National Collection of Dairy Cultures
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The ICAR-National Collection of Dairy Cultures is a specialized collection of dairy organisms and starter cultures. It offers its services to the dairy and food industry; universities; research and teaching institutions; and other organisations in the country for commercial and research purposes. The major services are deposition, preservation and distribution of dairy cultures. The NCDC, as a national facility, has been visibly and successfully meeting the burgeoning demand of dairy cultures required for manufacture of fermented milk products by Indian Dairy Industry. The NCDC has also extended its services to help Dairy Industry in making available of dairy cultures and their validation for commercial production of indigenous fermented milk products. Further, NCDC is in the process of facilitating the commercial manufacture of Direct-Vat-Set (DVS) starters in India. Besides, it also contributes significantly to research in the realm of food microbiology by catering to the need of research institutes and in recent years, there has been a spurt in publications of research papers in national and international research journals based on experiments done on NCDC cultures. The NCDC also organises specialized training courses in areas related to preservation of microorganism and maintenance, propagation and utilization of dairy starter cultures for production of fermented milks and milk products. It also undertakes contractual and collaborative research projects related to its area of interest.

The NCDC published the first catalogue of strain in 1996 and second one in 2010. The publication of updated and improvised catalogue of NCDC as its 3rd edition is poised to provide the information about all the cultures presently available with the NCDC.

The World Federation has recognized the NCDC for Cultures Collections (WFCC) as its Affiliate Member (WDCM 775) and information about its activities, contacts and linkages has been included in the World Directory of Culture Collections published by the World Data Centre on Microorganism (WDCM). The information about NCDC is also available in the CCINFO database maintained and made available by the WDCM, Japan at the WFCC homepage (http://www.wfcc.info/).

January, 2016

(A.K. Srivastava)
DIRECTOR
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INTRODUCTION

National Collection of Dairy Cultures (NCDC) has been held in the Division of Dairy Microbiology at the ICAR-National Dairy Research Institute, Karnal since 1962. The cultures were earlier maintained on solid media by periodic sub-culturing. Freeze-drying was introduced in 1964 and adopted for the long-term preservation of cultures. The NCDC stock includes strains of general interest to education and research and strains of industrial importance. The main interest of the collection lies in the lactic acid bacteria from dairy sources. The NCDC has been significantly contributing as a national facility in manufacture of fermented milk products in India by making available dairy cultures to Indian Dairy Industry. At the same time, it also caters to the need of research institutes and in recent years, there has been a spurt in publications of research papers in national and international research journals based on experiments done on NCDC cultures. At present it has strains of bacteria, fungi and yeasts in its collection. In addition to individual strain cultures, the NCDC also holds mixed strain (traditional) and defined strain-formulated cultures for making different varieties of cheese and fermented milks. Besides maintenance and distribution of cultures, NCDC acts as a safe depository of research cultures studied at institute’s level. The NCDC also organizes specialized training programmes and workshops to provide know-how on maintenance & preservation of cultures, propagation of dairy starter cultures and other related aspects.

AFFILIATE MEMBER OF THE WFCC

The NCDC has been recognized as Affiliate Member of the World Federation for Culture Collections since 1996 (home page: http://wfcc.info/) and is also registered with the World Data Center on Microorganisms (registration number WDCM 775). It has also been listed in the World Directory of Culture Collections published by the WDCM, Japan. The World Directory of Culture Collections is also available online (CCINFO database) at the home page of WDCM (http://wdcm.nig.ac.jp/).

DEPOSIT OF CULTURES

In order to enrich the collection and make its services more useful the NCDC accepts cultures isolated, identified and characterized as a part of research projects carried out at ICAR-NDRI, Karnal both for “safe deposit” and “Unrestricted Use”. Pathogens are not accepted for deposit in the NCDC stock. Information in the prescribed format (page 5-6) is to be given by the depositor along with the cultures. A distinguishing accession number is allotted to each new culture deposited in the NCDC stock.

SUPPLY OF CULTURES

The supply of cultures by the NCDC has been recognized as Consultancy Service at NDRI, Karnal. The information about NCDC and its cultures are available online at http://www.ndri.res.in/ncdc/. Most NCDC cultures are supplied in freeze dried form in sealed glass ampoules. A few cultures may be sent as active cultures on agar slopes or stabs. The cultures are supplied on the understanding that the recipient will observe the following:

1. The recipient shall ensure that the cultures are opened and used by, or under the supervision of persons trained and competent in microbiological techniques and in laboratories meeting the containment requirements.

2. The recipient shall ensure that any person opening or using the cultures shall do so only with his authorization.

3. The responsibility for ensuring safe handling, storage, use, misuse or other wrongdoing with respect to cultures or derivatives thereof, supplied by NCDC rests with the recipient. NCDC takes no responsibility for any untoward events arising from handling the cultures after their dispatch to the recipient.

CONDITIONS OF SUPPLY PERTAINING TO THE IMPORT AND USE OF NCDC CULTURES

1. The purchaser of NCDC products shall assume all responsibility in connection with the compliance of foreign law and regulations concerning the import, handling, transportation, storage, use and misuse or other wrongdoing of/with such products.

2. It is the responsibility of the recipient of NCDC products to determine whether their use of the material supplied infringes any intellectual property rights and to obtain any necessary licenses or permissions there under.

3. There is no inherent warranty outwit purity and viability provided with any NCDC culture.

4. NB. NCDC bears no responsibility for organisms, which bear the NCDC acronym subsequently produced and sold by independent commercial companies).
COMPLAINTS

The NCDC will consider all complaints received within 14 days of dispatch for active cultures and 1 month for freeze-dried cultures. In case of complaint, the client should keep all documents accompanying the delivery and ensure that the organism has been properly stored upon receipt. Complainant must provide details of growth medium, incubation conditions and other relevant tests performed at his end.

PROCESSING OF CULTURES

Most of the cultures at NCDC are maintained in freeze-dried condition, whereas certain fungal cultures are kept under liquid paraffin. Centrifugal type of freeze drier is used and the glass ampoules are sealed under vacuum. Freeze dried cultures are stored at low temperature (-20ºC) for long-term preservation. Permanent marking is introduced in each ampoule using labeled paper strips that are placed in each ampoule before sterilization. The accession number of each culture is either printed on the strip or indicated on the ampoules.

REVIVING OF FREEZE DRIED CULTURES

Make a file cut on the ampoule at the midpoint of the cotton wool plug and crack the glass by applying red-hot wire or glass rod to the file cut. Allow the air to enter slowly before gently removing the pointed part. Discard the upper part of ampoule and the cotton plug into disinfectant solution.

Flame the open end of the ampoule and aseptically add to the freeze-dried material 0.3-0.4 ml of sterilized skim milk or appropriate broth with Pasteur pipette; mix well and transfer the total mixture to a test tube containing 8-10 ml of skim milk or broth of the same medium. Subculture should be incubated at the appropriate temperature under appropriate gaseous conditions.

Given proper treatment and conditions, most freeze-dried cultures will grow out in 1-2 days. However, some freeze-dried cultures may exhibit a long lag period and should be given 4-5 days incubation time before discarding it as unviable. Ampoules not opened soon after receipt should be stored at low temperature away from direct light (e.g. a refrigerator). Organisms should be sub-cultured at least twice before they can be optimally used in experiments.

ORDERING NCDC CULTURES

Orders for the NCDC strains can be placed with Incharge, National Collection of Dairy Cultures, Dairy Microbiology Division, ICAR-National Dairy Research Institute, Karnal-132 001, India.

Fax: (0184) 250042  Phone: (0184) 259192, 259198. Email: ncdc@ndri.res.in.

Orders must be accompanied with a demand draft for the appropriate amount(₹ Rs.700 per culture we f 1st April 2016) in favour of “ICAR Unit, NDRI, Karnal payable at Karnal”. The service charges for the cultures are revised from time to time and can be obtained from Incharge, NCDC. Cultures are mailed by registered post at the customer’s address.

LISTING OF CULTURES IN THE CATALOGUE

Cultures have been listed under four different sections namely, bacteria, fungi, yeasts and mixed starters. In each section the cultures are listed in alphabetical order according to the genus and species. Strains within the species are listed in numerical order. Individual strains are arranged in particular format as shown separately under Guide to Entries (page 3). Applications, Composition of Growth media, Miscellaneous Information and Numeric Index of NCDC numbers are given in separate sections.
LIST OF CULTURES

**Acetobacter aceti**  
(Pasteur 1864) Beijerinck 1898  
137 Deposited by Dr. M. P. Tiwari, NDRI  
Mannitol Agar, 25°C

**Acinetobacter calcoaceticus**  
(Beijerinck 1911) Baumann et al. 1968  
212 NCDO 709, NCIMB 8208, NRRL B-551, ATCC 23220 (*Achromobacter lacticum*)  
Causes slimy milk  
Nutrient Agar, BHI, 30°C

**Acinetobacter johnsonnii**  
Bouvet and Grimont 1986  
72 NDRI strain  
Nutrient Agar, 37°C

**Alcaligenes viscolactis** [invalid] see *Acinetobacter johnsonnii*

**Bacillus cereus**  
Frankland and Frankland 1887  
66 N. R. Smith, US Dept, Agric  
ATCC 10876, NCDO 721, NCIB 8579, NRRL B-569  
Produces penicillinase  
Nutrient Agar, 30°C  
240 MTCC 1272, DSM 2301, CBCC 2823  
Enterotoxigenic strain  
Nutrient Agar, 30°C

**Bacillus coagulans**  
Hammer 1915 emend. De Clerck et al. 2004  
356 Isolated from Buffalo milk, Deposited by Lopamudra bhattacharya  
TDY broth, 37°C, pH 7, aerobic

**Bacillus lentus**  
Gibson 1935  
180 NDRI, MK5-6  
Isolated by C. Ganesh Kumar from alkaline soil from Karnal  
Produces alkaline protease(s)  
Alkaline GPYC medium, pH 10.0, 37°C

**Bacillus licheniformis**  
(Weigmann 1898) Chester 1901  
266 Isolated by Priyabrata Pattnaik from buffalo rumen, NDRI, Karnal  
Slow growing  
Produces inhibitory substances against *S. bovis* when grown anaerobically  
Highly pleomorphic  
Mineral glucose medium (ATCC) for aerobic growth  
L-10 for anaerobic growth  
35-39°C  
598 MRS, 37°C, pH 6.0, 16-18 h

**Bacillus megaterium**  
de Bary 1884  
67 NDRI strain  
Nutrient Agar, 30°C

**Bacillus polymyxa**  
(Prazmowski 1880) Mace 1889  
68 CDO 731, ATCC 10401, NCIMB 8094  
Produces polymyxin  
*Journal of Bacteriology* 54 (5): 549-556 (1947)  
Nutrient Agar, 30°C

**Bacillus stearothermophilus**  
Donk 1920  
69 NIZO C953, NCDO 1780, DSM 1550, NCIMB 11780  
From Evaporated milk  
Detection of Penicillin and other inhibitory substances in milk  
Nutrient broth + 0.1% starch, 55°C

**Type strain**  
Isolated by N.R. Smith (USDA) T17  
From unprocessed canned food  
Nutrient broth + 0.1 % starch, 55°C  
206 NCDO 733, ATCC 7953, NCTC 10007, NCIB 8157

**Type strain**  
Isolated by N.R. Smith (USDA) T17  
From unprocessed canned food  
Nutrient broth + 0.1 % starch, 55°C

**Type strain**  
Isolated by N.R. Smith (USDA) T17  
From unprocessed canned food  
Nutrient broth + 0.1 % starch, 55°C

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Isolated by N.R. Smith (USDA) T17  
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Nutrient broth + 0.1 % starch, 55°C

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From unprocessed canned food  
Nutrient broth + 0.1 % starch, 55°C

**Type strain**  
Isolated by N.R. Smith (USDA) T17  
From unprocessed canned food  
Nutrient broth + 0.1 % starch, 55°C

**Type strain**  
Isolated by N.R. Smith (USDA) T17  
From unprocessed canned food  
Nutrient broth + 0.1 % starch, 55°C
**Bacillus subtilis**
Ehrenberg 1835, Cohn 1872

70  NDRI strain
Nutrient Agar, 37°C

71  ATCC 6633, NCDO 1733, DSM 347, NCIMB 8054, NCTC 10400
Production of subtilin
Bioassay of aureomycin, streptomycin, dihydrostreptomycin, vancomycin for Factor A content, viomycin sulphate, kanamycin B and novobiocin.
Sterility assay.
*Arch. Biochem.* 4(3): 297-309 (1949)
*Antibiotics and Chemotherapy* 9 (10): 614 (1959)
*ibid* 28 (76): 3832 (1963)9-14

233  BA 3
Isolated by Chand Ram, NDRI Karnal
MRS, anaerobic, 37°C

234  BD4
Isolated by Chand Ram, NDRI Karnal
MRS, anaerobic, 37°C

235  BD1
Isolated by Chand Ram, NDRI Karnal
MRS, anaerobic, 37°C

**Bifidobacterium breve (Not for sale)**
269  ATCC

**Brevibacterium linens**
(Wolff 1910) Breed 1953

213  NCDO 739, NCIB 8546, ATCC 9175 DSM 20426
*(Bacterium linens)*

220  NCDO 1487
From Bovine mastitis
Nutrient Agar, 30°C

248  MTCC 111, NCIB 10102, ATCC 13048, DSM 30053, JCM 1235, NCTC 10006
Isolated from sputum
Type strain
Used in paint research Association Method for testing bacterial resistance of emulsion paints
Nutrient Agar, 30°C

**Enterobacter aerogenes**
Hormaeche and Edwards 1960

106  NDRI strain
Nutrient Agar, 37°C

173  NDRI strain 270
Nutrient Agar, 30°C

220  NCDO 1487
From Bovine mastitis
Nutrient Agar, 30°C

255  ATCC 15696, NCDO 2203, BF 31, S28a
Isolated by G. Reuter, Berlin 1971 from infant intestine
MRS + 0.05% cysteine, Yoshioka Broth, anaerobic, 37°C

320  NCDO 1455, NCIB 1960, NIRID 1960
MRS + 0.05% Cystein HCl anaerobic condition , 37°C

703  MRS bifido media, 37°C, 48 h

**Bifidobacterium adolescens**
Reuter 1963

236  HI 26
Isolated by Chand Ram from infant faeces
MRS/MILS, anaerobic, 37°C

**Bifidobacterium bifidum**
(Tissier 1900) Orla-Jensen 1924

229  ATCC 29521, NCDO 2715, DSM 20456
Isolated from infant faeces

231  HI 39
Isolated by Chand Ram, NDRI Karnal
Shows good hydrophobicity
Weak positive reaction for Fructose-6-phosphate phosphoketolase
MRS + cysteine, YDM, anaerobic, 37°C

232  HI 48
Isolated by Chand Ram from infant stool (one month age)
Adhesion to Hexadecane
MRS/MILS, anaerobic, 37°C

330  MTCC 1519

**Safe deposit; Not for sale**
NCDC Catalogue 2016
Enterobacter cloacae
Jordan 1890

222 NCDO 612
Produces ketone in milk
Nutrient Agar, 30°C

Enterococcus faecalis
(Andrewes and Horder 1906)
Schleifer and Kilpper-Balz 1984

114 NDRI strain S30
Litmus milk, 37°C

115 NDRI strain 253
Litmus milk, 37°C

116 ATCC 8043
Assay of folic acid, pyridoxal, pyridoxamine and arginine.
Liver Extract Agar, 30°C

117 NDRI strain III-S1
Litmus milk, 37°C

119 NDRI strain 213
Litmus milk, 37°C

120 NDRI strain 190
Litmus milk, 37°C

121 NDRI strain RTS
(Streptococcus zymogenes)
Litmus milk, 37°C

122 NDRI strain S108
(Streptococcus liquefaciens)
Litmus milk, 37°C

123 NCDO 581, NCTC 775, ATCC 19433
Litmus milk, 37°C

203 NCDO 538, ATCC 27332, NCIB 8256, NCTC 8175
Isolated by P. M. F. Shattock, NIRD, 1940
Isolated from milk
(Streptococcus liquefaciens)
Skim milk, YD broth, 37°C

223 NCDO 581, ATCC 19433, DSM 20478, NCIB 775
Type strain
Nutrient Agar, 37°C

Enterococcus faecium
(Orla Jensen 1919)
Schleifer and Kilpper-Balz 1984

124 SD1, NCDO 502
(Streptococcus durans)

J. Czulak, CSIRO, Australia, 1955
Isolated from dried milk powder
Starter culture for short cheese making process
% G+C 38.0

134 NCDO 745, NCIMB 8277, NCTC 8196
Type 1
Nutrient Agar, 37°C

135 NCTC 10538 strain K-12, ATCC 14948, NCIMB 10083, NCDO 1984
From human faeces
Reference strain for DNA base composition.
Nutrient Agar, 37°C.

136 NCIM strain 113.3
Nutrient Agar, 37°C.

178 DH-5 alpha with pUC 19
Deposited by V. K. Batish, NDRI
Contains one plasmid pUC 19 of 2.69 kb
Phenotype Lac-, Amp', K+
Special observation: high pUC 19 producing strain
Luria broth + Amp40 + Kan40, 37°C

179 DH-5 alpha
Deposited by V. K. Batish, NDRI
Isolated by R. M. Teather, CFAR, AAFC, Canada
Transforming host (R'), Plasmid free, Kan40
Luria broth + Kan40, 37°C

181 XL-1 Blue MRF
Deposited by S. De, NDRI
Good host for transformation, Plasmid free
Luria broth + Tetra25, 37°C

182 SOLR
Deposited by S. De, NDRI
Good host for transfection
Luria broth, 37°C

209 Strain AF-2
Deposited by V. K. Batish
Cloned strain with recombinant
pUC 18
Luria broth + Amp\textsuperscript{50} + Kan\textsuperscript{40}, 37°C

210 Strain AF-10
Deposited by V. K. Batish
Cloned strain with recombinant
pUC 18
Luria broth + Amp\textsuperscript{50} + Kan\textsuperscript{40}, 37°C

247 NDRI isolate

MTCC 119, NCIBM 9483, NCTC 10537
Hfr strain, lysogenic for phage Hfr
Derived from strain K12 F\textsuperscript{+}
Classical high frequency chromosomal donor on conjugation
Nutrient Agar, 37°C

254 MTCC 118, NCIMB 482
Genetic stock, Teaching strain,
Classical recipient in conjugation nonlysogen
Nutrient Agar, 37°C

Recombinant host for PL143
Deposited by M. Sudhamani
LB medium, 37°C, 12-16 h

Klebsiella pneumoniae
(Shroeter 1886) Trevisan 1887

138 Bhavan’s College, Bombay
Nutrient Agar, 37°C.

Lactobacillus acidophilus
(Moro 1900) Hansen and Mocquot 1970

13 NDRI III
MRS/Litmus milk, 37°C

14 NCIMB 1899, NCDO 2, ATCC 11975
J. Am. Med. Assoc. 79: 609 (1922)
Ibid 80: 602 (1923)
MRS/Litmus milk, 37°C

15 Russian strain
Litmus milk, 37°C

16 Chr. Hansen Lab, Denmark
MRS/Litmus milk, 37°C

291 LA 5
Produces bacteriocin (heat stable, active over wide pH range)
Deposited by Neeraj Kumar
MRS, 37°C

343 Derivative of NCDC 14 by adaptation and protoplast fusion.
Deposited by P.P. Tripathi
MRS, pH 4.5 using 50mM Lactic Acid Microaerophilic, 42°C

600 22A, MRSagar/broth, 37°C, pH-6.1, 12-24 h

686 MRS broth+0.05%, cysteine hydrochloride
37°C(anaerobic), pH 6.5 (at 25°C), 24-48 h

702 MRS broth/agar, 37°C, 24-48 h

Lactobacillus agilis
614 Helix-11-1395, MRS agar, yeast glucose broth and 0.75% agar sol
37°C, 24-48 h

Lactobacillus algidus
680 KSBT-44, MRS broth/agar, 37°C, pH-6.5, 24-36 h

Lactobacillus brevis
(Orla-Jensen 1919) Bergey’s et al. 1934

1 NDRI strain RTS
Litmus milk, 30°C

371 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637371
MRS/ YGLPB, 37°C

403 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886737
MRS/ YGLPB, 37°C

Lactobacillus casei ssp. casei
(Orla-Jensen 1919) Hansen and Lessel 1971

17 NDRI strain RTS
MRS/Litmus milk, 37°C

297 C-I
Deposited by Vijendra Mishra, NDRI Karnal
MRS/Litmus milk, 37°C

298 Y strain, NDRI Karnal
Deposited by Vijendra Mishra
Litmus milk, 37°C

299 VT
Deposited by Vijendra Mishra
MRS/Litmus milk, 37°C

357 plasmid (S)
Isolated from Karnal
Deposited by M.Sudhamani
MRS, 37°C, 12-18 h

358 plasmid (S)
Isolated from Karnal
Deposited by M.Sudhamani
MRS, 37°C, 12-16 h

359 plasmid PSMA 23
Isolated from Karnal
Deposited by M. Sudhamani
MRS, 37°C, 12-18 h

684 MRS, 37°C, 24-48 h, pH 6.5

Lactobacillus collinoides
Carr and Davies 1972
2 NCDO 454, NCIMB 8033, NCTC 4955, ATCC 8291.
(Lactobacillus brevis)
Isolated from beer.
MRS/Litmus milk, 30°C

Lactobacillus corniformis
Abo-Elnaga and Kandler 1965

366 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637372
MRS/YGLPB, 37°C

367 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637373
MRS/YGLPB, 37°C

368 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637374
MRS/YGLPB, 37°C

369 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637375
MRS/YGLPB, 37°C

Lactobacillus delbrueckii
(Leichmann 1896) Beijerinck 1901

405 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886724
MRS/YGLPB, 37°C

Lactobacillus delbrueckii ssp. bulgaricus
(Orla-Jensen 1919) Weiss et al. 1984

4 NDRI
Litmus milk, 37°C

8 NDRI strain RTS, NCIM 2359
MRS/Litmus milk, 37°C

9 NCIM 2358
Litmus milk, 37°C

26 NCDO 1373
Small rods
Litmus milk, 37°C

27 NDRI strain R-3
Litmus milk, 37°C

184 Deposited by K. M. Sahani, Univ.
Nebraska, USA
(L. bulgaricus)
Litmus milk, 30°C

253 NCDO 1489, ATCC 11842, DSM 20081
Type strain of Lb. bulgaricus from
Bulgarian yoghurt
MRS/Skim milk/YGLB, 37°C

277 NCDO 2483, B9, 3502
Gal`
Papain digest broth, 37°C

281 B 21, NCDO 2487, Yog 7 NCDC 307

Galactose negative
Skim milk, 37°C

285 NCDO 2772
Produce slime
MRS, 37°C

293 Isolated from commercial yoghurt
Papain digest broth, 37°C

304 NCIMB 702395, NCDO 2395
Isolated from commercial yoghurt
YGLPB, 37°C

307 NCIMB 702487, NCDO 2487, Yog7, B-21,
NCDC 281 YGLPB, 37°C

308 NCIMB 701006, NCDO 1006
YGLPB, 37°C

317 Isolated from dahi sample
Deposited by Dr. Rameshwar Singh
YGLPB/skim milk 37°C

318 Isolated from dahi sample
Deposited by Dr. Rameshwar Singh
YGLPB/skim milk 37°C

342 Derivative of NCDC 307
Derived by parent strain adaptation and
protoplast fusion, plasmid free
MRS pH 4.3 adjusted using 50mM lactic
acid, 42°C (produce heat shock protein)

628 A-5, MRS broth, 37°C pH 7, 12-14h

629 C-3, MRS broth, 37°C pH 7, 12-14h

630 A-1, MRS broth, 37°C pH 7, 12-14h

631 B-3, MRS broth, 37°C pH 7, 12-14h

632 B-4, MRS broth, 37°C pH 7, 12-14h

761* MRS broth, 42°C, EPS Producing

762* MRS broth, 42°C, EPS Producing

Lactobacillus delbrueckii ssp. lactis
Orla-Jensen 1919, Weiss et al. 1984

3 ATCC 4797, NCDO 299, DSM 20076
Assay of vitamin B12

Type strain of Lb. lechmannii

J. Biol. Chem. 184: 175 (1950)
Liver Extract Agar, 37°C

10 NCDO 301, NCIMB 7854
Assay of vitamin B12
MRS, 37°C

283 NCDO 2458, L-25, C-58
MRS, 37°C

290 Sensitive to bacteriocin produced by NCDC
291 MRS, 37°C

Lactobacillus equi
615 Helix-10-1446, MRS, yeast glucose broth,
0.75% agar sol, 37°C, 24-48 h

Lactobacillus fermentum
Beijerinck 1901

141 NCIMB 2797, NCTC 2797, NCDO 394

*Safe deposit; Not for sale NCDC Catalogue 2016
Isolated from intestine of 8-day old breast-fed baby.
MRS/Litmus milk, 37°C

NCDO 215, ATCC 9338, NCIMB 8028, NCTC 6991, NCDC 214
Assay of thiamine, histidine and alanine.
*J. Biol. Chem.* **64**: 643 (1925)
ibid. **155**: 153 (1949)
*Appl. Microbiol.* **1**: 311 (1959)

MRS, 37°C

Assay of thiamine, histidine, alanine, pyrithiamine
Litmus milk/ MRS, 37°C

**strain V 10**
EPS producing Strain
Isolated and submitted by Pradeep V Behare
MRS, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886727
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886728
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886729
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886730
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886731
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886732
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886733
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU886734
MRS/ YGLPB, 37°C

RS-2, MRS broth, 37°C, pH-6.5, 16-18 h

HL-5, MRS broth, 37°C, pH-6.5, 16-18 h

RD-3, MRS broth, 37°C, pH-6.5, 16-18 h

HL-6, MRS broth, 37°C, pH-6.5, 16-18 h

DT-17, MRS broth, 37°C, pH-6.5, 48 h

MRS broth/agar, 37°C, 1-2 days

MRS broth/agar, 37°C, 1-2 days

MRS broth/agar, 37°C, 1-2 days

NCBI No. 1661233, M-17, Skim milk, 30-37°C, pH4-7, 18-24 h

Lactobacillus gasseri

(Orla-Jensen 1919) Bergey’s *et al.* 1934

ATCC 8018, NCIMB 8025, NCDO 262
Litmus milk, 37°C

NCDO 103, ATCC 8001, NCIMB 8115
MRS/Litmus milk, 37°C

CH-I
Chr. Hansen’s Denmark
MRS/Litmus milk, 37°C

NCDO 2712, DSM 20075

**Type strain**
MRS, 37°C

Used as adjunct culture for preparation of cultured Mozzarella cheese with low browning property
MRS, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU637376
MRS/ YGLPB, 37°C

NCDC599, MTCC 5463
MRS, skim milk agar, 37°C, pH-6.2, 12-24h

**Lactobacillus mucosae**

**748** Isolated by Human feces
MRS., 37°C, pH-6.0,
12-24h

**Lactobacillus niridescence**

613 Helix-13-1448, MRS, yeast glucose broth (0.75% agar sol), 37°C, 24-48 h

**Lactobacillus paracasei ssp. paracasei**

Collins *et al.* 1989

22 NDRI 401

*(Lactobacillus plantarum)*

MRS/Litmus milk, 37°C

NCDO 161, ATCC 393, DSM

20011 Biosynthesis of acetolactate, production of diacetyl and acetoin

*(Lactobacillus casei ssp. casei)*

**Type strain**

MRS/Litmus milk, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU637377
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU637378
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU637379
MRS/ YGLPB, 37°C

Isolated & deposited by AMMAS Project Churpi cheese isolate, NSLAB
NCBI Acc No. EU637380
MRS/ YGLPB, 37°C

*Safe deposit; Not for sale*
387  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637381
MRS/ YGLPB, 37°C

388  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637382
MRS/ YGLPB, 37°C

389  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637383
MRS/ YGLPB, 37°C

390  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637384
MRS/ YGLPB, 37°C

391  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637385
MRS/ YGLPB, 37°C

392  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637386
MRS/ YGLPB, 37°C

393  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637388
MRS/ YGLPB, 37°C

394  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637389
MRS/ YGLPB, 37°C

395  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637390
MRS/ YGLPB, 37°C

396  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637391
MRS/ YGLPB, 37°C

397  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637392
MRS/ YGLPB, 37°C

398  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886738
MRS/ YGLPB, 37°C

627  APD-L, MRS, 37°C, pH 4.72, 16 h

Lactobacillus plantarum
(Orla-Jensen 1919) Bergey’s et al. 1934

20  NDRI strain 184
MRS/Litmus milk, 37°C

21  NDRI strain 89
MRS/Litmus milk, 37°C

25  NDRI strain L-III
(Lactobacillus arabinosus)
MRS/Litmus milk, 37°C

201  Strain LPR
Deposited by Dr. V. K.
Nambudariyapa
MRS, 30°C

221  NCDO 340, NCIB 6105
Isolated from silage
MRS, 30°C

237  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637393
MRS/ YGLPB, 37°C

238  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637395
MRS/ YGLPB, 37°C

239  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637396
MRS/ YGLPB, 37°C

240  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637397
MRS/ YGLPB, 37°C

241  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637399
MRS/ YGLPB, 37°C

242  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637400
MRS/ YGLPB, 37°C

243  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU637401
MRS/ YGLPB, 37°C

244  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886735
MRS/ YGLPB, 37°C

245  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886733
MRS/ YGLPB, 37°C

246  Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886734
MRS/ YGLPB, 37°C

417 Isolated & deposited by AMMAS Project
Churpi cheese isolate, NSLAB
NCBI Acc No. EU886736
MRS/ YGLPB, 37°C

624 APD-F, MRS, 37°C, pH 4.9, 16 h
625 APD-G, MRS, 37°C, pH 4.92, 16 h

MRS broth/agar, 37°C, pH 4.9, 16 h

626 APD-3, MRS, 37°C, pH 4.56, 16 h

Lactobacillus paraplantarum
Curk et al. 1996

321 DSMZ10641, ATCC 10766, CNRZ 1888
Int. J. Syst. Bacteriol., 46, 595-598
MRS, 30°C

334 DSMZ 10667, CIP 104668, CNRZ 1885
MRS, 30°C

Lactobacillus rhamnosus
Hansen 1968, Collins et al. 1989

18 ATCC 7469, NCIMB 8018, NCTC 6375, NCDO 243
Assay of pantothenic acid, nicotinic acid, folic acid, glutamic acid, pyridoxal, arginine, riboflavin.
MRS/Litmus milk, 30°C

19 NDRI strain 300
(L. casei ssp. casei)
MRS/Litmus milk, 37°C

24 ATCC 8014, NCDO 82, NCIMB 6376
Assay of arginine, biotin, methionine, nicin, pantothenic acid, p-aminobenzoic acid and tryptophan.

Lactobacillus ruteri

77 MRS, 37C

Lactobacillus sp.

683 KSBT46, MRS broth, 37°C, pH 6.5, 24h

Lactobacillus salivarius

695 MRS broth /agar,37c,1-2 days
696 MRS broth /agar,37c,1-2 days

Lactococcus lactis

635 G8, M-17, 30°C, pH 6.5-7, 24h
641 B-4, M-17, 30°C, 16-20h
642 G-2, M-17, 30°C, 16-20h
643 G-3, M-17, 30°C, 16-20h
644 G-10, M-17, 30°C, 16-20h
645 G-1, M-17, 30°C, 18-20h
672 UKTOR2, M-17, 30°C, pH-7.1, 18h
673 PUMBH1, M-17, 30°C, pH-7.1, 18h
674 TRBH1, M-17, 30°C, pH-7.1, 18h
675 HRP2, M-17, 30°C, pH-7.1, 18h
676 UKCA1, M-17, 30°C, pH-7.1, 18h
677 UKCA4, M-17, 30°C, pH-7.1, 18h
678 USD1O1, M-17, 30°C, pH-7.1, 18h
692 M-17, 30°C, 18h
693 M-17, 30°C, 18h
694 M-17, 30°C, 18h

Lactococcus lactis ssp. cremoris
Orla-Jenson 1919, Schleifer et al. 1985

81 J. Naylor, CSIRO, Melbourne, Australia 1955
C3, NCDO 506, UD 874
(Streptococcus cremoris)

Phage host
J. Biol. Chem. 139;675 (1941)
ibid 150; 305 (1943)


Liver Extract Agar, 30°C

296 MTCC 1408, MRS agar/ broth, skim milk agar .37°C,12-24h
329 DSMZ 20199, NIZO 3610 (Lactobacillus plantarum),
MRS, 39 C, Aerobic

347 Lactobacillus rhamnosus GG (LGG)
Probiotic

601 52, MRS agar/ broth, skim milk agar 37°C,12-24h.
610 RSI-3A
MRS, 37°C, pH 6.5, 16-18h
626 APD-3, MRS, 37C,pH 4.56, 16h
729 MRS broth,37°C,12-24 h
731 MRS broth,37°C,12-24 h
759* MRS broth, 37°C, EPS Producing
760* MRS broth, 42°C, EPS Producing

*Safe deposit; Not for sale
NCDC Catalogue 2016 10

Source: NCDC Catalogue 2016
**Cheese starter**

82 L. E. Pearce, NZDRI 1972
R6, NCDO 764, NCDO 2002
*(Streptococcus cremoris)*
Cheese starter
YDB/Litmus milk, 22°C

83 Hansen’s strain
Litmus milk, 22°C

84 NCDO 924, CCM 2106
*(Streptococcus cremoris)*
R. J. MacWalter, United Dairies, London 1954
Cheese starter
YDB/Litmus milk, 22°C

85 IP5, ATCC 14365, NCDO 495
*(Streptococcus cremoris)*
A. Hirsch, NIRD 1950
Assay of Nisin
*J. Gen. Microbiol.* 4 (1950)
YDB/Litmus milk, 22°C

86 C1, UD 806, NCDO 504
*(Streptococcus cremoris)*
J. Naylor, CSIRO, Melbourne, Australia 1955
Originally from United Dairies, London
*(Lactobacillus plantarum)*
YDB/Litmus milk, 22°C

87 CSIRO C7
*(Streptococcus cremoris)*
YDB/Litmus milk, 22°C

274 NCDO 607, ATCC 19257, NCIB 8662, DSM 20069
**Type strain**
YDB/M17, 22°C

282 NCDO 1986 AM 2,
Improve Cheddar cheese flavour by production of methyl ketones
Litmus milk/YDB, 22°C

284 NCDO 2042
Phage resistant
Litmus milk, YDB, 22°C

306 NCIMB 700499, NCDO 499
Cheese starter culture
Slow in winter milk.
YGLPB, 22°C

309 NCDO 506, C3, UD 874
Cheese starter culture
YGLPB, 22°C

310 NCIMB 8662, NCDO 607, ATCC 19257, DSM 20069
**Type strain**
YGLPB, 22°C

**Lactococcus lactis ssp. diacetylactis**

621 Helix-3-1384, NRCLA, YGB, 0.75% agar sol., 30°C, 24-48 h

**Lactococcus lactis ssp. lactis**

Lister, 1873, Schliefer *et al.* 1985

J. Czulak, CSIRO Melbourne, Australia 1957
*(Streptococcus lactis ssp. diacetylactis)*
DRC-1, ATCC 13675, NCDO 1007
Cit+, Produces diacetyl in milk
YDB/Litmus milk, 30°C

J. Czulak, CSIRO Melbourne, Australia 1957
*(Streptococcus lactis ssp. diacetylactis)*
DRC-2, NCDO 1008
Cit+, Produces diacetyl in milk
YDB/Litmus milk, 30°C

J. Czulak, CSIRO Melbourne, Australia 1957
*(Streptococcus lactis ssp. diacetylactis)*
DRC-3, Cit+, Produces diacetyl in milk
YDB/Litmus milk, 30°C

C-10, UD 708
*(Streptococcus lactis)*
YDB/Litmus milk, 30°C

J. Czulak, CSIRO Melbourne, Australia, 1955
From cheese starter
YDB/Litmus milk, 30°C

NIRD S-57
*(Streptococcus lactis)*
YDB/Litmus milk, 30°C

A. Hirsch NIRD, 1950
*(Streptococcus lactis)*
YDB/Litmus milk, 30°C

J. Naylor, CSIRO Melbourne, Australia, 1955
United Dairies cheese starter
YDB/Litmus milk, 30°C

NCDO 712
*(Streptococcus lactis)*

R. J. MacWalter, United Dairies, London 1954
From cheese starter
YDB/Litmus milk, 30°C

NCDO 496
*(Streptococcus lactis)*

J. Dairy Res. 18: 198 (1951)
YDB/Litmus milk, 30°C

M-17 broth, 37°C

ML8, NCDO 1944, NCDO 2017
*(Streptococcus lactis)*

L. E. Pearce, NZDRI 1972
YDB/Litmus milk, 30°C

NZDRI ML3, CSIRO 105, NCDO 763
*(Streptococcus lactis)*

*Safe deposit; Not for sale*
100 YDB/Litmus milk, 30°C
   NDRI S-18
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
101 NZDRI ML2
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
102 NDRI S-69
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
103 M-17, 37°C
   101 NDRI S-18
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
104 NDRI S-69
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
105 M-17, 37°C
   YDB/Litmus milk, 30°C
106 NDRI strain HP
   YDB/Litmus milk, 30°C
107 NDRI strain R-7
   Skim milk, 30°C
239 Wiesby Lab., Strain 7-14
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
240 Wiesby Lab., Strain 2-10
   (Streptococcus lactis)
   YDB/Litmus milk, 30°C
241 Wiesby Lab., Strain 4-7
   (Streptococcus lactis)
   YDB/Litmus milk, 22°C
242 Wiesby Lab., Strain 4-1
   (Streptococcus lactis)
   YDB/Litmus milk, 22°C
243 Wiesby Lab., Strain 6-7
   (Streptococcus lactis)
   YDB/Litmus milk, 22°C
244 Wiesby Lab., Strain 4-9
   (Streptococcus lactis)
   YDB/Litmus milk, 22°C
245 NCDO 604, NCIB 6681, ATCC 19435, NCTC 6681, DSM 20481, CCM 1877
   Type strain
   YDB/M-17, 22°C
249 NCDO 176
   Type strain of S. diacetylactis and S. lactis ssp. diacetylactis
   YDB/Litmus milk, 30°C
313 NCIMB 700176, Same as NCDO 176
   Type strain of S. diacetylactis and S. lactis ssp. diacetylactis
   YDB/Litmus milk, 30°C
314 NCDO 275, NCIMB 700275
   Cheese starter culture
   YDB/Litmus milk, 30°C
319 Normal Elliker activity - 0.38% Lactic acid
   Mixed starter
   Deposited by Rameshwar Singh
   YDB/Litmus milk, 30°C
402 B6 strain
   EPS producing strain
   Isolated and deposited by Pradeep V Behare
   M-17 broth, 30°C
611 Helix-1-1361
   125 NDRI strain PM1
   YDB/Litmus milk, 30°C
612 HRB, M-17, 42°C, pH-7, 18h
613 KNDC-2, M-17, 30°C, pH-7, 18h
614 UKBB-1, M-17, 30°C, pH-7, 18h
615 KCWWF-1, M-17, 30°C, pH-7, 18h
616 BOCPI, M-17, 30°C, pH-7, 18h
617 UDSO-5, M-17, 30°C, pH-7, 18h
618 TRBH-2, M-17, 30°C, pH-7, 18h
619 HRB-2, M-17, 30°C, pH-7, 18h
620 Helix-5-1395, MRS, YGB, 0.75% agar sol, 30ºC, 24-48 h
621 HRB-2, M-17, 30°C, pH-7, 18h
622 HRD, M-17, 30°C, pH-7, 18h
623 HRD, M-17, 30°C, pH-7, 18h
624 HRD, M-17, 30°C, pH-7, 18h
625 HRD, M-17, 30°C, pH-7, 18h
626 HRD, M-17, 30°C, pH-7, 18h
627 HRD, M-17, 30°C, pH-7, 18h
628 HRD, M-17, 30°C, pH-7, 18h
629 HRD, M-17, 30°C, pH-7, 18h
630 HRD, M-17, 30°C, pH-7, 18h
631 HRD, M-17, 30°C, pH-7, 18h
632 HRD, M-17, 30°C, pH-7, 18h
633 HRD, M-17, 30°C, pH-7, 18h
634 HRD, M-17, 30°C, pH-7, 18h
635 HRD, M-17, 30°C, pH-7, 18h
636 HRD, M-17, 30°C, pH-7, 18h
637 HRD, M-17, 30°C, pH-7, 18h
638 HRD, M-17, 30°C, pH-7, 18h
639 HRD, M-17, 30°C, pH-7, 18h
640 HRD, M-17, 30°C, pH-7, 18h
641 HRD, M-17, 30°C, pH-7, 18h
642 HRD, M-17, 30°C, pH-7, 18h
643 HRD, M-17, 30°C, pH-7, 18h
644 HRD, M-17, 30°C, pH-7, 18h
645 HRD, M-17, 30°C, pH-7, 18h
646 HRD, M-17, 30°C, pH-7, 18h
647 HRD, M-17, 30°C, pH-7, 18h
648 HRD, M-17, 30°C, pH-7, 18h
649 HRD, M-17, 30°C, pH-7, 18h
650 HRD, M-17, 30°C, pH-7, 18h
651 HRD, M-17, 30°C, pH-7, 18h
652 HRD, M-17, 30°C, pH-7, 18h
653 HRD, M-17, 30°C, pH-7, 18h
654 HRD, M-17, 30°C, pH-7, 18h
655 HRD, M-17, 30°C, pH-7, 18h
656 HRD, M-17, 30°C, pH-7, 18h
657 HRD, M-17, 30°C, pH-7, 18h
658 HRD, M-17, 30°C, pH-7, 18h
659 HRD, M-17, 30°C, pH-7, 18h
660 HRD, M-17, 30°C, pH-7, 18h
661 Helix-1-1361
   125 NDRI strain PM1
   YDB/Litmus milk, 30°C
662 HRB, M-17, 42°C, pH-7, 18h
663 KNDC-2, M-17, 30°C, pH-7, 18h
664 UKBB-1, M-17, 30°C, pH-7, 18h
665 KCWWF-1, M-17, 30°C, pH-7, 18h
666 BOCPI, M-17, 30°C, pH-7, 18h
667 UDSO-5, M-17, 30°C, pH-7, 18h
668 TRBH-2, M-17, 30°C, pH-7, 18h
669 HRB-2, M-17, 30°C, pH-7, 18h
670 UDSO-5, M-17, 30°C, pH-7, 18h
671 UKCA-3, M-17, 30°C, pH-7, 18h
704 HP18, M-17, 37°C, 24h
705 HP65, M-17, 37°C, 24h
706 HP69, M-17, 37°C, 24h
707 HP80, M-17, 37°C, 24h
708 HP167, M-17, 37°C, 24h
Lactococcus sp.
125 NDRI strain PM1
   YDB/Litmus milk, 30°C
126 NDRI strain M1
   YDB/Litmus milk, 30°C
127 M. P. Tiwari, NDRI 1969
   Non-curdling, high diacetyl producer
   YDB/Litmus milk, 30°C
128 M. P. Tiwari, NDRI 1972
   Curdling, high diacetyl producer
   Indian J. Dairy Sci. 25: 263 (1972)
   YDB/Litmus milk, 30°C
129 Hansen’s strain
   YDB/Litmus milk, 30°C
130 NDRI strain S-1
   YDB/Litmus milk, 30°C
191 NDRI
   Ropy strain
   YDB/Litmus milk, 22°C
Leuconostoc lactis
Gravie 1960
200 NCDO 532
   Isolated by T. Gibson, 1948, Edinburgh
   (Streptococcus kefir)
   MRS broth, 30°C
620 Helix-5-1395, MRS, YGB, 0.75% agar sol, 30°C, 24-48 h
Leuconostoc mesenteroides
633 D-1, MRS broth/ agar, 30°C, pH 6.5, 24 h
634 D-3, MRS broth/ agar, 30°C, pH 6.5, 24 h
Leuconostoc mesenteroides ssp. cremoris
Knudsen and Sorenson 1929, Garvie 1983
29 DSM 20346, NIRD 1955 LF2, CCM 2078, NCDO 543, NCIMB 12008, ATCC 19254
Isolated from dried cheese starter powder.
Type strain
MRS broth, 25°C
37 NDRI strain calf
MRS broth, 25°C

Leuconostoc mesenteroides ssp. dextranicum
Beryerinck 1912, Garvie 1983
23 NCDO 518, ATCC 358
YDB, 30°C
30 NCDO 529, DSM 20484, CCM 2086, NCIMB 12007, ATCC 19255
Type strain
Xylose negative
MRS broth, 30°C
32 NCDO 516, NCIMB 8029, ATCC 8082
J. Dairy Res. 27: 291
MRS broth, 30°C
34 NCDO 551, NCIMB 8029, NCTC 3354, ATCC 8086
Isolated from fermenting string beans, produces dextran
J. Dairy Res. 27: 291 (1960)
MRS broth, 30°C
143 NCDO 530
MRS broth, 30°C
419 NDRI strain F9
Isolated from flour sour dough
MRS broth, 30°C
420 NDRI strain F7
Isolated from flour sour dough
MRS broth, 30°C
422 NDRI strain MDC 2
Isolated from Dahl culture NCDC 159
MRS broth, 30°C
423 NDRI strain F4
Isolated from flour sour dough
MRS broth, 30°C
424 NDRI strain J2
Isolated from Jalebi sour dough
MRS broth, 30°C

Leuconostoc mesenteroides ssp. mesenteroides
Tsenkovski 1878, van Tieghem 1878
31 NCL strain P-60
YD broth, 30°C
187 NCDO 518, NCIB 8013, ATCC 8358
YDB/MRS broth, 22°C
219 NCDO 519, NCIB 8015, ATCC 8359
(Leuconostoc dextranicum) Class C dextran producer
MRS broth, 25°C
207 NCDO 523, NCB 8023, ATCC 8293 DSM 20343
Isolated by R. H. Vaughan, University of California, 1941
Type strain
Class C dextran producer
MRS, YDB, 25°C
348 MRS broth, 30°C
349 MRS broth, 30°C
351 MRS broth, 30°C, 18-24 h
421 NDRI strain ISO 4
Isolated from green vegetable
MRS broth, 30°C
590 Strain no. Ln 104
Isolated from Grape, Karnal
MRS broth, 30°C, pH 6.0, 18-24h
591 strain no. Ln 206
Isolated from Yak milk
MRS broth, 30°C, pH 6.0, 24h

Leuconostoc sp.
185 NDRI strain
YDB, 22°C

Weisella cibaria
603 145, MRS agar/broth, skim milk agar
37°C, 12-48 h

Microbacterium lacticum
Orla-Jenson 1919
132 NCDO 747, ATCC 8180, DSM 20427, NCIMB 8540
Type strain
Nutrient Agar, 25°C

*Safe deposit; Not for sale
Micrococcus caseolyticus [invalid] see Staphylococcus aureus

Micrococcus luteus (Schroeter 1872) Cohn 1872

112 CRI
Nutrient Agar, 30°C
(Sarcina lutea)

131 NCIB 8166, NCDO 982, ATCC 10240, NCTC 7743
(Micrococcus luteus)
Nutrient Agar, 37°C

174 NDRI strain
(Sarcina lutea)
Nutrient Agar, 37°C

Pediococcus acidilactici
Lindner 1887

609 MGUH 2
M-17 broth, 42°C, pH 7.1, 16-18 h

Pedioococcus damnosus

251 NCDO 1832, ATCC 29358, DSM 20331
Type strain
Isolated from Lager yeast
MRS + 0.05% cysteine, 22°C

Pedioococcus pentosaceus
Mees 1934

35 NCDO 813, ATCC 8081, NCIMB 7837, DSM 20206, CCM 1578
(Leuconostoc citrovorum)
(Pediococcus cerevisiae)
Assay of citrovorum factor, alanine, folic acid, arginine, cysteine, methionine, threonine, tyrosine.
J. Biol. Chem. 176: 165-173 (1948) ibid. 177: 545-551 (1948)
J. Bacteriol., 65: 482 (1953)
ibid., 67: 484-488 (1954)

Liver Extract Agar, 30°C
NDRI Strain 34, deposited by K. Nageshwar Rao (1998)
Produces bacteriocin
Five plasmids of 11, 4.6, 3.6, 3.2 and 2.1 Mda
MRS, 37°C

Pediococcus sp.

38 NCL strain
(Pediococcus cerevisiae)
YD broth, 30°C

Propionibacterium

350 submitted by Kunal Choudhary

Propionibacterium freudenreichii ssp. shermanii
van Niel 1928, Holdeman and Moore 1970

139 NCDO 566, NCIMB 5964, NCTC 5964, CCM 121, ATCC 4866
Swiss cheese
YD broth, 30°C

140 University of Wisconsin
Swiss cheese
YD broth, 30°C (anaerobic)

354 MTCC chandigarh

594 DSM 20270
Yeast extract lactate agar, 30°C, 48 h

Propionibacterium freudenreichii ssp. freudenreichii

593 DSM 20271, ATCC 6207, CCM 1857, NCDO 564, NCIB 5959, NCDC 10470
Propionibacteria agar, 30 C, 7.0- 7.2, 36-48h

Propionibacterium jensenii

595 DSM 20279, ATCC 4870, NCDC 565, NCIB 5962
Propionibactreia agar, 30ºC, pH 7.0- 7.2

Propionibacterium acidipropionici

596 DSM 20272, ATCC 4875, NCDO 570, NCIB 8070
Yeast extract lactate agar, 30ºC, 48h

Propionibacterium theonii ssp. theonii

592 DSM 20277, ATCC 4872, NCDO 854, NCIB 8072
Propionibactreia agar, 30ºC, pH 7.0- 7.2

Proteus vulgaris
Hauser 1885

73 Bhavan’s College, Bombay
Nutrient Agar, 30°C
259 MTCC 426, ATCC 6380
Nonmotile
Nutrient Agar, 37°C

*Pseudomonas aeruginosa*
(Schroeter 1872) Migula 1900

105 Bhavan’s College, Bombay
Nutrient Agar, 22°C

*Pseudomonas fluorescence*

316 MTCC 103, NCIB9046, ATCC 13525,
CCEB 546, DSM 50090
Isolated from prefilter tank
Utilization of 1-butanolol, 2-proponal and
methanol
Nutrient Agar, 25°C

*Pseudomonas fragi*
(Eichholz 1902) Gruber 1905

104 NCDO 752, NCIMB 8543, ATCC 4973,
NCTC 10689, NRRL B-25
**Type strain**
Nutrient Agar, 25°C

*Serratia marcescens*
Bizio 1823

108 NCL
Nutrient Agar, 37°C

*Staphylococcus albus*

111 NDRI Strain
Nutrient Agar, 37°C

*Staphylococcus aureus*
Rosenbach 1884

109 C-137
Nutrient Agar, 37°C

110 B-43-1
CRI
Nutrient Agar, 37°C

133 NDRI strain SRJ
*(Micrococcus caseolyticus)*
Nutrient Agar, 37°C

237 MTCC 740, NCTC 6571, ATCC 9144
NCIMB 6571, NRRL B314
Standard strain for antibiotic
sensitivity test (Stoke’s method)
*J. Biochem.* **38**: 61 (1944)
Nutrient Agar, 37°C

*Streptococcus agalactiae*

Lehmann and Neumann 1896

118 NCDO 865, NCIMB 8778, ATCC 14364
Assay of Nisin and Penicillin
*J. Gen. Microbiol.* **4**: 71 (1950)
*Nature* **167**: 448 (1951)
YD broth, 37°C

208 NCDO 865, NCIMB 8778, ATCC 14364,
ATCC 14928
Assay of Nisin and Penicillin
*J. Gen. Microbiol.* **4**: 71 (1950)
*Nature* **167**: 448 (1951)
YD broth, Glucose broth buffered,
37°C

*Streptococcus thermophilus*
(Orla-Jenson 1919) Farrow and Collins 1984

57 * Curd Sample, M-17, 37°C, EPS Producing

74 Hansen’s strain
Yoghurt
Litmus milk, 37°C

75 NDRI strain Y-S
Isolated from Yoghurt
Litmus milk, 37°C

76 NDRI strain ST-S
*Litmus milk, 37°C*

79* Curd Sample, M-17, 37°C, EPS Producing

80 University of Wisconsin
Litmus milk, 37°C

95* Raw Milk Sample, M-17, 37°C, EPS Producing

103* Raw Milk Sample, M-17, 37°C, EPS Producing

158 Italian strain
Litmus milk, 37°C

169* Curd Sample, M-17, 37°C, EPS Producing

177 NCDO 489, DSM 20479, NCIB 8779
Assay of penicillin in milk
Litmus milk, 37°C

199 NDRI strain
*(S. salivarius ssp. thermophilus)*
Skim milk, 37°C

217 NCDO 1469
*(S.salivarius ssp. thermophilus)*
From Bulgarian yoghurt
Skim milk, 37°C

218 NCDO 1409
*(S. salivarius ssp. thermophilus)*
Assay of penicillin
Skim milk, 37°C

295 Isolated from commercial Yoghurt culture
M-17, 37°C

303 NCDO 821
Isolated from German Yoghurt
Skim milk, 37°C

311 NCDO 2075, NCIMB 702075
NCDO 2393

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Yoghurt culture
YGLPB, 22°C
312 NCDO 1968, NCIMB 701968
Bulgarian cheese starter
YGLPB, 22°C
442
323 (GA)
324 (H)
325 (MS)
399 K2 strain
EPS producing strain
Isolated and deposited by Pradeep V Behare
M-17 broth, 42°C
428* M-17 broth, 42°C
429 M-17 broth, 42°C
430 Yoflex Chr. Hansen DVS culture
Isolated & deposited by T.Uma Maheshwari
M-17, 37°C/42°C, pH-6.5
433 UTNCt Strain
Isolated from Carrot, Tamil Nadu
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5
436* UKD3 Strain
Isolated from Dahi, Jharkhand
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5
437 Isolated from Dahi, Sonipat
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5
438 UJkd2 Strain
Isolated from Dahi, Jharkhand
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5
439 UKD6 Strain
Isolated from Dahi, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5
440 Dahi(1-38)
Isolated from Dahi, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5
441 UPD1-8 Strain

*Safe deposit; Not for sale
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16
457  UKFc 1 Strain
Isolated from Dosa batter, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

458  UKFc 2 Strain
Isolated from Dosa batter, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

459  UKFc 3 Strain
Isolated from Dosa batter, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

461  UMb GC 1 Strain
Isolated from Green Chili, Mumbai
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

462  UJp Cb Strain
Isolated from Cabbage, Jaipur
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

463  UJp Cb Strain
Isolated from Carrot, Jaipur
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

464  UKCh1 Strain
Isolated from Cheese, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

466  UKCu2 Strain
Isolated from Cucumber, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

467  USp GC Strain
Isolated from Green Chili, Sonipat
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

468  UMB FG Strain
Isolated from Fenugreek, Mumbai
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

469  UDn SO Strain
Isolated from Spring Onion, Dehradun
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

470  UYND1 Strain
Isolated from Dahi, Yamuna Nagar
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

472  UKFM2 Strain
Isolated from Fodder Maize, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

473  UKFM3 Strain
Isolated from Fodder Maize, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

474  UKFM4 Strain
Isolated from Fodder Maize, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

475  UBk LF1 Strain
Isolated from Lady’s finger, Bikaner
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

476  UBk CB2 Strain
Isolated from Cluster bean 2, Bikaner
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

477  UPGC Strain
Isolated from Green Chili, Punjab
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

478  UK GC Strain
Isolated from Green Chili, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

479  UJK CF Strain
Isolated from Cauliflower, Jharkhand
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

480  UTNR Strain
Isolated from Radish, Tamil Nadu
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

481  UKMB Strain
Isolated from Moth Bean, Karnal
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

482  UYN FG1 Strain
Isolated from Fenugreek, Yamuna Nagar
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

483  UK1 Ct1 Strain
Isolated from Dahi, Yamuna Nagar
Isolated & deposited by T.Uma Maheshwari
M-17, 42°C, pH-6.5

*Safe deposit; Not for sale
Isolated from Carrot, Kerala
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
484 UKSO2 Strain
Isolated from Spring Onion, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
485 UKD2 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
486 UKD4 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
487 UKD5 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
488 UKD7 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
489 UKD8 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
490 UKD9 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
491 UKD10 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
492 UKD11 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
493 UKD12 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
494 UKD13 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
495 UKD14 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
496 UKD15 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
498 UKD17 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
499 UKD18 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
500 UKD19 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
501 UKD20 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
502 UKD21 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
503 UKD22 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
504 UKD23 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
505 UKD24 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
506 UKD26 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T.Uma Maheshwari
M-17, 42°C, pH-6.5
507 UKD27 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

509 UKD29 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

510 UKD30 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

511 UKD31 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

512 UKD32 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

513 UKD33 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

514 UKD34 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

515 UKD35 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

516 UKD36 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

517 UKD37 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

519 UKD39 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

520 UKD40 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

523 AUKD2 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

524 AUKD3 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

525 AUKD4 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

526* AUKD5 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

528 AUKD9 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

530 AUKD13 Strain
Isolated from Dahi, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

531 UPjD2 Strain
Isolated from Dahi, Panjab
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

532 UPjD3 Strain
Isolated from Dahi, Panjab
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

533 UPjD4 Strain
Isolated from Dahi, Panjab
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

534 UPjD5 Strain
Isolated from Dahi, Panjab
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

541 UKCh2 Strain
Isolated from Cheese, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

543 UKM2 Strain
Isolated from Milk, Karnal
Isolated & deposited by
T. Uma Maheshwari
M-17, 42°C, pH-6.5

544* UKM3 Strain
Isolated from Milk, Karnal
Isolated & deposited by

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T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

545 UMbM2 Strain  
Isolated from Milk, Mumbai  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

548 UHrGC1 Strain  
Isolated from Green chilli, Haridwar  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

550 UHrR1 Strain  
Isolated from Radish, Haridwar  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

553 UKCt1 Strain  
Isolated from Carrot, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

556 UKSr1 Strain  
Isolated from Ivy Gourd, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

559 UKCt1 Strain  
Isolated from Carrot, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

560 UKCu3 Strain  
Isolated from Cucumber, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

561 UKBC1 Strain  
Isolated from Black carrot, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

562 UKPt1 Strain  
Isolated from Potato, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

564 UKSp1 Strain  
Isolated from Spinach, Karnal  
Isolated & deposited by  

T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

565 UKSp2 Strain  
Isolated from Spinach, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

571 AUKLF Strain  
Isolated from Lady’s Finger, Karnal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

573 UPca1 Strain  
Isolated from Goose foot, Panipat  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

575 UUtCt1 Strain  
Isolated from Carrot, Uttaranchal  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

578 UMBc1 Strain  
Isolated from Carrot, Mumbai  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

580 UMBd2 Strain  
Isolated from Radish, Mumbai  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

581 AUYNRd Strain  
Isolated from Radish, Yamuna Nagar  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

582 URGc1 Strain  
Isolated from Cucumber, Rajasthan  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

583 AURcB Strain  
Isolated from Cabbage, Rajasthan  
Isolated & deposited by  
T. Uma Maheshwari  
M-17, 42°C, pH-6.5  

659 AJM Strain  
M-17, 42°C, pH-7, 18h  

660 JM-1 Strain  
M-17, 42°C, pH-7, 18h  

749* Curd Sample Strain  
M-17, 37°C, EPS Producing  

750* Curd Sample Strain  
M-17, 37°C, EPS Producing  

751* Curd Sample Strain  
M-17, 37°C, EPS Producing  

752* Curd Sample Strain  
M-17, 37°C, EPS Producing  

753* Curd Sample Strain  
M-17, 42°C, EPS Producing  

754* Curd Sample Strain  
M-17, 37°C, EPS Producing  

755* Curd Sample Strain  
M-17, 37°C, EPS Producing  

756* Curd Sample Strain  
M-17, 42°C, EPS Producing  

757* Curd Sample Strain  
M-17, 37°C, EPS Producing  

758* Curd Sample Strain  
M-17, 37°C, EPS Producing  

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**Fungal Cultures**

### Aspergillus flavus

- **226** Isolated from animal feed, NDRI, Karnal
  - Isolated by Kishan Singh, 1989-93
  - Produces aflatoxin
  - PDA, 25°C

- **268** Isolated by Jyoti Malhotra from Khoa samples
  - Sensitive to fungistatic preservatives like Sodium benzoate, Potassium sorbate, Sodium salt of propylparaben and propionic acid
  - PDA, 28°C

### Aspergillus niger

- **55** IARI, New Delhi
  - PDA, 25°C
- **224** MTCC 514, ATCC 10581, DSM 2182
  - NRRL 2295
  - Assay of Magnesium, Molybdenum, Copper, Zinc. Used for measuring copper deficiency in soil
  - Ann. Ferm. 4: 513 (1938)
  - Science. 26: 125 (1951)
  - PDA, 25°C
- **267** Isolated by Jyoti Malhotra
  - Sensitive to fungistatic preservatives like Sodium benzoate, Potassium Sorbate, Sodium salt of propylparaben and propionic acid
  - PDA, 28°C
- **315** Deposited by Raman Malik
  - CTRL Bombay
  - PDA, 25°C

### Aspergillus parasiticus

- **53** NRRL 2999
  - PDA, 25°C
- **54** NRRL 3240
  - PDA, 25°C

### Aspergillus oryzae

- **301** MTCC 634
  - Isolated from sludge of refinery
  - Isolated by R. P. Mathur and P. Manimohan
  - Malt Extract Agar, 30°C
- **302** MTCC 1122
  - Isolated from soil and deposited by R. K. Jain
  - Czapek's Agar, 30°C

### Geotrichum candidum

- **228** Isolated by P. V. Gopimanivannan, NDRI, Karnal from cream
  - BHC degrader
  - PDA, 25-30°C

### Odium sp.

- **59** IARI, New Delhi
  - PDA, 25°C

### Phanerochaete chrysosporium

- **227** Isolated from NDRI cattle yard by Kishan Singh
  - Lignocellulolytic
  - PDA/MEA, 37°C

### Penicillium camemberti

- **56** MTCC 418, ATCC 4845, NCTC 582, NRRL 877
  - From French Camembert cheese
  - PDA, 25°C

### Penicillium roqueforti

- **170** ITCC 610, ATCC 10110
  - From French Roquefort cheese
  - PDA, 25°C
- **171** IARI, New Delhi
  - White mutant strain
  - J. Dairy Sci., 33: 929 (1950)
  - PDA, 25°C

### Penicillium viridicatum

- **230** ATCC 18411
  - Produces aflatoxin A
  - PDA, 25°C

### Rhizopus oryzae

- **52** IARI, New Delhi
  - PDA, 25°C

### Candida butyri

- **280** ATCC 58433, MTCC 1907
  - IFO 1571, JCM 1501
  - Type strain
  - YEPD, 25°C

### Candida cylindracea

- **286** ATCC 14830, DSM 2031, MTCC 908, CBS 6330
  - Production of lipase

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YEPD, 25°C

**Candida guillermondi**

44 NCIM 1744
PDA, 25°C

**Candida parapsilosis**

279 MTCC 1744
Nutrient Agar + 1% glucose, 25°C

**Rhodotorula glutinis**

51 NCTC 389
PDA, 25°C

**Kluyveromyces lactis**

257 MTCC 458, NCYC 416, IFO 1090, CBS 683, NRRL Y-3279
Isolate from Gassy cheese
Type strain
Malt Yeast Extract Agar, 30°C

**Kluyveromyces marxianus**

39 NRRL 3224
Saccharomyces fragilis
PDA, 25°C

46 NRRL 3217
Saccharomyces fragilis
PDA, 25°C

**Saccharomyces cerevisiae**

42 NDRI strain
PDA, 25°C

45 HAU, Hisar, University of California, Davis

522 Alcohol producing distillery strain
PDA, 25°C

47 NCIM 3190
Baker’s yeast
PDA, 25°C

49 NCIM 3273, ATCC 7752, NCYC 81, NRRL Y-973
Assay of Vitamin B₆
PDA, 25°C

50 NDRI strain A-2
PDA, 25°C

186 Strain SCWC, Shaw Wallace, Calcutta Distillery strain
PDA, 25°C

189 Italian strain, SC-1
PDA, 25°C

364 deposited by Kalpna dixit
Yeast Peptone Dextrose, pH 5.5, 37°C

365 Isolated from kefīr
Deposited by Kalpna dixit
Yeast Peptone Dextrose, pH 5.5, 37°C

**Saccharomyces uvarum**

48 ATCC 9080
Assay of pantothenic acid, pyridoxal, inositol, biotin, pyridoxamine and pyridoxine
PDA, 25°C

**Torulopsis candida**

43 NCTC 389
PDA, 25°C

188 NRRL 3234
PDA, 25°C

**Unidentified yeast**

205 Isolated by M. P. Tiwari, NDRI
Cheese block
PDA, 25°C

*Safe deposit; Not for sale*
<table>
<thead>
<tr>
<th><strong>CHEESE STARTERS</strong></th>
<th><strong>DAIHY / LASSI CULTURES</strong></th>
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<tr>
<td>147 Hansen’s cheese starter, CH-3, skim milk, 25°C</td>
<td>153 Chr. Hansen’s Lab., Denmark LF-124, skim milk, 25°C</td>
<td>142 Chr. Hansen’s Lab., Denmark</td>
<td>All strains of <em>Lactobacillus acidophilus</em></td>
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<td>148 ATCC 14872, Chas. Pfizer Co. FD-20112 Lactic acid starter, skim milk, 25°C</td>
<td>154 Chr. Hansen’s Lab., Denmark LF-70, skim milk, 25°C</td>
<td>144 NDRI Yoghurt culture YH-3</td>
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<td>149 ATCC 14875, Chas. Pfizer Co. FD-20115 Lactic acid starter, skim milk, 25°C</td>
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<td>150 Chr. Hansen’s Laboratories, Denmark skim milk, 25°C</td>
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<td>152 Commercial culture BC-1 skim milk, 25°C</td>
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<td>162 Mixed yoghurt culture Litmus milk, 37°C</td>
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<td>162 NDRI cheese starter skim milk, 25°C</td>
<td>163 Commercial starter 3GM-6 skim milk, 25°C</td>
<td>260 Type M High viscosity, ropy texture, very smooth, creamy</td>
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<td>163 Commercial starter 3GM-6 skim milk, 25°C</td>
<td>164 Commercial starter CH-95 skim milk, 25°C</td>
<td>Good for stirred yoghurt skim milk/ litmus milk, 37°C</td>
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<td>165 Commercial starter CH-21 skim milk, 25°C</td>
<td>166 Wiesby Labs GG-1 for Gouda cheese skim milk, 25°C</td>
<td>263 Commercial mixed culture YC-281 Good for making stirred yoghurt Slightly ropy High viscosity, mild flavour</td>
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<td>166 Wiesby Labs GG-1 for Gouda cheese skim milk, 25°C</td>
<td>167 Wiesby Labs CHM-10 skim milk, 25°C</td>
<td>264 Commercial culture V-18 Slightly ropy, gives good ratio of rods and cocci Smooth texture Creamy</td>
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<td>190 CHM-10 skim milk, 25°C</td>
<td>191 Chr. Hansen’s Lab., Denmark SK-281 skim milk, 25°C</td>
<td>265 Deposited by Rameshwar Singh</td>
<td>Good Mozzarella and Yoghurt Culture Skim milk, 37°C</td>
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<td>192 Chr. Hansen’s Lab., Denmark SK-281 skim milk, 25°C</td>
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<td>202 Strain BK-5 skim milk, 25°C</td>
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<td>352 Mesophilic Mixed Dahi Culture</td>
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<td>257 DVS for Adam cheese YDB/ skim milk, 25°C</td>
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<td>275 Mixed cheese starter for Cheddar cheese skim milk, 22°C</td>
<td>276 Mixed commercial starter YDB/ skim milk, 25°C</td>
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<td>319 Mixed starter YDB/ skim milk, 30°C</td>
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*Safe deposit; Not for sale*

NCDC Catalogue 2016
ASSAY OF ANTIBIOTICS

Aueromycin  
_Bacillus subtilis_ 71

Bacitracin  
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Benalkonium chloride  
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Nicotinic acid  
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p-aminobenzoic acid  
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Arginine  
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Cystine  
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Glutamic acid  
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<td>Lactobacillus plantarum (L. rhamnosus)</td>
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*Safe deposit; Not for sale
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134 Escherichia coli
135 Escherichia coli
136 Escherichia coli
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140 Propionibacterium freudenreichii ssp.shermantii
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142 Yoghurt mix culture
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151 Cheddar cheese culture
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161 Dahi culture
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165 Cheddar cheese culture
166 Dahi culture
167 Dahi culture
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171 Penicillium rouqueforti
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Escherichia coli
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Bacillus subtilis
Bacillus subtilis
Streptococcus thermophilus
Streptococcus thermophilus
Leuconostoc mesenteroides ssp. mesenteroides
Enterobacter aerogenes
Lactobacillus plantarum
Enterobacter cloacae
Enterococcus faecalis
Aspergillus niger
Aspergillus flavus
Phanerochaete chrysosporium
Geotrichum candidum
Bifidobacterium bifidum
Penicillium viridicatum
Bifidobacterium bifidum
Bifidobacterium bifidum
Bifidobacterium bifidum
Bifidobacterium bifidum
Bifidobacterium bifidum
Bifidobacterium adolescentis
Staphylococcus aureus
Lactococcus lactis ssp. lactis
Bacillus cereus
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Escherichia coli
Enterobacter aerogenes
Escherichia coli
Bacillus cereus
Pediococcus damnosus
Lactobacillus delbrueckii ssp. bulgaricus
Escherichia coli
Bifidobacterium bifidum
Cheese culture
Kluyveromyces lactis
Proteus vulgaris
260  Yoghurt culture
261  Dahi culture
262  Yoghurt culture
263  Yoghurt culture
264  Yoghurt culture
265  Dahi culture
266  *Bacillus licheniformis*
267  *Aspergillus niger*
268  *Aspergillus flavus*
269  *Bifidobacterium breve* (Not for sale)
270  Cheese culture
271  *Bifidobacterium infantis*
272  *Bifidobacterium lomagum*
273  *Pediococcus pentosaceus*
274  *Lactococcus lactis* ssp. *cremoris*
275  Cheese culture
276  *Lactobacillus delbrueckii* ssp. *bulgaricus*
277  *Lactococcus lactis* ssp. *lactis*
278  *Candida parapsilosis*
279  *Candida butyri*
280  *Lactobacillus delbrueckii* ssp. *bulgaricus*
281  *Lactococcus lactis* ssp. *cremoris*
282  *Lactobacillus delbrueckii* ssp. *lactis*
283  *Lactococcus lactis* ssp. *lactis*
284  *Lactobacillus delbrueckii* ssp. *bulgaricus*
285  *Candida cylindracea*
286  *Lactobacillus helveticus*
287  *Lactococcus lactis* ssp. *lactis*
288  *Lactobacillus delbrueckii* ssp. *lactis*
289  *Lactobacillus acidophilus*
290  *Lactobacillus helveticus*
291  *Lactobacillus delbrueckii* ssp. *bulgaricus*
292  *Streptococcus thermophilus*
293  *Lactobacillus rhamnosus*
294  *Lactobacillus casei*
295  *Lactobacillus casei*
296  *Lactobacillus casei*
297  Mixed Yoghurt culture
298  *Aspergillus oryzae*
299  *Aspergillus oryzae*
300  *Streptococcus thermophilus*
301  *Lactobacillus delbrueckii* ssp. *bulgaricus*
302  *Lactococcus lactis* ssp. *cremoris*
303  *Lactobacillus delbrueckii* ssp. *bulgaricus*
304  *Streptococcus thermophilus*
305  *Lactococcus lactis* ssp. *cremoris*
306  *Lactobacillus delbrueckii* ssp. *bulgaricus*
307  *Lactobacillus delbrueckii* ssp. *bulgaricus*
308  *Lactococcus lactis* ssp. *cremoris*
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310  *Lactococcus lactis* ssp. *cremoris*
311  *Streptococcus thermophilus*
312  *Streptococcus thermophilus*
313  *Lactococcus lactis* ssp. *lactis*
314  *Lactococcus lactis* ssp. *lactis*
315  *Aspergillus niger*
316  *Pseudomonas fluorescence*
317  *Lactobacillus delbrueckii* ssp. *bulgaricus*
318  *Lactobacillus delbrueckii* ssp. *bulgaricus*
319  *Lactococcus lactis* ssp. *lactis* biovar *diacetylactis*
320  *Bifidobacterium bifidum*
321  *Lactobacillus paraplantarum*
322  *Streptococcus thermophilus*
323  *Streptococcus thermophilus*
<p>| 325 | Streptococcus thermophilus |
| 326 | Bacillus stearothermophilus |
| 327 | Bacillus stearothermophilus |
| 328 | Bacillus stearothermophilus |
| 329 | Lactobaillus pentosus |
| 330 | Bacillus stearothermophilus |
| 331 | Lactobacillus paraplantarum |
| 332 | Lactobacillus delbrueckii ssp. bulgaricus |
| 333 | Lactobacillus acidophilus |
| 334 | Lactobacillus plantarum |
| 335 | S. thermophilus V3 (NDDB) |
| 336 | S. thermophilus JE (NDDB) |
| 337 | Lactobacillus rhamnosus GG |
| 338 | Leuconostoc mesenteroides ssp. mesenteroides |
| 339 | Leuconostoc mesenteroides ssp. mesenteroides |
| 340 | Propionibacterium |
| 341 | Leuconostoc mesenteroides ssp. mesenteroides |
| 342 | Dahl Culture |
| 343 | Lactobacillus rhamnosus |
| 344 | Propionibacterium freudenreichii |
| 345 | Bacillus coagulans |
| 346 | Lactobacillus casei |
| 347 | Lactobacillus casei |
| 348 | Lactobacillus casei |
| 349 | Escherichia coli |
| 350 | Saccharomyces cerevisiae |
| 351 | Saccharomyces cerevisiae |
| 352 | Lactobacillus corniformis |
| 353 | Lactobacillus corniformis |
| 354 | Lactobacillus corniformis |
| 355 | Lactobacillus corniformis |
| 356 | Lactobacillus helvaticus |
| 357 | Lactobacillus brevis |
| 358 | Lactobacillus plantarum |
| 359 | Lactobacillus plantarum |
| 360 | Lactobacillus plantarum |
| 361 | Lactobacillus plantarum |
| 362 | Lactobacillus plantarum |
| 363 | Lactobacillus plantarum |
| 364 | Lactobacillus plantarum |
| 365 | Lactobacillus paracasei |
| 366 | Lactobacillus paracasei |
| 367 | Lactobacillus paracasei |
| 368 | Lactobacillus paracasei |
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| 398 | Lactobacillus paracasei |
| 399 | Streptococcus thermophilus |</p>
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*Safe deposit; Not for sale
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Leuconostoc mesenteroid ssp. mesenteroid
Leuconostoc mesenteroid ssp. mesenteroid
Propionibacterium thoenii ssp. thoenii
Propionibacterium freudenreichii ssp. freudenreichii
Propionibacterium freudenreichii ssp. shermanii
Propionibacterium jensenii
Propionibacterium acidipropionici
Enterococcus lactis
Bacillus licheniformis
Lactobacillus helveticus
Lactobacillus acidophilus
Lactobacillus acidipropionici
Lactobacillus plantarum
Weisella cibarica
Lactobacillus fermentum
Lactobacillus fermentum
Lactobacillus fermentum
Lactobacillus fermentum
Lactococcus lactis ssp. diacetylactis
Pediococcus acidilactici
Lactobacillus rhamnosus
Lactococcus lactis ssp. lactis
Lactobacillus niridescens
Lactobacillus agilis
Lactobacillus equi
Leuconostoc mesenteroid ssp. dextranicum
Leuconostoc lactis
Lactococcus lactis ssp. diacetylactis
Lactobacillus plantarum
Lactobacillus plantarum
Lactobacillus rhamnosus
Lactobacillus prcasei ssp. paracasei
Lactobacillus delbrueckii ssp. bulgaricus
Lactobacillus delbrueckii ssp. bulgaricus
Lactobacillus delbrueckii ssp. bulgaricus
Lactobacillus delbrueckii ssp. bulgaricus
Leuconostoc mesenteroides
Leuconostoc mesenteroides
Lactococcus lactis
Leuconostoc mesenteroides
Leuconostoc mesenteroides
Leuconostoc mesenteroides
Leuconostoc mesenteroides
Lactococcus lactis
Lactococcus lactis
Lactococcus lactis
Streptococcus thermophilus
Streptococcus thermophilus
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
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Lactococcus lactis ssp. lactis
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Lactobacillus plantarum
Lactobacillus fermentum
Lactobacillus sp.
Lactobacillus casei
Lactobacillus plantarum
Lactobacillus acidophilus
Lactobacillus plantarum
Lactobacillus gasseri
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Lactobacillus plantarum
Lactobacillus plantarum
Lactobacillus fermentum
Lactobacillus fermentum
Lactobacillus acidophilus
Bifidobacterium bifidum
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Lactococcus lactis ssp. lactis
Lactobacillus plantarum BH1541
Lactobacillus fermentum ULAG
Lactobacillus plantarum strain F-4
Lactobacillus plantarum strain S-3
Lactobacillus rhamnosus
Lactobacillus rhamnosus
Lactobacillus fermentum
Lactobacillus plantarum
Lactobacillus plantarum
Lactobacillus plantarum
Lactobacillus mucosae
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Streptococcus thermophilus
Lactobacillus rhamnosus
Lactobacillus rhamnosus
delbrueckii ssp. bulgaricus
delbrueckii ssp. bulgaricus
Annexure
MICROBIOLOGICAL MEDIA

ALKALINE GPYC MEDIUM (g/L)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>Glucose</td>
<td>10.0</td>
</tr>
<tr>
<td>Peptone</td>
<td>5.0</td>
</tr>
<tr>
<td>Yeast Extract</td>
<td>5.0</td>
</tr>
<tr>
<td>Dipotassium hydrogen orthophosphate</td>
<td>1.0</td>
</tr>
<tr>
<td>Magnesium Sulphate</td>
<td>0.2</td>
</tr>
<tr>
<td>Agar</td>
<td>15.0</td>
</tr>
<tr>
<td>Distilled water</td>
<td>1000 ml</td>
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<tr>
<td>pH</td>
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Sodium Carbonate (1 %) was sterilized separately and added to the medium aseptically to get pH 10.0.

BRAIN HEART INFUSION (g/L)

<table>
<thead>
<tr>
<th>Ingredient</th>
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</thead>
<tbody>
<tr>
<td>Calf Brain (infusion)</td>
<td>20.0</td>
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<tr>
<td>Beef Heart (infusion)</td>
<td>25.0</td>
</tr>
<tr>
<td>Proteose Peptone</td>
<td>10.0</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>5.0</td>
</tr>
<tr>
<td>Disodium phosphate</td>
<td>2.5</td>
</tr>
<tr>
<td>Dextrose</td>
<td>2.0</td>
</tr>
<tr>
<td>Distilled water</td>
<td>1000 ml</td>
</tr>
<tr>
<td>pH</td>
<td>7.4</td>
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</table>

CHINA BLUE AGAR (g/L)

<table>
<thead>
<tr>
<th>Ingredient</th>
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<tbody>
<tr>
<td>Yeast Extract</td>
<td>3.0</td>
</tr>
<tr>
<td>Peptone</td>
<td>5.0</td>
</tr>
<tr>
<td>Cow milk</td>
<td>100 ml</td>
</tr>
<tr>
<td>Agar</td>
<td>20.0</td>
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<tr>
<td>China Blue (saturated sol.)</td>
<td>2.5 ml</td>
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</table>

Mix the contents and make the volume to 1000 ml by distilled water.

CITRATE AGAR (g/L)

<table>
<thead>
<tr>
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<tbody>
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<tr>
<td>Dextrose</td>
<td>5.0</td>
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<tr>
<td>Lactose</td>
<td>5.0</td>
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<tr>
<td>Sod.citrate</td>
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<tr>
<td>Ca.lactate</td>
<td>8.0</td>
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<tr>
<td>Agar</td>
<td>20.0</td>
</tr>
<tr>
<td>Distilled water</td>
<td>1000 ml</td>
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</tbody>
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ELLIKER’s BROTH (g/L)

<table>
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<tr>
<th>Ingredient</th>
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<tbody>
<tr>
<td>Pancreatic digest of casein</td>
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<tr>
<td>Yeast Extract</td>
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<tr>
<td>Gelatin</td>
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<tr>
<td>Glucose</td>
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<tr>
<td>Ascorbic acid</td>
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</tr>
<tr>
<td>Lactose</td>
<td>2.5</td>
</tr>
<tr>
<td>Sodium Chloride</td>
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</tr>
<tr>
<td>Sucrose</td>
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<tr>
<td>Sodium acetate</td>
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<tr>
<td>pH</td>
<td>6.8</td>
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EOSINE METHYLENE BLUE AGAR (g/L)

Peptone                  -  10.0
Lactose                  -  10.0
Dipotassium hydrophosphate -    2.0
Eosin Y                  -    0.4
Methylene Blue                 -    0.065
Agar     -   20.0
Distilled water -  1000 ml
pH     -  7.1

LITMUS CHALK MILK (g/L)

Skim milk -  1000 ml
Azolitmin -    0.75

Take 1.0L of separated cow milk or reconstituted skim milk (10 %) and add 0.75 g of azolitmin. Stir gently and heat to boiling. Add a pinch of chalk to tubes and distribute the milk to them. Sterilize them at 10 psi for 20 min.

LIVER EXTRACT AGAR (g/L)

Take 500 g of goat liver and cook in a pressure cooker to bring the pressure to 15 psi. Decant and filter through absorbent cotton.

Solution A

Potassium hydro.orthophosphate -  12.5 g
Potassium dihydro.orthophosphate -  12.5 g
Dissolve in water to make the final volume to 100 ml

Solution B

Magnesium Sulphate -  500 mg
Sodium Chloride -  250 mg
Manganese Sulphate -  250 mg
Ferrous Sulphate -  250 mg
Dissolve in distilled water to make the final volume to 100 ml.

Preparation of the medium:

Add all the ingredients except agar to liver extract. Mix thoroughly to dissolve and adjust pH to 7.2. Add agar powder and bring to boil. Dispense into tubes or flasks and autoclave them at 15 psi for 15 min.

LEE's AGAR (g/L)

Tryptone                  -  10.0
Yeast Extract    -  10.0
Lactose                  -    5.0
Sucrose                  -    5.0
Ca.carbonate    -    3.0
Di-pot.hydro.phosphate -    0.5
Bromocresol purple     -    0.002%
Agar     -    20.0
Distilled water -  1000 ml
pH     -    7.0

BCP is added in the form of 1.0 ml of sterile 0.2% solution (autoclaved at 15 psi for 15 min.) per 100 ml of sterile agar just before pouring the plates.
LURIA BROTH (g/L)

Tryptone - 10.0
Yeast Extract - 5.0
Sodium Chloride - 10.0
Distilled Water - 1000 ml
pH - 7.0

LEUCONOSTOC MEDIUM (g/L)

Tryptone - 10.0
Yeast Extract - 10.0
Pot. monohydro. phosphate - 5.0
Tomato juice - 100 ml
Salt solution* - 20 ml
D-glucose - 10.0
Agar - 20.0

Mix the contents and make the volume to 1000 ml with distilled water.

Tomato juice: 1 volume of tomato with 3 volume of water is steamed for half an hour and then juice is extracted.

Salt solution: Each 100 ml contains
- Magnesium Sulphate - 0.9 g
- Sodium Chloride - 0.04 g
- Ferrous Sulphate - 0.072 g
- Manganese Sulphate - 0.18 g
- Ascorbic acid - 0.002 g

* Salt solution should be Seitz filtered and added aseptically.

LYPA BROTH (g/L)

Lactose - 20.0
Peptone - 5.0
Yeast Extract - 5.0
Beef Extract - 10.0
Di-Sod. Hydrogen phosphate - 3.0
Distilled water - 1000 ml

M-17 AGAR (g/L)

Peptone - 10.0
Beef Extract - 8.0
Yeast Extract - 4.0
Dextrose - 20.0
Tween 80 - 1.0
Di-pot.hydrogen phosphate - 2.0
Sodium acetate - 5.0
Tri-ammonium citrate - 2.0
Manganese Sulphate - 0.5
Magnesium Sulphate - 0.02
Agar - 20.0
Distilled water - 1000 ml
pH - 6.2

MALT EXTRACT AGAR (g/L)

Malt Extract - 3.0
Glucose - 5.0
<table>
<thead>
<tr>
<th>MAJOR COMPONENT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yeast Extract</strong></td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Peptone</strong></td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Agar</strong></td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Distilled water</strong></td>
<td>1000 ml</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>6.2</td>
</tr>
</tbody>
</table>

**MANNITOL AGAR (g/L)**

<table>
<thead>
<tr>
<th>MAJOR COMPONENT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yeast Extract</strong></td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Peptone</strong></td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Mannitol</strong></td>
<td>25.0</td>
</tr>
<tr>
<td><strong>Agar</strong></td>
<td>15.0</td>
</tr>
<tr>
<td><strong>Distilled water</strong></td>
<td>1000 ml</td>
</tr>
</tbody>
</table>

**MRS AGAR (g/L)**

<table>
<thead>
<tr>
<th>MAJOR COMPONENT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peptone</strong></td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Beef Extract</strong></td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Yeast Extract</strong></td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Dextrose</strong></td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Tween 80</strong></td>
<td>1.0 ml</td>
</tr>
<tr>
<td><strong>Di-pot. hydrogen phosphate</strong></td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Sodium acetate</strong></td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Magnesium Sulphate</strong></td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Manganese Sulphate</strong></td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Agar</strong></td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Distilled water</strong></td>
<td>1000 ml</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>6.2</td>
</tr>
</tbody>
</table>

**NUTRIENT AGAR (g/L)**

<table>
<thead>
<tr>
<th>MAJOR COMPONENT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beef Extract</strong></td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Peptone</strong></td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Sodium Chloride</strong></td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Agar</strong></td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Distilled water</strong></td>
<td>1000 ml</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>6.8</td>
</tr>
</tbody>
</table>

**POTATO DEXTROSE AGAR (g/L)**

<table>
<thead>
<tr>
<th>MAJOR COMPONENT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potato</strong></td>
<td>200.0</td>
</tr>
<tr>
<td><strong>Glucose</strong></td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Agar</strong></td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Distilled water</strong></td>
<td>1000 ml</td>
</tr>
</tbody>
</table>

Peel and wash potatoes, cut into pieces and boil in 1000 ml of distilled water till cooked. Decant and filter through cotton wool. Mix glucose and agar, make up volume to 1000 ml. gently heat to dissolve agar. Dispense into tubes and flasks. Autoclave at 15 psi for 15 min.

**SKIM MILK (g/L)**

<table>
<thead>
<tr>
<th>MAJOR COMPONENT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skim milk powder</strong></td>
<td>120.0</td>
</tr>
<tr>
<td><strong>Distilled water</strong></td>
<td>1000 ml</td>
</tr>
</tbody>
</table>
### TRYPTONE GLUCOSE YEAST EXTRACT AGAR (g/L)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tryptone</td>
<td>10.0</td>
</tr>
<tr>
<td>Glucose</td>
<td>10.0</td>
</tr>
<tr>
<td>Yeast Extract</td>
<td>10.0</td>
</tr>
<tr>
<td>Tween 80</td>
<td>2.0</td>
</tr>
<tr>
<td>Magnesium Sulphate</td>
<td>50.0 mg</td>
</tr>
<tr>
<td>Manganese Sulphate</td>
<td>50.0 mg</td>
</tr>
<tr>
<td>Distilled water</td>
<td>1000 ml</td>
</tr>
<tr>
<td>pH</td>
<td>6.5</td>
</tr>
</tbody>
</table>

### YEAST DEXTROSE BROTH (g/L)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptone</td>
<td>5.0</td>
</tr>
<tr>
<td>Yeast Extract</td>
<td>5.0</td>
</tr>
<tr>
<td>Glucose</td>
<td>10.0</td>
</tr>
<tr>
<td>Sodium acetate</td>
<td>10.0</td>
</tr>
<tr>
<td>Distilled water</td>
<td>1000 ml</td>
</tr>
<tr>
<td>pH</td>
<td>6.8</td>
</tr>
</tbody>
</table>

### CHAWLK LITMUS MILK (g/L)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skimmed Milk Powder</td>
<td>100-120</td>
</tr>
<tr>
<td>Limus Dye</td>
<td>1</td>
</tr>
<tr>
<td>Yeast Extract</td>
<td>3</td>
</tr>
<tr>
<td>Dextrose</td>
<td>10</td>
</tr>
<tr>
<td>Calcium carbonate</td>
<td>20</td>
</tr>
</tbody>
</table>
How to use freeze dried lactic acid culture

Carefully open the ampoule using aseptic techniques and activate the culture as given below:

- Prepare the skim milk tubes and flasks.
- For preparation of skim milk dissolve the skim milk powder @ 12.5% in distilled water (12.5 gm skim milk powder in 100 ml distilled water).
- Prepare 3-4 skim milk tubes by distributing 5.0 ml of skim milk so prepared in each test tube and 100 ml conical flasks.
- Seal the mouth of these milk tubes and flasks with cotton plug tightly and cover with paper.
- Keep these skim milk test tubes & flasks in an autoclave for sterilization.
- If autoclave is not available, keep this material in pressure cooker upto 3 Whistles and 15 minute on low flame.
- After autoclaving, keep the material at room temperature for cooling and keep these materials in incubator at 37°C for overnight to check the sterility.
- For better sterilized conditions, the next step should be carried out preferably in a laminar air flow chamber. But if laminar airflow is not available, next steps should be carried out between two burners on the side.
- Mark a deep scratch above the content with the help of doctor’s file/ triangular file.
- Break open the ampoule by holding it with both hands and giving jerk in the opposite direction to the marked surface.
- By using a sterilized skim milk tube aseptically add 4-5 drops of sterilized milk/appropriate broth medium with the help of pasture pipette.
- Mix the content gently and then transfer the total content to 5 ml sterilized skim milk /broth medium.
- Incubate the inoculated milk/ broth tube at 14-16 hours at 30 °C for Mesophilic cultures and at 37 °C for thermophilic cultures. For yoghurt culture incubate at 42 °C for 4 hours.
- Activate the culture by transferring it into sterilized skim milk flask /appropriate broth @ 1-2% (1-2ml culture in 100 ml skim milk flask).
- If it is for making dahi/ Yoghurt, culture can be used for preparation of curd/ yoghurt on large scale by further subculturing (transfer of culture @1-2% from already settled curd in another conical flask containing milk).
- Store the activated cultures in the refrigerator at 4 °C. Dairy cultures can maintain in litmus milk plus calk by repeated subculturing at 2-3 months. Non – lactic may maintained by repeated subculturing on appropriate agar slopes.

Given proper treatment and growth conditions most freeze- dried cultures may grow in 3 days. However some freeze-dried culture may exhibit a prolong lag period and therefore should be incubated for 4-5 days before discarding as unviable.

NOTE: It is presumed that the cultures will be handled at the user’s end by trained person(s) competent in microbiological techniques.
How to use freeze dried Yeast and Mould Culture

Carefully open the ampoule using aseptic techniques and activate the culture as given below:

- Prepare the Potato dextrose Broth/Yeast Peptone Dextrose Broth tubes and agar media and autoclave it.
- Decrease the pH of broth and agar media (3.5 - 4.0 pH) by adding prepared sterilized tartaric acid (10%).
- If autoclave is not available, keep this material in pressure cooker upto 3 Whistles and 15 minute on low flame.
- After autoclaving, keep the material at room temperature for cooling and keep these materials in incubator at 30°C for two days to check the sterility.
- The next step should be carried out in a Biosafety cabinet/laminar air flow chamber.
- Mark a deep scratch above the content with the help of doctor’s file/ triangular file.
- Break open the ampoule by holding it with both hands and giving jerk in the opposite direction to the marked surface.
- By using a sterilized broth tube aseptically add 4-5 drops of sterilized broth medium with the help of pasture pipette.
- Mix the content gently and then transfer the total content to 5 ml sterilized broth medium.
- Incubate the inoculated broth tube for 2-3 days at 30°C.
- After the visual turbidity in the broth tubes spread/streak the culture on prepared agar plates according to use.
- Incubate the streaked/spreaded plates at 30°C for 2-3 days. After incubation store at 4°C.
- Reactivate these plates after every 10 days.

Given proper treatment and growth conditions most freeze-dried cultures may grow in 3 days. However some freeze-dried culture may exhibit a prolong lag period and therefore should be incubated for 4-5 days before discarding as unviable.

NOTE: It is presumed that the cultures will be handled at the user’s end by trained person(s) competent in microbiological techniques.
How to use freeze dried Anaerobic Culture

Carefully open the ampoule using aseptic techniques and activate the culture as given below:

- Prepare the Broth tubes specific to the culture.
- Keep these broth tubes in an autoclave for sterilization.
- If autoclave is not available, keep this material in pressure cooker upto 3 Whistles and 15 minute on low flame.
- After autoclaving, keep the material at room temperature for cooling and keep these materials in incubator at 37°C for overnight to check the sterility.
- For better sterilized conditions, the next step should be carried out in a Biosafety cabinet.
- Mark a deep scratch above the content with the help of doctor’s file/ triangular file.
- Break open the ampoule by holding it with both hands and giving jerk in the opposite direction to the marked surface.
- By using a sterilized broth tube aseptically add 4-5 drops of sterilized broth medium with the help of pasture pipette.
- Mix the content gently and then transfer the total content to 5 ml sterilized broth medium.
- Incubate the inoculated broth tube at 24-48 h or longer (turbity due to growth of culture appears) at 37°C in anaerobic jar with gas packs.
- After visible turbidity activate the culture by subculturing in specific media tubes under the same conditions.
- Store the activated cultures in the refrigerator at 4°C.

----------------------------------------------------------------------------------------------------------------

Given proper treatment and growth conditions most freeze-dried cultures may grow in 3 days. However some freeze-dried culture may exhibit a prolong lag period and therefore should be incubated for 4-5 days before discarding as unviable.

NOTE: It is presumed that the cultures will be handled at the user’s end by trained person(s) competent in microbiological techniques.

* Cultures not for sale.
Guide to Entries

Bacillus stearothermophilus Donk 1920

1. Scientific Name
2. NCDC Accession Number
3. Other Collection Numbers
4. Source Isolated from (History)
5. Application, Remarks, References etc.
6. Growth Medium and Temperature

69 NIZO C953, NCDO 1780, DSM 1550, NCIMB 11780
From Evaporated milk
Detection of Penicillin and other inhibitory substances in milk
Nutrient broth + 0.1% starch, 55°C
1. Scientific name and author:

2. Synonym:

3. Name of other state (in case of fungi):

4. Classification:
   
   Order:  
   Family:

5. History of this culture since isolation: NCDC<__________________<__________________

6. Depositor and strain number

7. Other collections numbers:

8. Is this the type strain of this organism? YES ☐ NO ☐

   If yes, please cite the reference:

9. Origin of the strain (please give as much information as possible)
   Source of isolation:
   Geographical area:
   Isolated by (date):
   Identified by (date):
   If there is any literature in reference to the above items, please cite it (them):

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

10. Particular uses of the strain:
    Production of:
Ref.:  
Degradation of:  
Ref.:  
Control of:  
Ref.:  
Assay of:  
Ref.:  
New taxon:  
Ref.:  
Other:  
Ref.:  

11. Properties of the strain (results of morphological, biochemical, genetic, serological or other examinations, e.g. genotype, mol% G+C, cell wall structure, plasmid pattern:  
____________________________________________________________________________________  
____________________________________________________________________________________  
____________________________________________________________________________________  

12. Is this strain dangerous to health or environment?  

Zoopathogenic  ☐  Phytopathogenic  ☐  Unknown  ☐  

Obs:  _____________________________________________________________________  

13. Maintenance and preservation:  
Medium (give formula, use additional sheet if necessary):  
____________________________________________________________________________________  
____________________________________________________________________________________  

Temperature: ____________ pH ____________ Incubation time ________________  

Oxygen relationship:  
Aerobic  ☐  Microaerophilic  ☐  Facultative anaerobic  ☐  Anaerobic  ☐  

Special Conditions:  
____________________________________________________________________________________  

Name of depositor:  
Address of depositor:  
Phone:    Fax:              Email:  
Date:    Signatures:  _________________________  
Place:  _____________________________