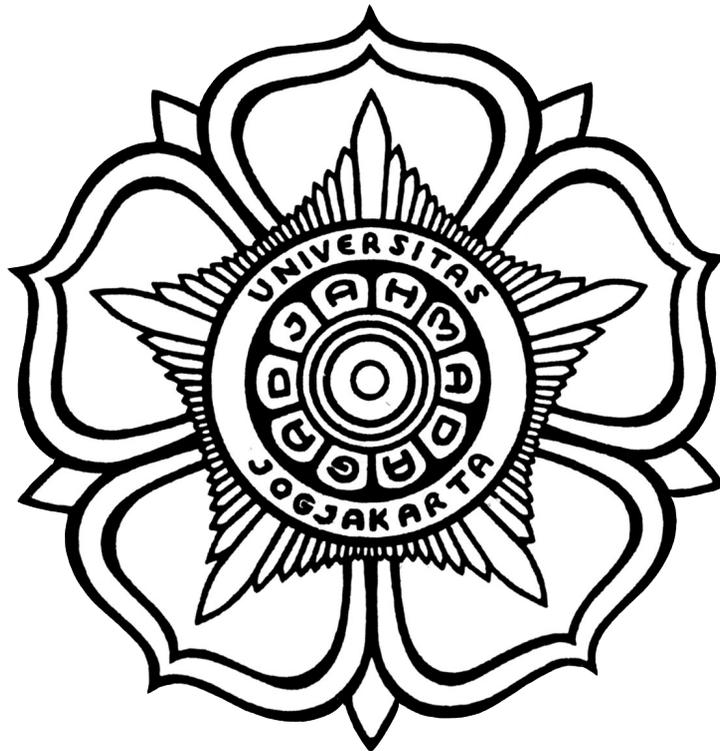


# CATALOGUE

## Food and Nutrition Culture Collection ( FNCC )



Pusat Studi Pangan dan Gizi  
Universitas Gadjah Mada  
2020

# **FOOD AND NUTRITION CULTURE COLLECTION (FNCC)**

## **INTRODUCTION**

Food and Nutrition Culture Collection (FNCC) was established in 1991, initiated by Dr. Slamet Sudarmadji, Director Food and Nutrition Development and Research Center (FANDARC), Gadjah Mada University, period 1985 to March 1995. FNCC researchers and technicians devote to themselves to the development of the culture collection. The main purposes of FNCC are to collect, characterize, preserve and distribute microbial cultures of food and industrial significance. FNCC also contributes to the development of research, education, and industrial application related to food microbiology. Training courses are also occasionally offered.

FNCC greatly indebted to the various established culture collection and research organization in the world, namely, Institute of Fermentation Osaka (IFO, Japan); Japan Collection of Microorganisms (JCM, Japan); IAM Culture Collection (The University of Tokyo, Japan); Centraalbureau voor Schimmelcultures (CBS, The Netherlands); and CSIRO, North Ryde (Australia) that already made contributions in training and provide cultures. Future cooperation from all culture collection institutions is expected and appreciated.

We continue to be committed in providing the best service, assistance and technical support available.

## **PERSONALS**

Chairman of CFNS UGM	: Prof. Dr. Ir. Endang S. Rahayu, M.S.
Curator	: Prof. Dr. Ir. Endang S. Rahayu, M.S.
Bacteria	: Prof. Dr. Ir. Eni Harmayani, M.Sc. Dr. Ir. Tyas Utami, M.Sc.
Yeast	Dr. Ir. Retno Indrati, M.Sc. Dr. Ir. M. Nur Cahyanto, M.Sc.
Filamentous Fungi	: Prof. Dr. Ir. Sardjono, MS. Prof. Dr. Ir. Endang S. Rahayu, M.S.
Technicians	: Joko Sutriyanto Agus Sarwoko Pri Haryono

## ORDERING CULTURES

Cultures are provided to research and industrial laboratories and education all establishments upon request. The cultures are prepared on Agar slants. All orders should be addressed to:

Food and Nutrition Culture Collection  
Center for Food and Nutrition Studies Gadjah Mada University  
Jl. Teknik Utara Berek Yogyakarta 55281 Indonesia  
Phone/Fax : (0274) 589 242  
WhatsApp : 085728899678  
Email : cfns@ugm.ac.id

Fee: Rp 300.000,00 per culture for research and educational purposes and Rp 450.000,00 per culture for industrial/commercial purposes; plus Rp. 50.000,- for domestic postage.

## HOW TO USE THE CATALOGUE

The strain of microorganisms listed in this catalogue are classified into three parts: bacteria, yeast, and fungi. In each part, strains are alphabetically arranged according to the scientific name of the species. Example of the strain description are presented below:

*Acetobacter aceti* (Pasteur) Beijerinck<sup>1)</sup>

0016<sup>2)</sup> < - IFO 3283 (K. Kondo, 1954 vinegar)<sup>4)</sup>

*Lactobacillus fermentum* Beijerinck<sup>1)</sup>

0096<sup>2)</sup> < - TTA 2<sup>3)</sup> (Djaafar 1994 fermented cassava *tape*)<sup>4)</sup>

- 1) Scientific name of species and authority of the scientific name
- 2) FNCC accession number.
- 3) Accession number of other Culture Collection or individual.
- 4) History of the strain (person concerned year and source of isolation)

## I. BACTERIA

*Acetobacter aceti* (Pasteur) Beijerincki

0016 < - IFO 3283 (K. Kondo, 1954, Vinegar)

0017 < - IFO 3284 (K. Kondo, 1954, Vinegar)

0025 < - CCRC 11681

*Agrobacterium tumefaciens* (Smith & Townsend) Conn

0087 < - IFO 12667

*Alcaligenes xylosoxydans* subsp. *denitrificans* (Ruger & Tan) Kiredjian et al.

0078 < - IFO 15125 (Type strain).

*Bacillus amyloliquefaciens* Priest et al.

0079 < - IFO 14141

*Bacillus amylolyticus* Nakamura

0080 < - IFO 13625 (Type strain)

*Bacillus cereus* Frankland and Frankland

0057 < - IFO 13690

*Bacillus coagulans* Hammer

0081 < - IFO 3557

*Bacillus macerans* Schardinger

0082 < - IFO 15041

*Bacillus polymyxa* (Prazmowski) Mace

0084 < - IFO 13003

*Bacillus stearothermophilus* Donk

0058 < - IFO 12550

*Bacillus subtilis* (Ehrenberg) Cohn.

0059 < - IFO 3335

0060 < - IFO 13719 (Type strain)

0061 < - IFO 14140

*Brevibacterium flavum* Okumura et al

0030 < - CCRC 10027

0031 < - CCRC 12470

***Brevibacterium lipolyticum***

0087 < - NRRL B-4202

***Clostridium acetobutylicum*** McCoy et al

0085 < - IFO 13948 (Type strain)

***Corynebacterium glutanicum*** (Kinoshita et al ) Abe et al

0062 < - IFO 12168

***Coryriebacterium hoagii*** (Morse) Eberson

0126 < - JCM 1319 (Type strain)

***Esherichia coil*** (Miguta) Castellani & Chalmers

0091 < - IFO 3301

***Gordona rubropertinctus*** (Hefferan) Stackebrandt, Smida & Collins

0130 < - JCM 3204 (Type strain)

***Gordona terrae*** (Tsukamura) Stackebrandt, Smida & Collins

0131 < - JCM 3229 (Type strain)

***Lactobacillus acidophilus*** (Moro) Hansen & Mocquot

0051 < - IFO 13951 (Type strain)

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

0021 < - IFO 3345

0022 < - IFO 13110

0028 < - CCRC 14028

0029 < - CCRC 14060

***Lactobaciflus bulgaricus*** (Orla-Jensen) Weiss et al

(*Lactobacillus delbrueckii* subsp *bulgaricus*)

0041 < - CSCC LB-1 (Australia)

0053 < - IFO 13953

***Lactobacillus casei***

0090 < - NRRL B-1922

***Lactobacillus delbrueckii*** subsp. *delbrueckii* (Leichmann) Beijerinck

0045 - IFO 3202

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

0020 < - IFO 3074 (as *Lactobacillus cucumeris*).

0026 < - CCRC 10069 (Type strain)

0027 < - CCRC 12251

0127 < - JCM 1551

0136 < - JCM 8344  
0137 < - JCM 8347

***Lactobacillus rhamnosus*** Collins et al.  
(*Lactobacillus casei* subsp. *rhamnosus*)

0052 < - IFO 3425  
0098 < - TGR-1 (Djaafar, 1994, fermented cassava-*growol*)  
0099 < - TGR-2 (Djaafar, 1994, fermented cassava-*growol*, produces bacteriocin)  
0100 < - TGR-21 (Djaafar, 1994, fermented cassava-*growol*)  
0101 < - TGR-22 (Djaafar, 1994, fermented cassava-*growol*)  
0105 < - TTK-1 (Djaafar, 1994, fermented dunian meat-*tempoyak*)  
0113 < - TTE-1 (Djaafar, 1994, *tempe*)  
0114 < - TTE-2 (Djaafar, 1994, *tempe*)

***Lactobadilus murinus*** Hemme et al.

0115 < - TTE-3 (Djaafar, 1994, *tempe*)

***Lactococcus lactis*** subsp. *lactis* (Lister) Schleifer et al.

0086 < - IFO 12007, produces nisin  
0133 < - JCM 5805 (Type strain)

***Leuconostoc mesenteroides*** subsp. *mesenteroides* Tsenkovskii van Teighem.

0023 <- IFO 12060

***Morganella morganii*** (Winslow et al ) Brenner et al

0121 <- JD-37 (Atmadjaja, 1994, fish, produces histamin)  
0122 <- NCTC 10041 (*Proteus morganii*, produces histamin)

***Nitrobacter winogradskyi*** Winslow et al.

0054 <- IFO 14297

***Nitrosomonas europaea*** Winogradskyi

0955 <- IFO 14298

***Nocardia asteroides*** (Eppinger) Blanchard

0067 <- IFO 3384

***Nocardia erythropolis***

0088 <- NRRL B-1532

***Nocardia farcinica*** Trevisan

0132 <- JCM 3316

***Pseudomonas aeruginosa*** (Schroter) Migula

0063 <- IFO 12689

*Pseudomonas cepacia* Palleroni & Holmes  
0069 <- IFO 15124

*Pseudomonas uluorescens* Migula  
0070 <- IFO 13922

*Pseudomonas puticla* (Trevisan) Migula  
0071 <- IFO 14796

*Pediococcus acidilactici* Lindner  
0110 <- TAT-1 (Djaafar 1 994 egg plant pickle)

*Pediococcus halophilus* Mees  
0032 <- CCRC 12576  
0033 <- CCRC 12816

*Pediococcus pentosaceus* Mees  
0018 <- IFO 12230 (as *Pediococcus cerevisiae*)  
0019 <- IFO 12232 (as *Pediococcus cerevisiae*)  
0046 <- NRRL B-14009

*Propionibacterium propionicum* (Pine & Georg) Charfreitag et al.  
0068 <- IFO 14587 (Type strain)

*Rhodococcus equi* (Magnusson) Godfellow & Alderson  
0064 <- IFO 3730  
0124 <- JCM 1311 (Type strain)

*Rhodococcus erythropolis* (Gray & Thornton) Godfellow & Alderson  
0065 <- IFO 12320  
0128 <- JCM 3201 (Type strain)

*Rhodococcus fascians* (Tilford) Goodfellow  
0125 <- JCM 1316 (Type strain)

*Rhodococcus rhodochrous* (Zopf) Tsukamura  
0066 <- IFO 3338  
0129 <- JCM 3202 (Type strain)

*Salmonella choleraesuis* subsp. *choleraesuis* (Gaerter) Le Minor, Veron 'and Popoff  
serovar typhimurium  
0050 <- IFO 12529 as *Salmonella typhimurium*  
0134 <- JCM 6977 as *Salmonella typhimurium*  
0135 <- JCM 6978 as *Salmonella typhimurium*

*Staphylococcus aureus* Rosenbach  
0047 <- IFO 13276

*Streptococcus raffinolactis* Orla Jensen and Hansen  
0112 <- TAT-3 (Djaafar, 1 994, egg plant-pickle)

*Streptococcus thermophilus* (Orla-Jensen) Farrow & Collins

0015 <- IFO 13957  
0040 <- NRRLB4148

*Streptomyces ambofaciens* Pinnert Sindico  
0073 <- IFO 12836 (Type strain)

*Streptomyces olivaceus* (Waksman) Waksman & Henrici  
0074 <- IFO 3409

*Streptomyces ohvochromogenes* (Waksman) Waksman & Henrici  
0075 <- IFO 13873

*Streptomyces violascens* (Preobrazhens kaya & Sveshnikova) Pridham  
0076 <- IFO 12920 (Type strain)

*Variovorax paradoxus* (Davis) Willems et al  
0138 <- IFO 15149 (Type train)

*Xanthomonas campetrits*  
0089 <- NRRL B-1459A

*Zymomonas mobilis* subsp *mobilis* (Lindner) De Ley & Swings  
0056 <- IFO 13756

## II. YEAST

*Candida curvata* (biddens & Lodder) Lodder & Kreger-van Rij.  
3001

*Candida kefyr* (Beijerinck) van Uden & Buckley  
3035 <- JCM 1617

*Candida krusei* (Castellani) Langeron & Guerra  
3034 <- JCM 1609 (Type strain)

*Candida lipolytica* (Wickerham et al.) van der Walt & von Arx  
3010 <- NRRL Y-1095 (as *Yarrowia lipolytica*)

*Candida norvegensis* Dietrichson ex van Uden & Buckley  
3043 <- JCM 2307 (Type strain)

*Candida tropicalis* (Castellani) Berkhout  
3023 <- IFO 1400  
3033 <- JCM 1541 (Type strain)

*Candida utilis* (Herineberg) Lodder & Kreger-van Rij  
3019 <- IFO 0396  
3036 <- JCM 1624

*Candida wicherhamii*  
3055 <- JCM 9568

*Cryptococcus curvatus* (Diddens & Lodder) Golubev  
3032 <- JCM 1 532 (Type strain)

*Debaryomyces hansenii* var. hansenii  
3040 <- JCM 1990 (Type strain)

*Debaryomyces polymorphus* (Klocker) Price & Phaff  
3037 <- 1628

*Geotrichum candidum* Butler & Petersen  
3009 <- NRRL Y-552 (as *Endomyces geotrichum*)

*Kluyveromyces lactis* (Dombrowski) van der Walt  
3024 <- IFO 0433  
3025 <- IFO 1090

***Kluyveromyces marxianus*** (Hansen) van der Walt

3011 <- IFO 10005

3026 <- IFO 1735

3038 <- JCM 1630

3061 <- NCYC 0587

3061 <- ATCC 10022

***Kluyveromyces thermotolerans*** (Philippov) Yarrow

3028 <- IFO 10067

***Kockovaella thailandica*** Nakase et al.

3029 <- IFO 10521

***Lipomyces starkeyi*** Lodder & Kreger-van Rij

3048 <- JCM 5995 (Type strain)

***Pichia burtonii*** Boidin, Pignal, Lehodey, Vey & Abadie

3045 <- JCM 3708 (Type strain)

***Pichia guilliermondii*** Wickerham

3041 <- JCM 2190

***Pichia ohmeri*** (Etchells & Bell) Kreger-van Rij

3042 <- JCM 2280

***Rhodospiridium toruloides*** Banno

3046 <- JCM 3792 (Type strain)

***Rhodotorula glutinis*** (Fresenius) Harrison

3053 <- JCM 8208 (Type strain)

***Saccharomyces bayanus*** Saccardo

3018 <- IFO 0251

***Saccharomyces caribergensis***

3059 <- NCYC 0354

***Saccharomyces cerevisiae*** Meyen ex Hansen

3004 - wine yeast

3005 - brewing yeast

3012 <- # 254 (Red star), fuel ethanol (John Labatt, Ltd.)

3014 <- # 3 Ale brewing yeast, non-flocculent (John Labatt, Ltd.)

3015 <- # 30 Ale brewing yeast, flocculent (John Labatt, Ltd.)

3022 <- NRRL Y-2034

***Saccharomyces cerevisiae*** Meyen ex Hansen (continued)

- 3049 <- JCM 7255 (Type strain)
- 3056 <- JCM 2214
- 3057 <- JCM 2215
- 3058 <- JCM 5918
- 3060 <- FSCC 0211

***Saccharomyces diastaticus*** Andrews et Gilliland ex van der Walt

- 301 3 <- # 62 Polyploid (John Labatt Ltd)

***Saccharomyces kluyvery*** Phaff, Miller & Shifrine

- 3051 <- JCM 7257 (Type strain)

***Saccharomyces pestorianus*** Hansen

- 3050 < JCM 7256

***Saccharomyces uvarum*** (caribergensis)

- 3003 <- Brewing yeast
- 3016 <- # 27 Larger brewing yeast, non-floculent (John Labatt, Ltd.)
- 3017 <- # 15 Larger brewing yeast, floculent, (John Labatt, Ltd.)

***Saccharomycopsis fibulgera*** (Lindner) Klocker

- 3020 <- IFO 1711
- 3021 <- NRRL Y-1062
- 3027 <- N-4 (Indrati & Rahayu, 1994, *ragi tape*, curdled milk)
- 3052 <- JCM 7609 (Type strain)

***Schizosaccharomyces pombe*** Lindner

- 3054 <- JCM 8274 (Type strain)

***Trichosporon cutaneum*** (de Beurmann, Gougerot & Vaucher) Ota

- 3030 <- JCM 1462 (Type strain)

***Wilhiopsis saturnus*** (Klocker) Zender

- 3044 <- JCM 3624 (Type strain)

***Zygosaccharomyces rouxii*** (Boutroux) Yarrow

- 3006 as *Zygosaccharomyces rouxi*, Boutroux
- 3007 <- IFO 0505 (as *Zygosaccharomyces soya* strain Kikkoman)
- 3008 <- IFO 1877 (as *Saccharomyces rouxii*, miso paste).
- 3047 <- JCM 5924

### III. FUNGI

*Absidia corymbifera* (Cohn) Saccardo & Trotter

6021 <- FRR 3957

6022 <- FRR 4122

*Altemaria alternata* (Fries) Keissler

6023 <- FRR 3779

6024 <- FRR 4004

*Aspergillus awamori* Nakaz

6171 <- RR3FS1 (Beras Merah)

*Aspergillus candidus* Link

6026 <- FRR 3974

6106 <- (Sardjono, et al., 1992 rice)

6134 <- BJ1 (Utami, et al., 1995, geplak)

6135 <- IIH3 1 (Utami, et al., 1995, geplak)

*Aspergillus flavus* Link ex Fries

6002

6107 <- (Sardjono, et al., 1992, rice)

6109 <- (Sardjono, et al., 1992, peanut)

6122 <- WD 3 (Dinihari, et al., 1995, dahlia roots)

6133 <- 3 (Utami, et al., 1995, geplak)

6146 <- R-7 (Indrati, et al., 1995, koji, Bantul)

6147 <- R-8 (Indrati, et al., 1995, koji, Bantul)

6148 <- R-9 (Indrati, et al., 1995, koji, Bantul)

*Aspergillus flavus* Link ex Fries (Continued)  
6177 <- XXII C5 (Sardjono et al., 1994, corn)  
6181 <- XXII SB1-5 (Sardjono et al., 1994, soybean)  
6183 <- I C02 3 (Sardjono et al., 1994 corn)  
6184 <- XXII MB1 (Sardjono et al., 1994, mungbean)

*Aspergillus fumigatus* Fresenius  
6120 <- WD-1 (Dinihari, et al., 1995, dahlia roots)  
6121 <- WD-2 (Dinihari, et al., 1995, dahlia roots)  
6123 <- WD-4 (Dinihari, et al., 1995, dahlia roots)  
6127 <- WD-8 (Dinihari, et al., 1995, dahlia roots)  
6166 <- PBi-1-RS-1 (Kedhawung)

*Aspergillus japonicus* var. *aculeatus* (Saito) Nakazawa  
6029 <- FRR 4091  
6170 <- X-2-RS-1 a (Seprantu)

*Aspergillus niger* van Tieghem  
6018 <- NRRL A-11, 264  
6030 <- FRR 3802  
6089 <- IFO 6342  
6096 <- IFO 6661  
6098 <- IFO 8541  
6114 <- Cei IFO 31125  
6172 <- CB2MS1 (Sardjono et al., 1994, tholo bean)  
6174 <- ((Sardjono et al., 1994, spices)

*Aspergillus niveus* Blochwitz  
6185 <- I PP3-4 (Sardjono et al., 1994, pepper)

*Aspergillus oryzae* (Ahlburg) Cohn  
6004 <- NRRL 1989  
6142 <- R-3 (Indrati, et al., 1995, koji, Bantul)  
6151 <- 18-12 (R) (Indrati, et al., 1995, koji, Bantul)  
6556 <- Ao-Jpn (Koji-Japan)

*Aspergillus parasiticus* Speare  
6033 <- FRR 2774  
6034 <- FRR 2752  
6165 <- EA-2-RS-1 a (Kembang Ceplik)

*Aspergillus puniceus* Kwon-Chung & Fennel  
6179 <- I CO3-5 (Sardjono et al., 1994, corn)

*Aspergillus restrictus* G. Smith  
6036 <- FRR 2973

*Aspergillus sojae* Sakaguchi & Yamada  
6007  
6168 <- 4-14

*Aspergillus tamarii* Kita  
6038 <- FRR 4065

6108 <- (Sardjono, et al., 1992, peanut)  
6153 <- 18-18 (B) (Indrati, et al., 1995, koji, Bantul)  
6167 <- 17-35  
6175 <- XXII SB8-6 ((Sardjono et al., 1994, soybean)  
6176 <- I PP3-11 (Sardjono et al., 1994, pepper)  
6178 <- XXII SB3-4 (Sardjono et al., 1994, soybean)  
6180 <- I PP3-12 (Sardjono et al., 1994, pepper)  
6186 <- XXII SB-8 (Sardjono et al., 1994, soybean)

***Aspergillus terreus*** Thom

6039 <- FRR 3989

6040 <- FRR4019

6125 <- WD-6 (Dinihari, et al., 1995, dahlia roots)

6126 <- WD-7 (Dinihari, et al., 1995, dahlia roots)

6188 <- XXII C02-1 (Sardjono et al., 1994, corn)

***Aspergillus versicolor*** (Vuillemin) Tiraboschi

6041 <- FRR 3951

6042 <- FRR 3959

***Curvularia lunata*** Nelson & Haasis

6047 <- FRR 4061

6048 <- FRR 4103

***Eurotium amstelodami*** L. Mangin

6187 <- XXII SB14-1 (Sardjono et al., 1994, soybean)

***Eurotium chevalieri*** L. Mangin

6049 <- FRR 3954

6050 <- FRR 4021

6132 <- IIH3-1 (Utami, et al., 1995, geplak)

***Eurotium rubrum*** Konig et al.

6051 < FRR 3058

6052 < FRR 3953

***Geomyces pannorum*** var. *pannorum* (Link) Sigler & Carmichael

6093 <- IFO 32033

***Mucor plumbeus*** van Tieghem

6061 <- FRR 4095

6062 <- FRR 4906

***Monascus purpureus*** Went

6008 <- NRRL2897; Used for making angkak

***Neurospora sitophila*** Shear & Dodge

6101 <- IFO 4596

***Penicillium camembertii*** Thom

6117 <- NRRL 875

***Penicillium citrinum*** Thom

6066 <- FRR 2759

6110 <- (Sardjono, et al., 1992, rice)

6111 <- (Sardjono, et al., 1992, rice)

6112 <- (Sardjono, et al., 1992, peanut)

6113 <- (Sardjono, et al., 1992, soybean)

***Penicillium crustosum*** Thom

6064 <- FRR 4149

6065 <- FRR 4165

***Penicillium funiculosum*** Thom

6017 <- CCRC 30438; Used for dextranase production

6068 <- FRR 3684

6069 <- FRR 4000

6140 <- PIIH1 (Utami, et al., 1995, geplak)

***Penicillium giabrum*** (Wehmer) Westling

6070 <- FRR 3190

6071 <- FRR 3210

***Penicillium oxalicum*** Currie & Thom

6072 < FRR 4141

***Penicillium pinophilum*** Hedgecock apud Thom

6016 <- CCRC 31558; Used for production of dextranase

6074 <- FAR 3685

6075 <- FRR 4009

***Penicillium purpurogenum*** Stoll

6090 <- IFO 5688

***Penicillium roqueforti*** Thom

6015 <- IFO 4622 (T. Hasegawa, roquefort cheese).

6019 <- NRRL 3360

***Rhizomucor miehei*** (Coorrey & Emerson) Schipper

6102 <- IFO 9740

6103 <- IFO 9741

***Rhizomucor pusilus*** (Lindt) Schipper

6104 <- IFO 4578

***Rhizopus oligosporus*** Saito

6010 <- NRRL 2710

***Rhizopus oryzae*** Went & Prinsen Geerlings

6011

6157 <- Ro-Jpn (Koji-Japan)

***Rhizopus microsponis*** var. ***rhizopodiformis*** van Thihem

6076 <- FRR 4050

6077 <- FRR 4121

***Syncephalastrum racemosum*** (Cohn) Schroter

6080 <- FRR 4124

6081 <- FRR 4125

***Trichoderma reesei*** Simmons

6012 <- NRRL 3653 Used for the sacharification cellulose from jerami

***Trichoderma viride*** Persoon & Fries

6013 <- Used for sacharification cellulose from jerami

## IV. NUMERICAL INDEX BACTERIA

- 0015 - *Streptococcus thermophilus*
- 0016 - *Acetobacter aceti*
- 0017 - *Acetobacter aceti*
- 0018 - *Pediococcus pentosaceus*
- 0019 - *Pediococcus pentosaceus*
  
- 0020 - *Lactobacillus plantarum*
- 0021 - *Lactobacillus brevis*
- 0022 - *Lactobacillus brevis*
- 0023 - *Leuconostoc mesenteroides* subsp. *mesenteroides*
- 0025 - *Acetobacter aceti*
- 0026 - *Lactobacillus plantarum*
- 0027 - *Lactobacillus planterum*
- 0028 - *Lactobacillus brevis*
- 0029 - *Lactobacillus brevis*
  
- 0030 - *Brevibacterium flavum*
- 0031 - *Brevibacterium flavum*
- 0032 - *Pediococcus halophilus*
- 0033 - *Pediococcus halophilus*
  
- 0040 - *Streptococcus thermophilus*
- 0041 - *Lactobacillus bulgaricus*
- 0045 - *Lactobacillus delbrueckii* subsp. *delbrueckii*
- 0046 - *Pediococcus pentosaceus*
- 0047 - *Staphylococcus aureus*
  
- 0050 - *Salmonella typhimurium*
- 0051 - *Lactobacillus acidophilus*
- 0052 - *Lactobacillus rhamnosus*
- 0053 - *Lactobacillus bulgaricus*
- 0054 - *Nitrobacter winogradskyi*
- 0055 - *Nitrosomonas europaea*
- 0056 - *Zymomonas mobilis* subsp. *mobilis*
- 0057 - *Bacillus cereus*
- 0058 - *Bacillus stearothermophilus*

0059 - *Bacillus subtilis*  
0060 - *Bacillus subtilis*  
0061 - *Bacillus subtilis*  
0062 - *Corynebacterium glutanicum*  
0063 - *Pseudomonas aeruginosa*  
0064 - *Rhodococcus equi*  
0065 - *Rhodococcus erythropolis*  
0066 - *Rhodococcus rhodochrous*  
0067 - *Nocardia asteroides*  
0068 - *Propionibacterium propionicus*  
0069 - *Pseudomonas cepacia*

0070 - *Pseudomonas fluorescens*  
0071 - *Pseudomonas putida*  
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0074 - *Streptomyces olivaceus*  
0075 - *Streptomyces olivochromogenes*  
0076 - *Streptomyces violascens*  
0077 - *Agrobacterium tumefaciens*  
0078 - *Alcaligenes xylosoxydans* subsp. *denitrificans*  
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0080 - *Bacillus amylolyticus*  
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0082 - *Bacillus macerans*  
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0085 - *Clostridium acetobutylicum*  
0086 - *Lactococcus lactis* subsp. *lactis*  
0087 - *Brevibacterium impolyticum*  
0088 - *Nocardia erythropolis*  
0089 - *Xanthomonas campestris*

0090 - *Lactobacillus casei*  
0091 - *Escherichia coli*  
0095 - *Lactobacillus plantarum*  
0096 - *Lactobacillus fermentum*  
0097 - *Lactobacillus fermentum*  
0098 - *Lactobacillus rhamnosus*  
0099 - *Lactobacillus rhamnosus*

0100 - *Lactobacillus rhamnosus*  
0101 - *Lactobacillus rhamnosus*  
0102 - *Lactobacillus fermentum*  
0103 - *Lactobacillus fermentum*  
0104 - *Lactobacillus fermentum*  
0105 - *Lactobacillus rhamnosus*  
0106 - *Lactobacillus rhamnosus*  
0107 - *Lactobacillus plantarum*  
0108 - *Lactobacillus plantarum*

0110 - *Pediococcus acidilactici*  
0112 - *Streptococcus raffinolactis*  
0113 - *Lactobacillus rhamnosus*  
0114 - *Lactobacillus rhamnosus*  
0115 - *Lactobacillus murinus*  
0117 - *Lactobacillus plantarum*  
0118 - *Lactobacillus fermentum*

0121 - *Morganella morganii*  
0122 - *Morganella morganii*  
0123 - *Lactobacillus plantarum*  
0124 - *Rhodococcus equi*  
0125 - *Rhodococcus fascians*  
0126 - *Corynebacterium hoagii*  
0127 - *Lactobadilus plantarum*  
0128 - *Rhodococcus erythropolis*  
0129 - *Rhodococcus rhodochrous*

0130 - *Gordona rubropertinctus*  
0131 - *Gordona terrae*  
0132 - *Nocardia farcinica*  
0133 - *Lactococcus lactis* subsp. *lactis*  
0134 - *Salmonella choleraesuis* subsp. *choleraesuis*  
0135 - *Salmonella choleraesuis* subsp. *choleraesuis*  
0136 - *Lactobadillus plantarum*  
0137 - *Lactobadilus plantarum*  
0138 - *Variovorax paradoxus*

## V. NUMERICAL INDEX YEAST

- 3001 - *Candida curvata*
- 3003 - *Saccharomyces uvarum (caribergensis)*
- 3004 - *Saccharomyces cerevisiae*
- 3005 - *Saccharomyces cerevisiae*
- 3006 - *Zygosaccharomyces rouxii*
- 3007 - *Zygosaccharomyces rouxii*
- 3008 - *Zygosaccharomyces rouxii*
- 3009 - *Geotricum candidum*
  
- 3010 - *Candida lipolytica*
- 3011 - *Kluyveromyces marxianus*
- 3012 - *Saccharomyces cerevisiae*
- 3013 - *Saccharomyces diastaticus*
- 3014 - *Saccharomyces cerevisiae*
- 3015 - *Saccharomyces cerevisiae*
- 3016 - *Saccharomyces uvarum (caribergensis)*
- 3017 - *Saccharomyces uvarum (caribergensis)*
- 3018 - *Saccharomyces bayanus*
- 3019 - *Candida utilis*
  
- 3020 - *Saccharomycopsis fibuligera*
- 3021 - *Saccharomycopsis fibuligera*
- 3022 - *Saccharomyces cerevisiae*
- 3023 - *Candida tropicalis*
- 3024 - *Kluyveromyces lactis*
- 3025 - *Kluyveromyces lactis*
- 3026 - *Kluyveromyces marxianus*
- 3027 - *Saccharomycopsis fibuligera*
- 3028 - *Kluyveromyces thermotolerans*
- 3029 - *Kockovaella thailandica*
  
- 3030 - *Trichosporon cutaneum*
- 3032 - *Cryptococcus curvatum*
- 3033 - *Candida tropicalis*
- 3034 - *Candida krusei*
- 3035 - *Candida kefyr*
- 3036 - *Candida utilis*
- 3037 - *Debaryomyces polymorphus*
  
- 3038 - *Kluyveromyces marxianus*

- 3040 - *Debaryomyces hansenii*  
3041 - *Pichia guilliermondii*  
3042 - *Pichia ohmeri*  
3043 - *Candida norvegensis*  
3044 - *Williopsis saturnus*  
3045 - *Pichia burtonii*  
3046 - *Rhodosporidium toruloides*  
3047 - *Zygosaccharomyces rouxii*  
3048 - *Lipomyces starkeyi*  
3049 - *Saccharomyces cerevisiae*
- 3050 - *Saccharomyces pastorianus*  
3051 - *Saccharomyces kluyveri*  
3052 - *Saccharomycopsis fibuligera*  
3053 - *Rhodotorula glutinis*  
3054 - *Schizosaccharomyces pombe*  
3055 - *Candida wicherhamii*  
3056 - *Saccharomyces cerevisiae*  
3057 - *Saccharomyces cerevisiae*  
3058 - *Saccharomyces cerevisiae*  
3059 - *Saccharomyces carlbergensis*
- 3060 - *Saccharomyces cerevisiae*  
3061 - *Kluyveromyces marxianus*  
3061 - *Kluyveromyces marxianus*

## VI. NUMERICAL INDEX FUNGI

- 6002 - *Aspergillus flavus*  
6004 - *Aspergillus oryzae*  
6007 - *Aspergillus sojee*  
6008 - *Monascus purpureus*
- 6010 - *Rhizopus oligosporus*  
6011 - *Rhizopus oryzae*  
6012 - *Trichoderma reesei*  
6013 - *Trichoderma viride*  
6015 - *Penidiilum roqueforti*  
6016 - *Penicilium pinophilum*  
6017 - *Penicillium funiculosum*  
6018 - *Aspergillus niger*  
6019 - *Penidihium roqueforti*
- 6021 - *Absidia corymbifera*  
6022 - *Absidia corymbifera*  
6023 - *Alternaria alternata*  
6024 - *Alternaria alternata*  
6025 - *Aspergillus candidus*  
6026 - *Aspergillus candidus*  
6029 - *Aspergillus japonicus* var. *acufeatus*  
6030 - *Aspergillus niger*
- 6033 - *Aspergillus parasiticus*  
6034 - *Aspergillus parasiticus*  
6036 - *Aspergillus restrictus*

6038 - *Aspergillus tamaris*  
6039 - *Aspergillus terreus*  
6040 - *Aspergillus terreus*  
6041 - *Aspergillus versicolor*  
6042 - *Aspergillus versicolor*  
6047 - *Curvularia lunata*  
6048 - *Curvularia lunata*  
6049 - *Eurotium chevalieri*  
6050 - *Eurotium chevalleri*

6051 - *Eurotium rubrum*  
6052 - *Eurotium rubrum*

6061 - *Mucor plumbeus*  
6062 - *Mucor plumbeus*  
6064 - *Penicillium crustosum*  
6065 - *Penicillium crustosum*  
6066 - *Penicillium citrinum*  
6068 - *Penicillium funiculosum*  
6069 - *Penicillium funiculosum*  
6070 - *Penicillium glabrum*  
6071 - *Penicillium glabrum*

6072 - *Penicillium oxalicum*  
6074 - *Penicillium pinophilum*  
6075 - *Penicillium pinophilum*  
6076 - *Rhizopus microsporus* var. *rhizopodiformis*  
6077 - *Rhizopus microsporus* var. *rhizopodiformis*

6080 - *Syncephalastrum racemosum*  
6081 - *Syncephalastrum racemosum*  
6089 - *Aspergillus niger*

6090 - *Penicillium purpurogenum*  
6093 - *Geomyces pannorum* var. *pannorum*  
6096 - *Aspergillus niger*  
6098 - *Penicillium citrinum*

6101 - *Neurospora sitophila*  
6102 - *Rhizomucor miehei*  
6103 - *Rhizomucor miehei*  
6104 - *Rhizomucor pusillus*  
6106 - *Aspergillus candidus*  
6107 - *Aspergillus flavus*  
6108 - *Aspergillus tamaris*  
6109 - *Aspergillus flavus*

6110 - *Penicillium citrinum*  
6111 - *Penicillium citrinum*  
6112 - *Penicillium citrinum*  
6113 - *Penicillium citrinum*  
6114 - *Aspergillus niger*  
6117 - *Penicillium camembertii*

6120 - *Aspergillus fumigatus*  
6121 - *Aspergillus fumigatus*  
6122 - *Aspergillus flavus*  
6123 - *Aspergillus fumigatus*

6125 - *Aspergillus terreus*  
6126 - *Aspergillus terreus*  
6127 - *Aspergillus fumigatus*

6132 - *Eurotium chevalieri*  
6133 - *Aspergillus flevus*  
6134 - *Aspergillus candidus*  
6135 - *Aspergillus candidus*

6140 - *Penicillium funiculosum*  
6142 - *Aspergillus oryzae*  
6146 - *Aspergillus flavus*  
6147 - *Aspergillus flavus*  
6148 - *Aspergillus flavus*

6151 - *Aspergillus oryzae*  
6153 - *Aspergillus tamaraii*  
6556 - *Aspergillus oryzae*  
6157 - *Rhizopus oryzae*

6165 - *Aspergillus perasiticus*  
6166 - *Aspergillus fumigatus*  
6167 - *Aspergillus tamaraii*  
6168 - *Aspergillus sojae*

6170 - *Aspergillus japonicus* var. *aculeatus*  
6171 - *Aspergillus awamori*  
6172 - *Aspergillus niger*  
6174 - *Aspergillus niger*  
6175 - *Aspergillus tamaraii*  
6176 - *Aspergillus tamerii*  
6177 - *Aspergillus flavus*  
6178 - *Aspergillus tamerii*  
6179 - *Aspergillus puniceus*

6180 - *Aspergillus tameri*  
6181 - *Aspergillus flavus*  
6183 - *Aspergillus flavus*  
6184 - *Aspergillus flavus*  
6185 - *Aspergillus niveus*  
6186 - *Aspergillus tamaraii*  
6187 - *Eurotium amstelodami*  
6188 - *Aspergius terreus*