5237 Halophilic *Pseudomonas* TVSP-101, Gulbarga University (2005). Deposited by K. Sreeramulu. (Medium 6, 30°C)

5354 Deposited by Tapas Sengupta, IISER, Kolkatta (2010). Isolated from water sample of Kolkatta port. Resistant to tetracycline, novobiocin, erythromycin. Gene bank no. GU056313, strain no KPWB1 (Medium 41, 37°C)

5360 Deposited by Tapas Sengupta, IISER, Kolkatta (2010). Isolated from soil of petrol service station. Strain no. MSM-M1 (Medium 41, 30°C)

5369 Deposited by Dr. Jyoti Jadhav, Shivaji University, Kolhapur (2010). Isolated from textile industry dye contaminated site. strain no. BCH3 (Medium 41, 30°C)

***Pseudomonas stutzeri* (Lehmann and Neumann) Sijderius**

5136 MTCC101 (2000). Type strain. *Pseudomonas perfectomarina* (Int. J. Syst. Bact. **30**, 354, 1980). (J. Gen. Microbiol. **60**, 215, 1970). Transformation host, Permits maintenance of plasmids with ColE1-like replicons such as pUC- and pBR-based cloning vectors. Not naturally transformable; plasmids were introduced by electroporation. Transformation host for pUC- and pBR-based cloning vectors (Curr. Microbiol. 25: 25-29, 1992) NCIB 11358, ATCC 17588, IFO 14165; DSM 5190, LMG 11199. (Medium 41, 30°C).

5225 9(3A), Goa University (2005). Deposited by Dr. Saroj Bhosale. Isolated from Shipyard water. Growth on tributyltin chloride (TBTC) (Current Science **86,** 702-705, 2004). Gene bank no. BQ082859. (Medium 26, 30°C)

***Pseudomonas syringae* van Hall**

5102 1110 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

***Pseudomonas testosteroni* Talalay**

5098 1077 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

5099 1081 NEERI Deposited by P. Kumaran (1989) (Medium 36 or 41, 30°C)

***Pseudomonas viridiflava* (Burkholder) Clara**

2249 NRRL B-894 (1969). (Medium 36 or 41, 30°C)

PSEUDOXANTHOMONAS

PSEUDOXANTHOMONAS

***Pseudoxanthomonas* sp.**

5309 Deposited by Dr. T.B. Karegoudar, Gulbarga University (2008). Isolated from cole powder. Gene bank no. EU025131, strain no. PNK04 ((Medium 41, 37°C)

RALSTONIA

RALSTONIA

***Ralstonia* sp.**

5331 Deposited by Dr. Kodam, Pune University, Pune (2009). Strain no. KMK-S. Isolated from contaminated soil sample of electroplating effluent. Gene bank no. GQ174488 ((Medium 41, 37°C)

RHIZOBIUM

RHIZOBIUM Frank

Rhizobium indigofera

2818 University of Pune. (1979).(Medium 25, 30°C)

***Rhizobium japonicum* (Kirchner) Buchanan**

2002 774 Univ.Wisconsin (1946).(Medium 25, 30°C)

2741 RCR 3407 Rothemstad Expt. Stn, England (1978) Cause nodule formation on *Glycine max* (Soyabean). (Medium 25, 30°C)

2742 RCR 3412 Rothemstad Expt. Stn, England (1978) Cause nodule formation on *Glycine max* (Soyabean) (Medium 25, 30°C)

2743 BLR 189 Bactogin Laboratory, Jabalgpur, India.(1978) Cause nodule formation on *Glycine max* (Soyabean), (Medium 25, 30°C)

2744 BLR 181 Bactogin Laboratory, Jabalpur, India.(1978) Cause nodule formation on *Glycine max* (Soyabean). (Medium 25, 30°C)

2745 CC 709 New South Weles, Austrilia (1978) Cause nodule formation on *Glycine max* (Soyabean).(Medium 25, 30°C)

2746 SB-6 Microbiol Department IARI, New Delhi (1978) Cause nodule formation on *Glycine max* (Soyabean). (Medium 25, 30°C)

2747 IARI-2 Microbiol Dept IARI New Delhi (1978) Cause nodule formation on *Glycine max* (Soyabean). (Medium 25, 30°C)

Rhizobium leguminosarum *Frank.*

2005 302. Dept of Agriculture, Ottawa.(1949)Cause nodule formation on *Pisum sativum* (Pea).(Medium 25, 30°C)

2749 D-10 Microbiol Dept IARI. New Delhi.(1978) Cause nodule formation on *Pisum sativum* (Pea).(Medium 25, 30°C)

2750 13. Agricultural College, Pune (1978)Cause nodule formation on *Pisum sativum* (Pea).(Medium 25, 30°C)

2751 15 Agricultural College, Pune (1978).Cause nodule formation on *Pisum sativum* (Pea).(Medium 25, 30°C)

***Rhizobium lupini* (Schroeter) Eckhardt, Baldwin and Fred**

2754 1347. Agricultural College, Pune (1978). (Medium 25, 30°C)

***Rhizobium meliloti* Dangeard**

2756 4013 Microbiol Dept. IARI New Delhi.(1978). (Medium 25, 30°C)

2757 L-3 Agricultural College, Pune (1978) Cause nodule formation on *Medicago sativa* (Luceme). (Medium 25, 30°C)

***Rhizobium phaseoli* Dangeard**

2758 5002 Microbiol Department IARI New Delhi (1978).(Medium 25, 30°C)

2759 FB - A Agriculture College, Pune (1978) *Phaseolus vulgaris* French bean). (Medium 25, 30°C)

2760 A-1 Agricultural College, Pune, (1978). (Medium 25, 30°C)

2761 A-4 Agricultural College, Pune, (1978). (Medium 25, 30°C)

Rhizobium rhizogenes Same as NCIM 5140

***Rhizobium* sp.**

2009 A.G. Lochhead, 314, Ottawa, Canada (1949). *Trifolium* sp. (Red clover). (Medium 25, 30°C)

2011 A.G. Lochhead, 347, Ottawa, Canada (1968). *Medicago sativa* (Alfalfa). (Medium 25, 30°C)

2224 Jordon N-20. Ottawa, Canada (1968). *Medicago sativa* (Alfalfa). (Medium 25, 30°C)

2225 NCIM isolate 9 (1968). *Phaseolus lunatus* (Lima bean). (Medium 25, 30°C)

2226 NCIM isolate 3 (1968). Double bean nodule. (Medium 25, 30°C)

2227 NCIM isolate 5 (1968). *Sesbania graniflora* (Hadga) nodule. (Medium 25, 30°C)

2228 NCIM isolate (1968). *Phaseolus* sp. (Bean) nodule. (Medium 25, 30°C)

2231 NCIM islate 9 (1968). *Phaseolus vulgaris* (French bean) nodule. (Medium 25, 30°C)

2762 NCIM isolate Hadga. I.(1968) *Sesbania graniflora* (Medium 25, 30°C)

2763 NCIM isolate Hadga. II. (1968) *Sesbania graniflora* (Medium 25, 30°C)

2767 101 Department of Agriculture Microbiol G.K.V.K. Bangalore. (1978) *Arachis hypogaea* (groundnut). (Medium 25, 30°C)

2768 V-8-T Agricultural College, Pune (1978) *Dolichos lablab* (Wal). (Medium 25, 30°C)

2769 Udid-6 Agricultural College, Pune (1978) *Phaseolus mungo* (Udid). (Medium 25, 30°C)

2770 Udid-34. Agricultural College, Pune (1978) *Phaseolus mungo* (Udid). (Medium 25, 30°C)

2771 GM-10 Agricultural College, Pune (1978) *Cicer arientinum* (Bengal gram). (Medium 25, 30°C)

2772 GM-4 Agricultural College, Pune (1978) *Cicer arientinum* (Bengal gram). (Medium 25, 30°C)

2773 IARI 6037 I.A.R.I. New Delhi (1978) *Cicer arientinum* (Bengal gram). Used in the preparation of legume inoculants.(Medium 25, 30°C)

2774 IARI 6036 I.A.R.I. New Delhi, India. (1978) *Phaseolus aureus*. (Moong) Used in the preparation of legume inoculants.(Medium 25, 30°C)

2775 IARI 6035 I.A.R.I. New Delhi, India. (1978). *Cajanus cajan* (pigeon pea) Used in the preparation of legume inoculants.(Medium 25, 30°C)

2776 TAL-309 I.A.R.I. New Delhi, India, (1979) *Vigna catjung* (Cow-pea). (Medium 25, 30°C)

2777 IHP-100 ICRISAT Hyderabad, India. (1979) *Vigna catjung* (Cow-pea). (Medium 25, 30°C)

2778 SHU 372 ICRISAT. Hyderabad, India.(1979) *Lotus corniculatus* (Lotus). (Medium 25, 30°C)

2779 University of Poona (1979) (Pavata).(Medium 25, 30°C)

2859 13321 Deposited by V. S. Krishnamachar (1983) (Medium 25, 30°C)

***Rhizobium trifoli* Dangeard**

2780 B-12 Agricultural College, Pune.(1978) *Trifolium alexandrium* (Berssem). (Medium 25, 30°C)

RHODOCOCCUS

RHODOCOCCUS

***Rhodococcus* sp.**

2891 Deposited as *Corynebacterium hydrocarboclastum.* Type strain. Produces L-glutamic acid (U.S. Patent 3,222,258). (Medium 41,30°C)

5452 Deposited by Dr. Syed Dastager (2012). Isolated from marine sediment. Strain no. DSM 45688; NIO 1009. Gene bank no. HQ858009. (Medium 41, 30°C)

***Rhodococcus terrae* (Tsukamura) Tsukamura**

5126 Deposited by A. Pant (1998). Isolated from oil contaminated water samples. Degrades crude oil and hydrocarbons, produces emulsifier. (Medium 29, 30°C)

Rhodococcus erythropolis *(Gray and Thornton) Goodfellow and Alderson*

5228 Deposited by Mr. Nene, NCL (2005). Degradation of monochlorophenols, dichlorophenols, trichlorophenol, phenol, cresols, catachol, touluene, benzoic acid. MTCC 3951. (Medium 41, 30^{o}C)

5229 Deposited by Mr. Nene, NCL (2005). Patent strain. Production of L-glutamic acid(US Patent 3,764,473 dated Oct 9 1973), flavin adenine dinucleotide(US Patent 3,647,627 dated Mar 7 1972), chloramphenicol analogues. MTCC 2794, DSM311, ATCC15592 (Medium 41, 30^{o}C)

5230 Deposited by Mr. Nene, NCL (2005). *Arthrobacter picolinophilus ,"Corynebacterium hydrocarboclastum, Nocardia canicruria, Nocardia calcarea* Type strain, Nitrogen fixation. MTCC 1548,DSM43188,ATCC19369,CBS613.67,CCM2597. (Medium 29, 30^{o}C)

5231 Deposited by Mr. Nene, NCL (2005). *Arthrobacter picolinophilus, Corynebacterium hydrocarboclastum, Nocardia canicruria, Nocardia calcarea* Patent strain. Production of citric acid and L-glutamic acid from hydrocarbons (US Patent no. 3,764,473).Degrades hydrocarbons (MTCC 1526,DSM312,ATCC15591. (Medium 41, 30^{o}C)

***Rhodococcus* sp.**

5232 Deposited by Mr. Nene, NCL (2005). MTCC 2574 (Medium 41, 30^{o}C)

5233 Deposited by Mr. Nene, NCL (2005). Production of α-ketoglutaric acid, L-tryptophane, L-glutamic acid using gaseous hydrocarbons as

main carbon source. MTCC 2678, ATCC15587, DSM20165 (Medium 41, 30°C)

5234 Deposited by Dr. Nene, NCL (2005).*Brevibacterium ketoglutamicum* Patent strain. Production of L-glutamic acid using gaseous hydrocarbons as main carbon source. Utilization of hydrocarbons in the presence of disposing agent and antibiotics. MTCC 2683,ATCC15588. (Medium 41, 30°C).

ROSEOVARIUS

ROSEOVARIUS

***Roseovarius* sp**

5499 Deposited by Dr. Mohan Das, NIO, Goa.(2013). GeneBank No. KC534331 (Medium 69, 30°C)

SALMONELLA

SALMONELLA Lignieies

***Salmonella abony* Serotype.**

2257 NCTC 6017; 74 (K 103) 1,4,5,12:b,n,x. (*Salmonella enterica* subsp. *Enterica,Salmonella choleraesuis, Salmonella choleraesuis* subsp. *choleraesuis, Salmonella enteritidis, Salmonella typhi, Salmonella typhimurium*). Gene bank no. EU311614. (Medium 41, 37°C)

Salmonella enterica

5255 Microexpress, Goa (2008) (*Salmonella enterica* serovar *enteritidis, Salmonella cholerae-suis* subsp*. Choleraesuis, Salmonella choleraesuis* subsp*. choleraesuis ,Salmonella enteritidis, Salmonella paratyphi, Salmonella typhi, Salmonella typhimurium*). ATCC 13076, DSM 17420, LMG10395. (Medium 41, 37°C)

5256 Microexpress, Goa (2008)Type strain (*Salmonella enterica* serovar *cholerasis, Salmonella arizonae, Salmonella choleraesuis* subsp. *arizonae*), ATCC 12011 ,DSM9386,LMG 10757 (Medium 41, 37°C)

5284 Microexpress, Goa (2008).Type strain (*Salmonella enteric* subsp. *Arizonae, Salmonella arizonae Salmonella choleraesuis* subsp. *arizonae*). ATCC 13314, DSM 9386 (Medium 41, 37°C)

***Salmonella typhimurium* (Loeffler) Castellani and Chalmers**

2501 ATCC 23564 Pathogenic; *Salmonella enterica* subsp. *enterica* Teaching strain, prototrophic. Genotype LT2 Wild. Used in numbers 19, 22, & 24 of experiments in Microbial Genetics. 10248. (Medium 41, 37°C)

5278 Microexpress, Goa (2008). Same as NCIM 2501 (Medium 41, 37°C)

SARCINA

SARCINA Goodsir

***Sarcina lutea* Schroeter (*Micrococcus luteus*)**

2103 Sterility testing Type strain. (U. S. Pharmacoepeia, 21st rev., pp 1156-1157, 1985). Assay of ampicillin, clindamycin and erythromycin (ibid., pp. 1160-1165 and Code of Federal Regulations, Title 21, Part

436, 1987); amoxicillin and cyclacillin (ibid.). Susceptibility-disc-testing of chloramphenicol, doxycycline and tetracycline (ibid., Part 460). Assay of chloramphenicol (Analytical Microbiology, F. Kavanagh, ed., Academic Press, New York, pp. 272-278, 1963); penicillin (ibid., pp. 327-346) tylosin (ibid., pp. 371-373); cephalexin (ibid., Vol. 2, pp 208-209, 1972); deacetylcephaloglycin (ibid., pp. 212-213); cephaloridine (ibid., p. 218); lincomycin (ibid., pp. 290-292) and novobiocin in serum (ibid., pp 318-319 and Antibiot. Chemother. **9**, 613-617, 1959). Cylinder-plate assay of chloramphenicol, carbomycin , erythromycin , oleandomycin , and penicillin in body fluids, feeds, milk and pharmaceutic preparations (ibid., **7**, 639, 1957; ibid., **9**, 613, 1959). Microbiological assay of penicillin G, ampicillin, methicillin, oxacillin, dicloxacillin, cephalothin, cephaloridine, cephaloglycin, cephalexin, chloramphenicol, rifamycin AMP and erythromycin (Appl.Microbiol. **19**, 573, 1970). Assay of: erythromycin, lincomycin, novobiocin, penicillin, oleandomycin and tylosin in feeds (AOAC Methods 42.203-42.208, 42.242- 42.246, 42.258-42.265, 42.281-42.284, 42.289-42.292, 42.299-42.303 and 42.316-42.319, 1984). Assay Methods of Antibiotics N. Y. Med. Encyclopedia, Inc. pp. 14-16, 67, 96-98, 1955; Antibiot. Chemother.**12**, 545-550, 1962. Production of L-sorbosole (U. S. Pat. 3,912,592, listed herein as Sarcina leutea); and 6-aminopenicillanic acid (U. S. Pat. 3,239,427, listed herein as Sarcina leutea). Assay of penicillin G in milk (Bacteriological Analytical Manual, 5th ed. 1978). Strain PCI 1001; NCDO 758; NCIB 8553 (*Kocuria rhizophila*); ATCC 9341; DSM 348; NCTC 8340 (Medium 41, 30°C)

***Sarcina* sp.**

2210 PRL ,M-138 (1966). (Medium 41, 37°C)

***Sarcina subflava* Revenel** .

2395 NCIB 8942 (1971). (*Micrococcus leuteus, Micrococcus lysodeikticus Sarcina citrea, Sarcina flava, Sarcina lutea*). Assay of bacitracin, Production of restriction endonuclease MluI.(Nucleic Acids Res, 13 Suppl, r165-r200, 1985). ATCC 7468, LMG14459, DSM1605. (Medium 41, 30°C)

2704 Same as NCIM 2395

2816 Same as NCIM 2395

SERRATIA

SERRATIA Bizio

***Serratia marcescens* Bizio .**

2078 Strain 725 (1956). Type culture. (Medium 41, 30°C)

2396 NCIB 8869 (1971) (*Serratia marcescens* subsp. *marcescens*). Derived from NCIB 2847 by UV and antibiotic treatment; unlike parent strain in appearing non-motile. Type culture; used for tracing sewage pollution. (J. Appl. Bacteriol. **19**, 243, 1956; Water Sanit. Eng., **6**, 99, 1956).(Medium 41, 30°C)

2397 NCIM isolate (1971). Threonine requiring mutant. Mutant strain of NCIM 2078. (Medium 41, 30°C)

2801 Sb. For the production of Restriction endonuclease Sma I (Medium 41, 30°C)

2919 NCIB 9155(*Serratia marcescens* subsp. *marcescens*); Type strain (Int. J. Syst. Bact. **30**, 362, 1980). Production of L-asparginase and glutaminase (U.S. Patent, 3,627,639). Phage typing (Appl. Microbiol. **24**, 899, 1972). Chitinolysis (Int. J. Syst. Bact. **23**, 278, 1973).Produces follicle-stimulating hormone binding inhibitor FSH-BI Testing (US Patent 4,652,450 dated Mar 24 1987) ATCC 13880; NCTC 10211; DSM 30121, LMG 2792. (Medium 41, 30°C)

5030 NCIM isolate. (Medium 41, 30°C)

5061 ATCC 27117.Assay of 6-aminopenicillanic acid .DSM46342 (Medium 41, 30°C)

5246 Deposited by Blue stream manufacturing services, Mumbai (2007). ATCC 14756. (Serratia marcescens subsp. Marcescens) Produces red pigment when grown on solid medium Testing antimicrobial handwashing formulations(ASTM International Standard Test Method), LMG 13576, DSM1636.(Medium 41, 30°C)

Serratia marchancis

5314 Deposited by Dr. Karegaudar, Gulbarga University, Gulbarga (2008). Isolated from chemical waste sample. Strain no. DGS1 (Medium 41, 37°C)

Serratia marinorubra

5203 Deposited by V. Chandrika (2003) Isolated from sea water. (Medium 43b, 30˚C)

***Serratia plymuthica var. kilienis* (Dyer) Bergey et al**

2600 NCIB 8266. Produces marcescin (J. Gen. Microbiol. **4**, 417, 1950; Laboratory mannual, CDC, Georgia U.S.A. 1959). Strain 82-B; NCTC 8706; NCDO 741; BUSCAV 360 (Medium 41, 30°C).

SHEWANELLA

SHEWANELLA

***Shewanella* sp.**

5387 Deposited by Pankaj Verma, NCCS, Pune (2009). Isolated from marine subsurface sediment. Strain no. KJW23. Production of caseinase and gelatinase. BCC 41030, KCTC 23170 (Medium 57, 37°C)

5388 Deposited by Pankaj Verma, NCCS, Pune (2009). Isolated from marine subsurface sediment. Strain no. KJW27. Production of caseinase and gelatinase. BCC 41031, KCTC 23171. (Medium 57, 37°C)

SHIGELLA

SHIGELLA

Shigella boydii

5288 Deposited by Microexpress, Goa (2008). ATCC 12030 (Medium 41, 37°C)

Shigella flexneri

5265 Deposited by Microexpress, Goa (2008). ATCC 12022,LMG 10472 ((Medium 41, 37°C)

SPHINGOMONAS

SPHINGOMONAS

Sphingomonas azotifigens

5487 Deposited by Mr. Avinash Raut, Dept of Microbiology, Yashantrao Chavan College of Science, Karad (2012). Isolated from littoral soil of Lonar lake. GeneBank No. AB713751(Medium 41a, 30°C)

Sphingomonas sanguinis

5495 Received from CIP France, Deposited by Dr. Mahesh Dharne, NCL (2013). Type strain.CIP 104197, NCTC 11032, CDC B4562, LMG 17325, DSM 13885. GeneBank No. D13726.1. Polyethylene glucol utilization (Takeuchi M., et al. Syst. Appl. Microbiol. **16**: 227-238, 1993). (Medium 67, 37°C)

STAPHYLOCOCCUS

STAPHYLOCOCCUS Rosenbach

***Staphylococcus afermentans* Castellani.**

(*Syn. Micrococcus lysodeikticus*)

2437 CDRI (1972). Same as NCIM 2170

***Staphylococcus albus* Rosenbach**.

2178 NCIM isolate (1965). (Medium 41, 37°C)

***Staphylococcus aureus* Rosenbach**.

2079 HAL (1956). Assay of amikacin, cefadroxil, cefazolin, cefotaxine, cefoxitin, cefamandole, cephalexin, cephradine, cloxacillin, cycloserine, demeclocycline, dicloxacilline, doxycycline, kanamycin, lincomycin, meclocycline, methacycline, methicillin, minocycline, nafcillin, neomycin, oxacillin, oxytetracycline, penicillin G, penicillin V, plicamycin, rolitetracycline, tetracyclin and tobramycin (Code of Federal Regulations, Title 21, Part 436, 1987); chlortetracyclin (ibid., and Part 446.10); neomycin sulphate (ibid., Part 444.42). Sterility testing (ibid., Part 436; Brit. Pharmacopoeia 1980, V 2, p A186, 1980). Assay of doxycylin, framycetin, gentamycin and kanamycin (ibid.,pp.A106-A107,1986). Susceptibility-disc testing of clindramycin, kanamycin (sulphate), streptomycin and tetracyclin (hydrochloride) (code of Federal Regulations, Title 21, Part 460, 1987); assay of penicillins in pharmauceutic preparations (ibid., Part 440.80). Assay of tobramycin (J. Biol. Stand. **10**,157, 1982); fumagillin (Anal. Microbiol., F. Kavanagh, ed. Academic Press, New York, pp 296-300, 1963), neomycin (ibid., pp 310-312), penicillin (ibid pp 327-346), restocetin (ibid., pp 345-356), and thiostreptone (ibid., 356-368); cycloserine (ibid., vol **2**, pp 258-260, 1972), gentamycin (ibid., pp 272-278), neomycin (ibid., pp308-312),thiostrepton (ibid.,pp 348-350),chlortetracyclin(ibid., pp 371-372), demeclocycline, doxycycline, methacycline, minocycline, oxytetracycline, rolitetracycline and tetracycline (ibid., pp 372-

374).Cylinder plate assay of kanamycin and penicillin; cylinder plate assay of neomycin in body fluids, feeds, milk and pharmaceutic preparations; turbidimetric assay of tetracycline, chlortetracycline and oxytetracycline (Antibiot. Chemother. vol **7**, pp639-640, 1957; ibid., vol. **12**, pp 545-550, 1962). Assay Methods of Antibiotics, N. Y. Med. Encyclopedia, Inc. pp 7-14, 50, 91-93, 1955; J. Bact. **82**, 316, 1961; Antibiot. Chemother. **12**, 547, 1962). ATCC 6538P; FDA 209P; DSM 346; NCIB 8625 (*Staphylococcus aureus* subsp. *aureus*); NCTC 7447; NRRL B-313; PCI 1209. (Medium 41, 37°C)

2120 Inst. for Medical Res, Mill, London (1961). Strain UV2. (Medium 41, 37°C)

2121 Inst. for Medicial Res, Mill, London (1961). Strain UV3 (Medium 41, 37°C)

2122 Inst. for Medicial Res., Mill Hill, London (1961). (Science.**127**, 506, 1958; Nature, Lond. **184**, 1821, 1959; Biol. Rev. **34**, 378, 1959; Nature, Lond. **190**, 978, 1961). NCIB 9308 (*Staphylococcus aureus* subsp. *aureus*); Strain 209. (Medium 41, 37°C)

2127 HAL (1962). Assay of bacitracin, cetrimide, erythromycin, hygromycin B, monensin, penicillin G, tetracycline, thimerosal and phenylmercuric acetate (Anal. Microbiology. vol **2**, F. Kavanagh ed. Academic Press, New York, pp 107-119, 1972), tylosin (ibid., pp 361-362), cephalexin (ibid., p 208), and cephaloglycin (ibid., p 212), chlortetracycline in feeds (AOAC Methods, 42.236-42.241, 1984; British Pharmacopoeia 1980 vol **2**, A124, 1980); demeclocycline, oxytetracycline, tetracycline and tobramycine (ibid.) NCIB 6571; ATCC 9144; NCTC 6571; NRRL B-314; strain 3R 7089 (Medium 41, 37°C)

2492 NCIB 6571 (1973). Same as NCIM 2127

2601 NCIB 8244 (1974). (*Staphylococcus aureus* subsp. *aureus*) Assay of penicillin. Strain Glaxo PR-4. (Medium 41, 37°C)

2654 M-447 (Medium 41, 37°C)

2672 1949 (Medium 41, 37°C)

2720 NCIB 8588 (1974).(*Staphylococcus aureus* subsp. *aureus*) Assay of penicillin in feeds. ATCC 11522; FDA 209P (Medium 41, 37°C)

2794 Sau 3A.Deposited by D.N.Deobagkar (1982). Production of restriction endonuclease Sau 3A. (Medium 26, 37°C)

2901 ATCC 29737 (1984). Assay of amikacin, cephalexin, cephalothin, cephapirin, cephradine, chlortetracyclin, cloxacillin, cycloserine, demeclocycline, dicloxacillin, doxycycline, kanamycin, lincomycin, methacycline, methicillin, minocycline, nafcillin, oxacillin, oxytetracycline, penicillin G, plicamycin, rolitetracycline, tetracycline and tobramycine (U. S.Pharmacoepeia, 21st rev.pp 1160-1165, 1985). NCIB Antibiotic elution susceptibility-disc testing of ampicillin, clindamycin, kanamycin, penicillin and streptomycin (Code of Federal Regulations, Title 21, Part 460.11, 1987). DSM 3463, LMG10272. (Medium 41, 37°C)

5021 ATCC 25923. Reference strain for susceptibility disc testing (code of Federal Regulations, Title 21, Part 460, 1987); recommended as International standard reference strain for antibiotic disc testing of amikacin, ampicillin, bacitracin, benzyl penicillin, cefalothin, chloramphenicol, clindamycin, erythromycin, gentamicin, kanamycin, meticillin, neomycin, novobiocin, oleandemycin, polymyxin, streptomycin, tetracyclin, tobramycin and vancomycin (WHO Expert Committee on Biological Standardization, 28th report, WHO Tech. Rep. Ser. **610**, 122-123, 1977). Control organism for sensitivity testing of bacteria to sodium cephalothin, cephaloridine, cephaloglycin dihydrate and cephalexin monohydrate. Modified Kirby-Bauer susceptibility testing of ampicillin, chloramphenicol, erythromycin, gentamicin, kanamycin, novobiocin and tetracycline disc (Antimicrobe agents chemother. **3**, 418, 1972). Assay of wood smoke condensate (J. Food Sci. **45**, 999-1002, 1007, 1980). LMG 8224, DSM1104. (Medium 41, 37°C)

5022 ATCC 29213. Minimum Inhibitory Concentration of ampicillin, carbenicillin, cephalothin, chloroamphenicol, clindamycin, colistin, erythromycin, gentamycin, kanamycin, meticillin, nitrofurantoin, penicillin G, tetracycline, trimethoprim-sulfa-methoxazole & tobramycin.DSM 2569, LMG 10147. (Code of Federal Regulations, Title 21, Part 460,1987). (Medium 41, 37°C)

5257 Deposited by Microexpress, Goa (2008). Same as NCIM 2079 (Medium 41, 37°C)

5276 Deposited by Microexpress, Goa (2008). Same as NCIM 5021. (Medium 41, 37°C)

5345 NCIMB (2009). Control (e.g. ASTM method) of antibacterial agents (in aqueous metal working fluids) (AATCC Test Method 147-1988);Assay of cephalexin;Assay and susceptibility testing of cephaloglycin;Assay and susceptibility testing of cephaloridine;Assay and susceptibility testing of cephalothinNCIMB 9518, ATCC 6538, DSM799, LMG 8064 (Medium 41, 37°C)

***Staphylococcus epidermidis*(Winslow and Winslow) Evans**.

2493 NCIB 8853 (1973). *Micrococcus pyogenus* var *albus*. Assay of gentamicin, neomycin, netilmicin, novobiocin, paromomycin and sisomicin (U. S. Pharmocoepeia, 21st rev, pp 1160-1165, 1985; Code of Federal Regulations, Title 21, Patr 436, 1987); oleandomycin. (ibid.,); neomycin sulphate (ibid., Part 444.42). Susceptibility disc testing of neomycin and vancomycin (ibid., Part 460). Assay of neomycin and novobiocin in feeds (AOAC Methods 42.203-42.208 and 42.277-42.284, 1984); neomycin (Analytical Microbiology, F. Kavanagh, ed. Academic Press, New York, pp 310-312, 1963); gentamicin (ibid., Vol **2**, pp 272-274, 1972); neomycin (ibid.,pp 308 312) and novobiocin (ibid., pp 316-318); aspartocin in pharmaceutical preparetations containing chlortetracycline (J. Pharm. Sci. **53**, 1112, 1964). Cylinder plate assay of neomycin, novobiocin and oleandomycin in body fluids, feeds, milk and phamaceutical preparations (Antibiot. Chemother. **7**, 639,1957; ibid.,**9**, 613, 1959). Cylinder plate assay of neomycin and kanamycin

(ibid.; Antibiot. Chemother. **12**, 545, 1962. ATCC 12228; PCI 1200; DSM 1798, LMG 10273. (Medium 41, 37°C)

5270 Deposited by Microexpress, Goa (2008). Same as NCIM 2493 (Medium 41, 37°C)

STERNOTROPHOMONAS

STERNOTROPHOMONAS

Sternotrophomonas maltophilia

5323 Deposited by Dr. Pravinkumar Reddy, Gulbarga University, Gulbarga (2009). Production of amylase, gelatinase, inulinase. Strain no. PSSB7. (Medium 41, 45°C)

***Sternotrophomonas* sp.**

5310 Deposited by Dr. Karegaudar, Gulbarga University, Gulbarga (2008). Isolated from petroleum products contaminated soil. Strain no. RMSK (Medium 41, 37°C)

STREPTOCOCCUS

STREPTOCOCCUS Rosenbach.

***Streptococcus agalactiae* Lehmann and Neumann**.

(Lancefield's Group B).

2401 NCIB 8778 (1971).Assay of nisin. (J. Gen. Microbiol. **4**, 70, 1950) Assay of penicillin (Nature 167: 448, 1951.) NCDO 865.(Medium 14 or 32, 37°C)

***Streptococcus cremoris* Orla Jensen.**

(Lancefield's Group N).

2179 NDRI, Karnal (1965). Starter culture. Strain C. (Medium 14 or 32, 37°C)

2402 NCIB 8662 (1971). *Lactococcus lactis* subsp. c*remoris, Streptococcus lactis* subsp. *cremoris.* Type strain (Int. J. Syst. Bact. **30**, 367, 1980; ibid., **36**, 354, 1986; Syst. Appl. Microbiol. **36**, 354, 1986). Strain HP; NCDO 607; LMG 6897,DSM 20069; ATCC 19257. (Medium 14 or 32, 37°C)

***Streptococcus diacetilactis* Matuszewski et al**

2142 Department of Food Tech., University of California (1963). Starter culture. Strain DRC-1. (Medium 14 or 32, 37°C)

Streptococcus equines

5418 CFTRI, Mysore (2011). Strain no. AC1. Gene bank no. GU222444 (Medium 14 or 32, 37°C)

***Streptococcus faecalis* Andrews and Horder**

2080 ATCC 8043 (1956) *Enterococcus hirae*. (*Streptococcus lactis* R; *S. faecium; S. faecalis*). Assay of folic acid (J. Med. Lab. Tech. **20**, 26, 1963; AOAC Methods 43.167-43.174 and 43.184-43.190, 1984; Analytical Microbiology, F. Kavanagh, ed. Academic Press, New York, pp 453-461 and 480-488, 1963); monensin(ibid., vol **2**, pp107-119 and 297-302, 1972); folic acid in animal issue (ibid., pp 429-436); folic acid in blood (ibid., pp 441-455); arginine, histidine, lysine, tryptophane and tyrosine (ibid., p 494). Assay of monensin

(AOAC Methods 42.271-42.276, 1984). Type strain (Int. J. Syst. Bact. **35**, 74, 1985). ATCC 9790; NCTC 6459; BUSCAV 308; NCIB 6459, 8123 and 8191; DSM 20160; CCM 2423 and 2424; NCIM 2495 (Medium 14 or 32, 37°C)

2093 University of IIinois (1958). *Enterococcus feacalis.* Produces carbamate kinase (Arch. Microbiol. **145**, 386, 1986). Manometric assay of pyruvate oxidation factor lipoic acid. (J. Biol. Chem., **194**, 849, 1952). Strain 10.C.1; ATCC 11700; NCIB 8661; NCIM 2405; DSM 20409 ,LMG 7938 (Medium 14 or 32, 37°C)

2403 NCIB 6782 (1971). *Enterococcus feacalis.* Highly active in conversion of arginine to citrulline and ornithine. Assay of tyrosine.(J. Med. Lab.Tech.**20**, 26, 1963. Produces citrulline, Produces ornithine NCTC 6782; ATCC 11420; Strain Trowbridge. Gene bank no. EU487783. (Medium 14 or 32, 37°C)

2404 NCIB 6783 (1971). Assay of tyrosine by decarboxylation. ATCC 12984; Strain Dunn, NCTC 6783; BUSCAV 306.(Medium 14 or 32, 37°C)

2405 NCIB 8661 (1971). Same as NCIM 2093.

5252 Deposited by Microexpress, Goa (2008).Highly active in conversion of arginine to citrulline and ornithine. Assay of tyrosine.(J. Med. Lab.Tech.20, 26, 1963. Produces citrulline, Produces ornithine. ATCC 11420 (Medium 14 & 32, 37°C)

***Streptococcus faecalis* var.*liquefaciens*(Sternberg emend OrlaJensen) Mattick.**

2406 NCIB 7432 (1971). (*Streptococcus faecalis* subsp *zymogenes; Enterococcus faecalis; Leuconostoc mesenteroides; Leuconostoc* sp) Assay of riboflavin; (Anal. Chem., **20**, 81,1948; J. Bact. **61**, 489, 1951 and Analytical Microbiology, F. Kavanagh, ed. Academic Press, New York, pp 519-520, 1963; J. Med. Lab. Tech. **20**, 26, 1963). ATCC 10100; NCIB 8644; NCIM 2604. (Medium 14 or 32, 37°C)

2603 NCIB 8256 (1974). Production of bacteriocine; attacks proteins. (J. Bacteriol. **86**, 702, 1963. ATCC 27285; Strain ELV 2025; NCTC 8175; NCDO 588; Strain Type 2. (Medium 14 or 32, 37°C)

2604 NCIB 8644 (1974). Deposited as *Leuconstoc mesenteriodes*. Same as NCIM 2406.

5024 ATCC 14506; FDA strain PCI 1325. Quality control of penicillin G, tetracycline, erythromcyin, novobiocin, oleandomycin and ristocetin discs. Succepibility-disc-testing of erythromcyin.(Code of Federal Regulations, Title 21, Part 460, 1987) (Medium 14 or 32, 37°C)

5025 ATCC 29212. Minimum Inhibitory Concentration of ampicillin, carbenicillin, cephalothin, chloramphenicol, clindamcyin, colistin, erythromycin, gentamicin, kanamycin, methicillin, nitrofurantoin, penicillin G, tetracycline, trimethoprim-sulfa-methaxazole tobramycin. DSM2570, LMG 8222. (Code of Federal Regulations, Title 21, Part 460, 1987) (Medium 14 or 32, 37°C)

***Streptococcus faecium* Orla-Jensen**.

2605 NCIB 2702 (1973). *Enterococcus faecium*. Production of Type 3 bacteriocine. (J. Bact. **86**, 702, 1963). Strain Hucker 8; NCTC 2702 (Medium 14 or 32, 37°C)

***Streptococcus lactis* (Lister) Lohnis. (Lancefield's group N).**

2114 ATCC 11454 (1960). (*Lactococcus lactis* subsp *lactis, Lactobacillus xylosus ,Lactococcus lactis* subsp. *lactis ,Streptococcus diacetilactis, Streptococcus lactis* subsp. *Diacetilactis, Streptococcus lactis*). Production of nisin; used in Swiss cheese produciton to supress gas production by clostridia.Strain Berridge X-13; NCDC 496; BUSCAV 453; NCIB 8586; CCM 1881; NCDO 496; DSM 20729 (Medium 14 or 32, 37°C)

2180 NDRI, Karnal (1965). Starter culture. Strain C.(Medium 14 or 32, 37°C)

2408 NDRI, Karnal (1971). Starter culture. Strain S-69. (Medium 14 or 32, 37°C)

2410 Same as NCIM 2114.

2606 NCIB 8763 (1974). *Lactococcus lactis* subsp *lactis*. Produces diacetyl from lactose (J. Dairy Res. **21**, 238, 1954). Strain C 30/6; NCDO 184. (Medium 14 or 32, 37°C)

Streptococcus pneumonia

5281 Deposited by Microexpress, Goa (2008). Diplococcus pneumoniae ATCC 6303, DSM 14377. (Medium 59, 37°C)

***Streptococcus pyogenes* Rosenbach**

2608 NCIB 8884 (1974). Sensitive to sulfonamides. Assay of penicillin in body fluids (J. Bacteriol. **43**, 411, 1942). ATCC 8668.(Medium 14 or 32, 37°C)

5280 Deposited by Microexpress, Goa (2008). ATCC 19615 , DSM11728, LMG15868.(Medium 59, 37°C)

***Streptococcus salivaris* Andrews and Horder**

2610 NCIB 8813 (1974). Assay of thiamine. (Medium 14 or 32, 37°C)

***Streptococcus* sp.(Lancefield's group D**).

2495 NCIB 6459 (1973). (*Enterococcus hirae*) Same as NCIM 2080.

2676 DRC-1 IDRI Bangalore. (Medium 14 or 32, 37°C)

2888 No. 1051. Cheese making.(Medium 14 or 32, 37°C)

***Streptococcus thermophilus* Orla-Jensen .**

2412 NCIB 8779 (1971).(*Streptococcus salivarius* subsp *thermophilus*) Assay of penicillin in milk (J. Dairy Res.**23**, 336, 1956). NIRD 7; NCDO 489; DSM 20479, LMG 13101. (Medium 14 or 32, 37°C)

2904 NDRI YH-S. Yoghurt starter culture.(Medium 14 or 32, 37°C)

***Streptococcus zymogenes* (MacCallum and Hastings) Holland.**
(**Lancefield's Group D**).

2181 NCIB 8886 (1974) (*Enterococcus faecalis; Streptococcus* sp.) Assay of tyrothricin. Strain H69D5; ATCC 9854. (Medium 14 or 32, 37°C)

2182 CFTRI (1965). (*Enterococcus faecalis*). Amino acid assay in foods. (Brit.J.Nutr. **16**, 409, 1962 ; ibid.,**21**,181, 1967). Not beta-hemolytic. ATCC 23655. (Medium 14 or 32, 37°C)

STREPTOMYCES Waksman and Henrici.

***Streptomyces albogriseolus* Benedict et al.**

2438 NRRL B-1305 (1972). Type strain; produces neomycin complex. (Antibiot Chemother., **4**, 653, 1954; Int. J. Syst. Bact., **18**, 279, 1968) ATCC 23875, DSM40003; ISP 5003. (Medium 29, 30°C)

***Streptomyces albus* (Rossi- Doria) Waksman and Henrici.**

2413 NCIM isolate (Medium 29, 30°C)

2731 Production of restriction endonuclease Sal I. (Medium 29, 30°C)

Streptomyces amycolatopsis

(See *Amycolatopsis mediterranei*)

Streptomyces antibioticus* (Waksman and Woodruff) Waksman andHenrici. *(Actinomyces antibioticus)

2123 NCIB 8504 (1961) Type culture (Arch. Microbiol. **31**, 355,1958; Int. J. Syst. Bact. **18**, 292, 1968). Production of actinomycin. Strain Waksmann 3435; ETH 9851; ETH 13353; ETH 13491; BUCSAV 1,5; ATCC 8663, DSM40234, LMG 5966, IFO 12838. (Medium 29, 30°C)

***Streptomyces atrofaciens* Ehrlich et al**

2951 ATCC 27418 (1984) Type strain (Int.J.Syst.Bact. **22**, 274, 1972) Production of hygromycin (U.S.Pat.3,100,176) DSM 40475 (Streptomyces sp.),NRRL 2429;IFO 13395. (Medium 29, 30°C)

***Streptomyces aureofaciens* Duggar**

2417 NCIB 8234 (1971) Type culture (Arch. Microbiol. **31**,355, 1958; Int. J. Syst. Bact. **18**, 297, 1968) Production of aureomycin (U. S. Pat. 2,482,055), tetracyclines (U. S. Pat.3,053,740) and chlortetracyclin. Produces bromoperoxidases BPO 1 and BPO 2 (J. Gen. Microbiol. 138: 1123-1131, 1992.) Strain Lederle A 377; NRRL 2209; ETH 14302and 17381; IFO 12594 and 12843; LMG 5968 ,ATCC 10762; DSM 40127.(Medium 29, 30°C)

2614 NCIB 9120 (1974). Production of tetracycline (U.S.Pat. 2,734,018). (Medium 29, 30°C)

2615 NCIB 9121 (1974) derived from . Production of tetracycline. (U.S.Pat. 2,734,018) Strain Lederle T-5; ATCC 12416b. (Medium 29, 30°C)

2616 NCIB 9122 (1974). derived from ATCC 12416b. Production of tetracycline (U.S. Pat. 2,734,018) UV-8; ATCC 12416c; IFO 13183. (Medium 29, 30°C)

***Streptomyces caelestis* De Boer et al**

2870 NCIB 9751(1983).Type strain.(Antibiotics Annual 1954-1955,831; J. Bact.**85**,676, 1963; Int. J. Syst. Bact. **18**, 69, 1968). Produces celesticetin. NRRL 2418; ATCC 15084, DSM 40084, LMG 5970 (Medium 29, 30°C)

***Streptomyces cinnamoneum* Benedict.**

See *Streptoverticilleum cinnamoneum*

***Streptomyces diastaticus*(Kriansky) Waksmann and Henrici**.

2115 NRRL 1241 (1960). (Medium 29, 30°C)

2211 PRL Y. (1966). (Medium 29, 30°C)

Streptomyces enissocaesilis

5482 Deposited by Dr. Syed Dastager, NCL (2013). Isoalted from lime stone Soil. GeneBank No. JQ889270 (Medium 65 or 29, 35-45°C **)**

5484 Deposited by Dr. Syed Dastager, NCL (2013). Isoalted from mangrove soil sample.GeneBank No. JX050264 (Medium 47 or 29, 40°C **)**

***Streptomyces fradiae* (Waksmann & Curtis) Waksmann and Henirici.**

2418 NCIB 8233 (1971) Streptomyces roseoflavus .Type strain (Int. J. Syst. Bact. **30**, 382, 1980) Production of neomycin (Science **109**, 305, 1949; J. Bact. **58**, 229,1949) and fradicin. (Arch.Mikrobiol. **31**, 353, 1958).NRRL B-1195; IFO 3439, 3718, 12773; ETH 3472; ATCC 10745; DSM 46372,. (Medium 29, 30°C)

2419 Same as NCIM 2418.

Streptomyces ghanaensis

5483 Isolated by Dr. Syed Dastager, NCL (2013). Isoalted from graveyard Soil sample. GeneBank No. JX050265 (Medium 47 or 29, 37°C **)**

***Streptomyces griseoflavus* (Krainsky) Wakmann and Henirici.**

2953 PTCC 1130 (1986). ATCC 12269; IFO 3428. (Medium 29, 30°C)

***Streptomyces griseus* (Krainsky) Wakmann and Henirici.**

2020 CL71 (1975) Production of glucose isomerase (FEBS Lett. **36**, 57, 1973). (Medium 29, 30°C)

2183 PRL X-2 (1965). Production of streptomycin. (Medium 29, 30°C)

2420 NCIB 9004 (1971) (*Streptomyces griseus* subsp. *griseus, Streptomyces ornatus, Streptomyces erumpens*) Production of vit. B12. Strain boots FD 196; DSM 46440 (Medium 29, 30°C)

2496 NCIB 9001 (1973) (*Streptomyces griseus* subsp. *griseus*) Production of streptomycin; actinophage resistant. Strain R-25. (Medium 29, 30°C)

2621 NCIB 8136 (1974) (*Streptomyces griseus* subsp. *griseus,Streptomyces cavourensis* subsp. *washingtonensis*) Large scale production of streptomycin (J. Gen. Microbiol. **1**, 335, 1947). LMG 5974 (Medium 29, 30°C)

2622 NCIB 8232 (1974) (*Streptomyces griseus* subsp. *griseus,Streptomyces ornatus,Streptomyces erumpens*) Production of cycloheximide, streptomycin (Proc. Soc. Exp. Biol. N.Y., **70**, 308, 1949; J. Bact. **72**, 1956). Transformation of pergolide to pergolide sulfoxide (J. Pharm.Sci.**72**,733,1983) Biotransformations of 1*,2*-dihydrorotenone (Appl. Environ. Microbiol. **49**, 451, 1985) Production of glutaminase for flavour- enhancing of foods (U.S.Pat. 3,717,470). Strain Waksman 4; Boots FD 40; ATCC 10137; DSM 40855 (Medium 29, 30°C)

2623 NCIB 8506 (1974) Same as NCIM 2622

2624 NCIB 8591 (1974) (*Streptomyces* sp.,*Streptomyces ornatus, Streptomyces erumpens, Streptomyces griseus* subsp. *griseus*) Production of cycloheximide and streptocin. (Proc. Soc. Exp. Biol.Med.**70**, 308, 1949). Strain Waksman 3533; ATCC 10971; DSM 40817 (Medium 29, 30°C)

2625 NCIB 8891 (1974) (*Streptomyces griseus* subsp. *griseus*) Production of candicidin. (Mycologia **45**, 155, 1953). Strain Waksman 3570; ATCC 11746. (Medium 29, 30°C)

2952 PTCC 1122 (1986) Waksman's original streptomycin producing strain 3463; ATCC 11429; NCIB 8237(*Streptomyces griseus* subsp. *griseus*) (Medium 29, 30°C)

***Streptomyces griseus* subsp. *purpureus* Burkholder et al**

2626 NCIB 9345 (1974) *Streptomyces californicus, Streptomyces floridae, Streptomyces puniceus* Production of viomycin (Bull. Torrey Bot. Club **82**, 108, 1955; Arch. Microbiol. **31**, 326, 1958). Strain NRRL 2423; ETH 20731; 11884u; DSM 40938. (Medium 29, 30°C)

Streptomyces hawaiiensis* Cron *et al.

2627 NCIB 9410 (1974) Type culture (The Actinomycets vol.**2**, Classification, Indentification and Descriptions of Genera and Species. 1961 p.228. The Williams and Willkins Co., Baltimore) Production of bryamycin. (Antibiot. Chemother. **6**, 63,1956; Int. J. Syst. Bact. **18**, 130,1968) Strain AB 506; ATCC 12236; IFO 12784; DSM 40042. (Medium 29, 30°C)

***Streptomyces hygroscopicus* (Jensen) Waksman and Henrici**

2959 PTCC1131 (1986). Streptomyces hygroscopicus subsp. hygroscopicus Production of Azalomycin B and F (U.S.Pat.3,076,746). ATCC 13810, DSM 40821. (Medium 29, 30°C)

***Streptomyces lavendulae* (Waksman & Curtis) Waksman & Henrici.**

2498 NCIB 6959 (1973) *Streptomyces colombiensis, Streptomyces lavendulae* subsp. *lavendulae.* Production of streptothricin. Cholesterol oxidase positive. (Soil Sci., **54**, 281, 1942; J. Bact.,**83**, 20, 1962). Strain Waksman 3440-8; DSM 40748 NCTC 950; NCIB 8235; ATCC 14158. (Medium 29, 30°C)

2499 NCIB 8236 (1973) Same as NCIM 2421

2500 NCIB 9000 (1973) *Streptomyces colombiensis, Streptomyces lavendulae* subsp. *lavendulae.* Production of streptohricin and levendulin. Strain 8/C2; ATCC 14162, DSM 41576. (Medium 29, 30°C)

2827 ATCC 11924. Produces cycloserine (U.S.Pat. 2,773,878) IFO 12340. (Medium 29, 30°C)

2828 ATCC 13664. Produces penicillin amidase. (U. S. Pats. 3,014,845 and 3,014, 846) IFO 12341,DSM41571. (Medium 29, 30°C)

5026 NCIM isolate. (Medium 29, 30°C)

***Streptomyces lividans.* (Krasil'nikov et al) Pridham**

2916 Strain TK24. BARC (1986). Devoid of plasmid . (Medium 29, 30°C)

2917 Strain TK64. BARC (1986). Carries plasmid pIJ 922. NCIM 2966, 5020. (Medium 29, 30°C)

2964 Strain M 387. BARC (1986) Chromosomal marker: StrR carries plasmid pIJ 101.(Medium 29, 30°C)

2965 Strain TK 146. BARC (1986). Chromosomal markers: StrR (Medium 29, 30°C)

2966 Same as NCIM 2917, 5020.

2967 Strain 1326 BARC (1986). Wild type, prototrophic.(Medium 29, 30°C)

2968 Strain TC 73. BARC (1986) Carries plasmid pIJ 61. (Medium 29, 30°C)

2969 Strain TK 2971 23 BARC (1986). Choromosomal marker SpoR. (Medium 29, 30°C)

5017 MTCC (1988) Plasmid pIJ 702, thiostreptonR and melanin gene. (Medium 29, 30°C)

5018 MTCC 2 (1988) Plasmid pIJ 941, thiostreptonR, hygromycinR. (Medium 29, 30°C)

5020 Strain TK 64; Madurai University (1988) Chromosomal markers; pro-, strr. NCIM 2917, 2966. (Medium 29, 30°C)

5058 Contains plasmid pJAS 14 B. Jurin, NDRI,Sweeden (Medium 29, 30°C)

Streptomyces lonarensis

5435 Deposited by Lalitha Kumar, NCL, Pune (2012). Strain no. NCL 716. Gene bank no. FJ919811. Production of amylase (Medium 29 with pH 9.0, 30°C)

***Streptomyces nitrosporeus* Okami**

2958 PTCC 1138 (1986) Type Strain (The Actinomycets vol.**2** Classification, Indentification and Descriptions of Genera and Species. 1961 p.228. The Williams and Willkins Co., Baltimore; Int. J. Syst. Bact. **18**,152, 1968). Production of nitrosporin (J.Antibiot. **5**, 477, 1952) ATCC 12769. (Medium 29, 30°C)

***Streptomyces niveus* Smith et al.**

2502 NCIB 9219 (1973)Streptomyces laceyi ,Streptomyces spheroides Type strain (Antibiot. Chemother.**6**, 153,1956; Int. J.Syst. Bact. **18**, 153,1968) Production of novobiocin. (Antibiot. Chemother. **6**, 153,1956) NRRL 2466; ATCC 19793; IFO 12804;LMG 19395 , DSM 40088. (Medium 29, 30°C)

***Streptomyces noursei* Brown et al**

2424 NCIB 8593 (1971) Type strain (Arch. Mikrobiol. **31**, 345, 1958) Production of nystatin (fungicidin) (Proc. Soc. Exp. Biol.Med., **76**,93,1951; J. Bact. **78**, 272, 1959). Strain coffey 48240; ATCC 11455; ETH 13473; DSM 40635. (Medium 29, 30°C)

***Streptomyces olivaceus* (Waksman) Waksman and Henrici**.

2212 PRL X-7 (1966).(Medium 29, 30°C)

2503 NCIB 8509 (1973) Production of vit B_{12} and olivacein. (Appl. Microbiol. **1**, 124, 1953; Arch. Mikrobiol., **31**, 354, 1958). Strain NRRL B-1125; ATCC 11626; Boots FD 275; ETH 14309; NCIB 8238. (Medium 29, 30°C)

2962 CBS 68673. Produces glucose isomerase. NRRL B-3916 (Medium 29, 30°C)

***Streptomyces peucetius* (Grein *et. al*.)**

5207 DSM 40754. Type strain (Int. J. Syst. Bacteriol. **30**, 225, 1980). Production of daunomycin (daunorubicin) (Proc. Natl. Acad. Sci. USA **86**, 3135, 1989), anthracyclines (Can. J. Microbiol. **31**, 287, 1985), antineoplastic agents (J. Antibiot. **43**, 19, 1990). DSM 40754 (Medium 29, 30°C)

***Streptomyces phaeochromogenes* (Conn) Waksman and Henrici.**

2504 NCIB 8505 (1973) Type strain (Int. J. Syst. Bact. **30**, 396, 1980) Production of tyrosinase (Arch. Mikrobiol., **31**, 351, 1958; J Bact.,

83, 20, 1962). Strain ETH 14851; 20197; ATCC 3338; DSM 400732; IFO 12898. (Medium 29, 30°C)

***Streptomyces rimosus* Sohin et al.**

2213 NCIB 8229 (1966) (*Streptomyces rimosus* subsp. *rimosus*) Type culture (The Actinomycets vol.**2**, Classification, Indentification and Descriptions of Genera and Species. 1961 p.228. The Williams and Willkins Co., Baltimore) Production of oxytetracycline. (U.S. Pat 2,516,080) Production of Rimocidin [Reg TM] (Anitibiot. Chemother. **1**, 289, 1951) Production of tetracyclins (U.S.Pat. 3,053,740) Transformation of ulenine (J.Nat.Prod. **46**, 211, 1983) NRRL B 2234; ETH 20240; Waksman 3558; IFO 3390 and 12907; ATCC 10970; DSM 40260 (Medium 29, 30°C)

***Streptomyces* sp.**

2081 CFTRI Strain C7 (1956).(Medium 29, 30°C)

2214 QMB-814 (1966) Cellulolytic strain; used for production of cell-free filtrates that hydrolyze cellobiose, cellulose and cellulose derivatives.Bact., **59**, 485, 1950,; J. Gen Physiol. **33**, 601, 1950; Arch Biochem. Biophys. **31**, 351, 1951; ibid **85**,171, 1959; Physiol. Plant **5**, 379,1952) NCIB 8592; ATCC 11238. (Medium 29, 30°C)

2630 NCIB 8697 (1974) Production of actioctin. (Nature, Lond. **176**, 256, 1955; J. Chem. Soc., **1**, 628, 1957). Strain MC 2. (Medium 29, 30°C)

2631 NCIB 8766 (1974) Production of proactinomycin. (Brit. J. Exp.Pathol. **30**, 398, 1949). (Medium 29, 30°C)

2727 ATCC 21132 (1975). (*Streptomyces albus*) Produces glucose isomerase and xylose isomerase (U.S.Pat. 3,715,276). (Medium 29, 30°C)

2728 ATCC 21175 (1975). Produces glucose isomerase.and xylose isomerase (U.S.Pat. 3,666,628). (Medium 29, 30°C)

2730 NCIM Isolate (1975). Production of glucose isomerase. (Medium 29, 30°C)

5027 Strain VP5. Pranab Vyas (1988). Xylanase (Alkalophilic) producer. (Medium 29, 30°C)

5034 85-11-T-7. M.C.Srinivasan (1985). (Medium 29, 30°C)

5194 Strain A7. B.A.Chopade, Pune University (2003). Isolated from marine sediment. (Medium 29, 30°C)

5195 Strain AH6. B.A.Chopade, Pune University (2003). Isolated from marine sediment. (Medium 29, 30°C)

5196 Strain BN5. B.A.Chopade, Pune University (2003). Isolated from marine sediment. (Medium 29, 30°C)

5197 Strain C 10. B.A.Chopade, Pune University (2003). Isolated from marine sediment. (Medium 29, 30°C)

5198 Strain S1. B.A.Chopade, Pune University (2003). Isolated from marine sediment. (Medium 29, 30°C)

5205 DSM 40419. Antibacterial and antifungal activity. ATCC 19828; CBS 677.72; IFO 13020 (Medium 29, 30°C)

5485 Deposited by Dr. Syed Dastager, NCL (2013). Isoalted from lime stone soil. GeneBank No. GQ357647, CCTCC No. AA209051, DSM 41985 (Medium 65 or 29, 35-40°C **)**

5500 Deposited by Dr. CKM Tripathi, CDRI, Lucknow (2013). Isoalted from soil sample. Cholesterol oxydase production (Medium 68, 30°C)

***Streptomyces thermonitrificans* Desai and Dhala.**

2007 Bhavan's College Andheri, Bombay (1965). Type strain.(type strain of *Streptomyces thermonitrificans*) Antimicrobial activity (Antonie van Leewenhoek, **33**, 143, 1967) ATCC 23385; NCIB 10070.LMG 19341,DSM 40579 (Medium 29, 45°C)

***Streptomyces venezuelae* Ehrlich et al.**

2215 PRL X-58 (1966). Production of chloramphenicol. (Medium 29, 30°C)

***Streptomyces vinaceus* Mayer et al.**

2505 NCIB 8852 (1973)Streptomyces arabicus Type strain (Int. J. Syst. Bact. **19**, 493, 1969) Production of vinactin (viomycin). (U.S.Pat 2,633,445). Strain NRRL B-2285; ATCC 11861; IFO 13098; DSM 40257 (Medium 29, 30°C)

Streptomyces vinaceusdrappus

5486 Deposited by Dr. Syed Dastager, NCL (2013). Isoalted from tree bark soil deposition. GeneBank No. JX050266 (Medium 66 or 29, 37°C **)**

***Streptomyces viridifaciens* Gourevitch and Lein.**

2506 NCIB 8954 (1973) Production of tetracycline and chlortetracyclin (U.S. Pat 2,712,517) Production of tetracyclins (U.S.Pat. 3,053,740) Strain Heinemann 567201; ATCC 11989; NRRL B- 1679; IFO 13352; DSM 40239 (Medium 29, 30°C)

STREPTOSPORANGIUM

STREPTOSPORANGIUM

Streptosporangium sp.

5001 Strain TW 117. Dr. M.C.Srinivasan (1988). (Medium 3, 30°C)

5006 Strain TW 324. Dr. M.C.Srinivasan (1988). (Medium 3, 30°C)

5007 Strain TW 341. Dr. M.C.Srinivasan (1988). (Medium 3, 30°C)

STREPTOVERTICILLIUM

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***Streptoverticillium cinnamoneum* (Benedict et al) Baldacci**

(Forma cinnamoneum)

2618 NCIB 8851 (1974) (*Streptomyces cinnamomeus; Forma cinnamomeus, Streptomyces pseudogriseolus*) Type strain (The Actinomycetes vol.**2**, Classificati on, Identification and Description of Genera and Species. 1961, p.195. Williams and Wilkins Co. Baltimore; Int. J. Syst. Bact. **18**, 309, 1968) Production of Niddamycin, Magnamycin, and Leucomycin derivatives (U.S.Pat. 3,784,447) NRRL B-1285; ATCC 11874; DSM 40026 DSM 40005 (Medium 29, 30°C)

***Streptoverticillium mobaraense* (Nagatsu & Suzuki) Locci et al**

5208 DSM 40847. (*Streptomyces mobaraensis, Streptomyces ladakanum , Streptoverticillium ladakanum).* Type strain (G. Microbiol. **17**, 1, 1969; Int. J. Syst. Bacteriol. **41**, 456, 1991, *ibid***30**, 225, 1980).

Production of piericidin A and B (Agric. Boil. Chem. **27**, 576, 1963). ATCC 29032. (Medium 29, 30°C)

5209 DSM 40903. (*Streptomyces mobaraensis; Streptomyces verticillus, Streptoverticillium ladakanum, Streptoverticillium mobaraense).* Production of bleomycin A and B (J. Antibiot. **19**, 200, 1966; US Patent 3,681,491, 1972; US Patent 3,846,400, 1974). Taxonomy/ Description (Bergey's Manual Syst. Bacteriol. **4**, 2502, 1989). ATCC 15003; DSM 41492; NCIB 12695 (.*Streptoverticillium* sp) (Medium 29, 30°C)

***Streptoverticillium* sp.**

5206 DSM 40603. (*Streptoverticillium caespitosum; Streptomyces caespitous; Streptomyces* sp., *Streptoverticillium ardum, Streptomyces ardus*). Reffered to as type strain of *Streptomyces caespitous* (Int. J. Syst. Bacteriol. **22**, 265, 1972). Produces mytomycin C and analogues (J. Antibiot. **39**, 437, 1986). ATCC 27442; IFO 13490; NRRL 2564 (Medium 29, 30°C).

THALASSOSPIRA

THALASSOSPIRA

Thalassospira frigidphilosprofundus subsp. Pulicherla

5438 Deposited by Dr. K.K. Pulicherla, RVR College of Engineering, Guntur (2012). Isolated from deep waters of Bay of Bangal. Psychrophilic and halophilic, Cold active β-galactosidase production Strain no. 3SC-21 (Medium 64, 20°C).

THERMOMONOSPORA

THERMOMONOSPORA

***Thermomonospora* sp.**

***5193** Deposited by Mala rao, N.C.L., Pune (2003). Isolated from self heating compost. Production of cellullases and xylanases. (Medium 41, 50°C).

THIOBACILLUS

THIOBACILLUS Beijernick

***Thiobacillus novellus* Starkey**

2858 NCIB 9113 (*Starkeya novella*). Type strain (Int. J. Syst. Bacteriol. **30**, 413, 1980). Growth regulation by media (Curr. Microbiol. **15**, 107, 1987; Arch. Mikrobiol. **105**, 51,1975). ATCC 8093; DSM 506; IFO 12443; NCIMB 10456 (Medium 41, 30°C)

TROPICIBACTER

TROPICIBACTER

***Tropicibacter* sp**

5505 Deposited by Dr. C. Mohandass, NIO, Goa (2013). Isoalted ftom azores. GeneBank No. KC534265 (Medium 69, 30°C)

VIBRIO

VIBRIO

Vibrio cholera

5316 Deposited by Microexpress, Goa (2008). ATCC 15748 (Medium 41, 37°C)

Vibrio fischeri

5269 Deposited by Microexpress, Goa (2008). Type strain.MTCC 1738, ATCC 7744, NCIMB 1281(*Aliivibrio fischeri, Photobacterium fischeri, Vibrio fischeri*); DSM 507 (Medium 41, 37^0C)

Vibrio metschnikovii

5272 Deposited by Microexpress, Goa (2008). Type strain. ATCC 700040,MTCC 866, DSM 19132 NCTC 8443, (Medium 41, 37°C)

***Vibrio* sp**

5506 Deposited by Dr. C. Mohandass, NIO, Goa (2013). Isoalted ftom azores. GeneBank No. KC534342 (Medium 69, 25°C)

XANTHOMONAS

XANTHOMONAS Dowson

***Xanthomonas campestris* (Pammel and Dowson)**

2956 NRRL B-14598-4L0II.(1956). Produces polysaccharide. (Medium 29, 30°C)

2961 Deposited by M.C. Srinvasan (1986). Produces Xanthan gum. (Medium 29, 30°C)

5028 Deposited by S. Nene (1988).Xanthomonas begoniae Produces xanthan gum. DSM 60151; ATCC 29497. (Medium 29, 30°C)

***Xanthomonasmalvacearum* (Smith) Downson.**

2310 NCIM isolate (1971). (Medium 29, 30°C)

YERSINIA

YERSINIA

Yersinia enterocolitica

5263 Deposited by Microexpress, Goa (2008). MTCC 840, NCTC 10640 (Medium 41, 37°C)

5290 Deposited by Microexpress, Goa (2008). *Yersinia enterocolitica* subsp. *enterocolitica.* ATCC 27729 (Medium 41, 37°C)

ZYMOMONAS

ZYMOMONAS Kluyver and van Niel.

***Zymomonas anaerobia* (Shimwell) Kluyver Comb Nov.**

2427 NCIB 8227 (1974). *Z. mobilis* subsp *mobilis*. Nutrition (J.Gen. Microbiol. **60**, 421, 1970; ibid., **76**, 247, 1973). ATCC 29501; DSM 473 (Medium 43, 30°C, Anaerobic)

***Zymomonas mobilis* (Lindner) Kluyver and van Niel.**

(*Pseudomonas lindneri; Z. mobilis* subsp *mobilis, Zymomonas anaerobia*)

2428 NCIB 8938 (1973). (J. Bacteriol., **84**, 115, 1962). Produces ethyl alcohol ethanol (Biotechnol. Lett. **4**: 421-426, 1979.) ATCC 10988; NRRL B-806. (Medium 43, 30°C)

2915 UPCC 216. Received from Univ. Philippine Culture Collection.

5134 MTCC 89 (2000). (Medium 43, 30°C)

5464 MTCC 92 (2012).Type strain. Produces ethyl alcohol ethanol (Biotechnol. Lett. **4**: 421-426, 1979.) NCIB8938, ATCC10988, DSM424. (Medium 43, 30°C)

Unidentified bacteria

5243 Deposited by Dr. Saroj Bhosale, Goa University (2006). Isolated from mangrove ecosystem sediment. Strain no. A-131 (Medium 51, 30°C)