List of bacteria and fungi used for fungus resistance testing or tested for biodegradation or bioremediation properties – check for additional isolates using PDF Catalogue or online Catalogue https://secure.devonian.ualberta.ca/uamh/searchcatalogue.php

Fungus resistance testing isolates

UAMH 7576 *Aspergillus brasiliensis* [formerly Aspergillus niger] Date Accessioned: 08-Jun-94

Isolation Data: wireless radio equipment New South Wales, Australia Weston, W. (S.N. 26)

Sender: NRRL NRRL 3536

Cross Ref. Nos.: ATCC 9642 = CBS 246.65 = IFO 6342 = IMI 91855 = NRRL A-5243 = QM 386 = DSM 63263 = Australian Mycol. Panel series 26 = IBT 28083 = GenBank DQ900597 ITS = GenBank DQ900607 Btub = GenBank DQ196204 ITS = GenBank FJ195349 ITS

Strain Characters: fungus resistance testing U.S. federal & military specifications (ASTM Std. G21-80): wood preservatives (Schmidt E & French DW. For. Prod. J. 29: 39-42, 1979): wax (Wax, impregnating, waterproofing, for laminated paper tubes for small arms ammunition. MIL W-10885B): cork (Treatment, fungus resistant, paranitrophenol, for cork products. MIL T-12664B): leather (Standard test method for mold growth resistance of blue stock (leather). ASTM D4576-86 (reapproved 1991)): varnish (Varnish, moisture-and-fungus resistant (for treatment of communications, electronic, and associated equipment). MIL V-173C): airborne equipment (Environmental conditions and test procedures for airborne equipment -- Fungus resistance. RTCA DO-160C): automotive parts (Fungus resistance test, automotive components. MIL F-13927A (AT)): electrical insulation (Insulation, electrical, synthetic-resin composition, nonrigid. MIL I-631D; Insulation sleeving, electrical, flexible. MIL I-7444D): adhesives (Standard test methods for resistance of adhesive preparations in container to attack by bacteria, yeast, and fungi. ASTM D4783-89; Standard test method for determining the rate of bioleaching of iron from pyrite by Thiobacillus ferrooxidans. ASTM E1357-90): polymers (Standard practice for determining resistance of synthetic polymeric materials to fungi. ASTM G21-90): ATCC 9642 listed on Environment Canada Domestic Substances List (http://www.ec.gc.ca/subsnouvelles-newsubs/default.asp?lang=En&n=C4E09AE7-1): Environmental test methods and engineering guidelines, Washington DC (Military Standard MIL-STD-810F, 2000). // Biodeteriogen/biodegradation plastics (Int. Biodet. Bull. 8:3-7, 1972): assay of wood preservative chemicals (For. Prod. J. 29:39-42, 1979). // Molecular systematics description of Aspergillus brasiliensis, a biseriate black Aspergillus (Varga J, Kocsube S, Toth B, Frisvad JC, Perrone G, Susca A, Meijer M. Samson RA, Int J Syst Evol Microbiol 57:1925-1932, 2007): fungus resistance testing strain orignally identified as Aspergillus niger.

Compounds: pullulan 4-glucanohydrolase, Arch. Biochem. Biophys. 153:180-187, 1972 (PubMed: 73091650)

glyoxalase I, J. Biochem. 102:583-589, 1987 (PubMed: 88115253)

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UAMH 7574 *Aspergillus flavus* Date Accessioned: 08-Jun-94

Isolation Data:	ex shoe sole New Guinea Weston, W. (NDRC S.N. 3)
Sender:	NRRL NRRL A-3537
Cross Ref. Nos.:	ATCC 9643 = CBS 131.61 = IFO 6343 = IMI 91856 = NRRL A-5244 = QM 380
Strain Characters:	fungus resistance testing U.S. federal and military specifications: Environmental test methods and engineering guidelines, Washington DC (Military Standard MIL-STD-810F, 2000). // Biodeteriogen/biodegradation assay of wood preservative chemicals (For. Prod. J. 29:39-42, 1979). // Pigment orange.
Compounds:	blasticidin S deaminase, J. Antibiot. (Tokyo) 28:7-14, 1975

UAMH 7575 *Aspergillus niger* Date Accessioned: 08-Jun-94

Isolation Data:	leather R. Steinberg
Sender:	NRRL NRRL 334
Cross Ref. Nos.:	ATCC 6275 = CBS 131.52 = IFO 6341 = IMI 45551 = QM 324 = QM 458 = WB 334
Strain Characters:	fungus resistance testing mildew resistance test for corrosion-resistant baking primer & water-based vinyl adhesive (Dev. Ind. Microbiol., 20:25-39, 1979): paper & paperboard (ASTM Std. D2020-76): Environmental test methods and engineering guidelines, Washington DC (Military Standard MIL-STD-810F, 2000). // Biodeteriogen/biodegradation sulfur bioassay (Acta Pathol. Microbiol. Scand. 71:333-338, 1967; Bot. Gaz. 126:120-123, 1965): degradation of apple distillery waste (Eur. J. Appl. Microbiol. Biotechnol. 17:243-247, 1983). // Pigment yellow.
Compounds:	citric acid (US Patent 4,040,906)

UAMH 7577 *Aspergillus versicolor* Date Accessioned: 08-Jun-94

Isolation Data:	ex cellophane India
Sender:	NRRL NRRL 20734
Cross Ref. Nos.:	ATCC 11730 = ATCC 16020 = CBS 245.65 = IFO 30338 = IMI 45554 = MUCL 19008 = DSM 63301 = DSM 1943 = GenBank EF524033 ITS = GenBank Tsr1 gene = GenBank JN121468 RPB2 = GenBank JN121614 RPB1 = GenBank JN121899 CCT8 gene
Strain Characters:	fungus resistance testing U.S., British and NATO military specifications: adhesives, airborne equipment, automotive components: Environmental test methods and engineering guidelines, Washington DC (Military Standard MIL-STD-810F, 2000).
Compounds:	acetyl-xylan esterase, Enzyme Microb. Technol. 12:127- 131, 1990

UAMH 7578 *Chaetomium globosum* Date Accessioned: 08-Jun-94

Isolation Data:	ex stored cotton District of Columbia, USA
Sender:	NRRL NRRL 1870
Cross Ref. Nos.:	ATCC 6205 = CBS 148.51 = IFO 6347 = IMI 45550
Strain Characters:	biodeteriogen/biodegradation testing of aerosols (J. Pharm. Sci. 55:1471-1472, 1966). // Fungus resistance testing paper & paperboard (ASTM Std.D2020-76): polymers (ASTM Std. G21-80): slimicide evaluation (ANSI/ASTM Std. E599-77): ATCC 6205 listed on Environment Canada Domestic Substances List (http://www.ec.gc.ca/subsnouvelles-newsubs/default.asp?lang=En&n=C4E09AE7-1): Environmental test methods and engineering guidelines, Washington DC (Military Standard MIL-STD-810F, 2000).
Compounds:	cellulase, beta-1,4-glucan-4-glucanohydrolase, Mater. Org. (Berl.) 7:27-43, 1972

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UAMH 7579 *Penicillium funiculosum* Date Accessioned: 08-Jun-94

Isolation Data: ex mercury treated fabric Maryland P.Marsh (BPI 66)
Sender: NRRL NRRL 3647
Cross Ref. Nos.: ATCC 11797 = NRRL A-1616 = NRRL A-622 = QM 474 = CBS 235.94 = BPI 66 = NBRC 100958
Strain Characters: fungus resistance testing U.S. military specifications: airborne equipment, automotive components, paint, polymers: Environmental test methods and engineering guidelines, Washington DC (Military Standard MIL-STD-810F, 2000).
Compounds: dextranase, Carbohyd. Res. 36:53-66, 1974, J. Dent. Res. 51:409, 1972
acid phosphatase with phosphodiesterase & phosphomonoesterase activity, J. Biochem. 105:794-798, 1989

UAMH 4158 *Trichoderma reesei* Date Accessioned: 03-Oct-78

Type *Trichoderma reesei*
Isolation Data: cotton duck shelter Solomon Islands Weston, W.H. & White, W.L. 1944
Sender: Davies, S.
Cross Ref. Nos.: QM 6a = ATCC 13631 = CBS 383.78 = IMI 192654 = IMI 45548 = BCRC 31640 = CCFC 2589 = CBS 819.91 = DAOM 167654 = DSM 768 = FRR 4517 = IFO 31326 = IHEM 5651 = IMI 345107 = JCM 22676 = GenBank HM182994 chitinase gene = NBRC 31326 = GenBank GQ354321 LAS1 gene = GenBank HM182969 RPB2 = GenBank EF563987 = GenBank AM168137 = GenBank AF414296 ITS = GenBank AF510497 ITS = GenBank AF127154 28S = GenBank AF414296 ITS as BCRC 32891 = GenBank NC_003388 Ref seq = GenBank NC_003388 mitochondrion complete genome = GenBank PRJNA225530
Strain Characters: pigment yellow (fide UAMH 2011). // Fungus resistance testing plastics: U.S. federal and military specifications. // Molecular systematics genome sequencing of the biomass-degrading fungus Trichoderma reesei (syn Hypocrea jecorina) (Martinez D, Berka RM, Henrissat B, Saloheimo M, Arvas M et al, Nat Biotechnol 26:553-560, 2008). // Biodeteriogen/biodegradation main industrial source of cellulases and hemicellulases used to depolymerize biomass to simple sugars that are converted to biofuels such as ethanol (Martinez et al 2008): numerous genes encode biosynthetic pathways for secondary metabolites (Martinez et al 2008).
Compounds: glucose by enzymatic hydrolysis of cellulose, Appl. Microbiol. 16:419-420, 1968
cellulase, J. Bact. 79:816-826, 1960
beta-(1,3)-D-glucanase, C.R. Acad. Sci. 283D:1397-1399, 1977
endoglucanase
cell-wall lytic enzymes
glucose D-glucose

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Biodegradation or bioremediation organisms: Bacterium

UAMH 11620 *Pseudomonas fluorescens* Date Accessioned: 07-Dec-11

Isolation Data: ex petroleum-contaminated soil, growth temperature range <4C to 35C Lodgepole, Alta. J. Foght 1983

Sender: Foght, J. LP6a

Cross Ref. Nos.: cLP6a

Strain Characters: biodeteriogen/biodegradation oil spill bioremediation agent efficacy tests: utilizes polycyclic aromatic hydrocarbons as a carbon source as well as conventional organic substrates (e.g. glucose, acetate) (Foght JM, Report EE-164 Environmental Protection Service, Environment Canada, ON, 1999): polycyclic aromatic hydrocarbon degrading bacterium (Adebusuyi AA, Foght JM, Appl Microbiol Biotechnol Epub Sep 2012; Adebusuyi AA, Smith AY, Gra MR, Foght JM, Appl Microbiol Biotechnol 95:757-766, 2012; Foght JM, Westlake DWS, Can. J. Microbiol. 37:924-932, 1991; Foght JM, Westlake DWS, Biodegradation 7:353-366, 1996; Adebusuyi AA, Foght JM, BMC Microbiol 11:252, 2011; Bugg T, Foght JM, Pickard MA, Gray MR, Appl Environ Microbiol 66:5387-5392, 2000; Hearn EM, Gray MR, Foght JM, J Bacteriol 188(1):115-23, 2006; Hearn EM, Dennis JJ, Gray MR, Foght JM, J Bacteriol. 185(21):6233-6240, 2003): mechanisms for adhesion to an oil-water interface (Abbasnezhad H, Gray MR, Foght JM, Colloids and Surfaces B: Biointerfaces 62:36-41, 2008): adhesion to the hydrocarbon phase increases phenanthrene degradation (Abbasnezhad H, Foght JM, Gray MR, Biodegradation 22:485-496, 2011). // Application testing of polycyclic aromatic hydrocarbon degrading bacterium in commercial freshwater oil spill bioremediation (Foght JM, Semple K, Westlake DWS, Blenkinsopp S, Sergy G, Wang Z, Fingas M. J. Ind. Microbiol. Biotechnol. 21:322-330, 1998): stabilization of oil/water emulsions by hydrophobic bacteria (Dorobantu LS, Yeung AKC, Foght JM, Gray MR, 70:6333-6336, 2004).

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Basidiomycete fungi

UAMH 4312 *Bjerkandera adusta* Date Accessioned: 22-Jul-80

Isolation Data: air sampling in house for allergenic molds
Sender: Kane, J. FR 826
Strain Characters: application metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999).

UAMH 7308 *Bjerkandera adusta* Date Accessioned: 02-Mar-93

Isolation Data: ex Populus tremuloides (aspen poplar) Hinton, Alta. L. Kennedy 1956
Sender: Hutchison, L. NOF 333
Cross Ref. Nos.: ATCC MYA 263
Strain Characters: biodeteriogen/biodegradation white rot: high biodegradation and mineralization of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998): evaluation of surfactants in stimulating degradation of polycholorinated biphenyl congeners (Beaudette et al., Letters in Appl. Microbiol. 30:155-160, 2000). // Application enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): ligninolytic enzymes (Pickard et al., Can. J. Microbiol. 45:627-631, 1999; Meysami P, Baheri H, Advances in Environmental Research 7:881-887, 2003): pesticide depletion by lignolytic fungi (Torres-Duarte C, Roman R, Tinoco R, Vazquez-Duhalt R, Chemosphere 77:687-692, 2009): high yields of enzyme manganese peroxidase (Wang, Vazquez-Duhalt & Pickard, Can. J. Microbiol. 47:277-282, 2001). // Culture conditions cereal bran for laccase production (Pickard et al., Can. J. Microbiol. 45:627-631, 1999).
Compounds: manganese peroxidase, good production fide M. Pickard

UAMH 8258 *Bjerkandera adusta* Date Accessioned: 23-Nov-95

Isolation Data: Alberta L.L. Kennedy (94014)
Sender: Davies, S. FC-033
Cross Ref. Nos.: ATCC MYA 264 = GenBank DQ060037 versatile peroxidase mRNA
Strain Characters: biodeteriogen/biodegradation white rot: high biodegradation and mineralization of polychlorinated biphenyl congeneners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998). // Cellulolytic. // Application metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999; Wang, Vazquez-Duhalt & Pickard, Can. J. Microbiol. 49:675-682, 2003): enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999; Hernández-Luna CE, Gutiérrez-Soto G, Salcedo-Martínez SM. World Journal of Microbiology & Biotechnology 24:465-473, 2008): high manganese peroxidase & other ligninolytic enzymes (Pickard et al., Can. J. Microbiol. 45:627-631, 1999):

Continued next page

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UAMH 8258 cont. high yields of enzyme manganes peroxidase: peroxidases (Pogni R, Baratto MC, Giansanti, S, et al, Biochemistry 44:4267-74, 2005): pesticide depletion by lignolytic fungi (Torres-Duarte C, Roman R, Tinoco R, Vazquez-Duhalt R, Chemosphere 77:687-692, 2009): laccase production (Dantán-González E, Vite-Vallejo O, Martínez-Anaya C, Méndez-Sánchez M, et al, International Microbiology 11:163-169, 2008): transformation of pesticides with purified versatile peroxidase (Vazquez G, Tinoco R, Picard MA, Vazquez-Duhult R, Enzyme and Microbioal Technol 36:223-231, 2005): ligninolytic enzymes (Meysami P, Baheri H, Advances in Environmental Research 7:881-887, 2003): loosenin, a novel protein with cellulose-disrupting activity (Quiroz-Castañeda RE, Martínez-Anaya C, Cuervo-Soto LI, Segovia L, Folch-Mallol JL. Microbial Cell Factories 10:8-16, 2011): production of cellulases and xylanases (Quiroz-Castañeda RE, Pérez-Mejía N, Martínez-Anaya C, Acosta-Urdapilleta L, Folch-Mallol J. Biodegredation 2010, Epub 11 Oct 2010). // Culture conditions cereal bran for laccase production (Pickard et al., Can. J. Microbiol. 45:627-631, 1999): cellulolytic activities on solid wheat straw medium (Quiroz-Castañeda RE, Balkcázar-López E, Dantán-González E, Martinez A, et al, E Journ Biotechnol [online] Oct 15, 2009, vol. 12(4)).

Compounds: manganese peroxidase, good production fide M. Pickard

UAMH 10067 *Coprinopsis cinerea* Date Accessioned: 14-Sep-01

Isolation Data: urea amended soil Alberta A. Suzuki 2001

Sender: Suzuki, A. 043UA

Strain Characters: biodeteriogen/biodegradation ammonia fungus (fide A. Suzuki): treatment of methane and swine slurry by biofiltration (Girard M, Viens P, Ramirez AA, Brzezinski R, Buelna G, Heitz M, J Chem Technol Biotechnol 87:697-704, 2012). // Culture conditions clamps, no arthroconidia, sclerotia: produces basidiocarps on OAT. // Biodiversity urea amended soil. // Molecular systematics Blast match 99% ITS similarity to Coprinopsis cinerea (fide UAMH 2011). // Application extracellular peroxidase production: role of peroxidases in remediation of organopollutants (Husain Q , Husain M , Kulshrestha Y, Critical Reviews in Biotechnology 29:94-119, 2009).

UAMH 4103 *Coprinopsis cinerea* Date Accessioned: 21-Mar-78

Isolation Data: beet seed Birmingham Butler Apr 1973

Sender: Watling, R. P/04 NAS mono

Strain Characters: biodeteriogen/biodegradation high levels of extracellular peroxidase effective for removal of aqueous phenol (Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002): role of peroxidases in remediation of organopollutants (Husain Q , Husain M , Kulshrestha Y, Critical Reviews in Biotechnology 29:94-119, 2009).

Compounds: extracellular peroxidase, Ikehata K, Buchanan ID, Smith DW, Can J Micobiol 50:57-60, 2004, Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002

UAMH 7907 *Coprinopsis cinerea* Date Accessioned: 03-Apr-95

Isolation Data: ex air, municipal landfill site Sosnowiec, Poland K. Ulfig 11 Oct 1993

Sender: Ulfig, K. IEIA 511

Strain Characters: molecular systematics RFLP of ribosomal & mitochondrial DNA (Gene et al., Ant. v. Leeuw. 70:49-57, 1996). // Biodeteriogen/biodegradation high levels of extracellular peroxidase effective for removal of aqueous phenol (Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002).

Compounds: extracellular peroxidase, Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002

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UAMH 7499 *Coprinopsis lagopus* Date Accessioned: 04-Feb-94

Isolation Data: ex basidiospores from fruiting body on woodchip trail Devonian Botanic Garden, Devon, Alta. S.P. Abbott (SA 893) 16 Aug 1993

Strain Characters: pigment amber. // Biodeteriogen/biodegradation produces extracellular peroxidase effective for removal of aqueous phenol (Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002).

Compounds: extracellular peroxidase, Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002

UAMH 10065 *Coprinus sp.* Date Accessioned: 14-Sep-01

Isolation Data: urea amended soil Alberta A. Suzuki 2001

Sender: Suzuki, A. 074UA

Strain Characters: culture conditions fruits in culture: clamps, no arthroconidia. // Biodeteriogen/biodegradation ammonia fungus (fide A. Suzuki). // Biodiversity urea amended soil. // Application extracellular peroxidase production.

UAMH 10066 *Coprinus sp.* Date Accessioned: 14-Sep-01

Isolation Data: urea amended soil Alberta A. Suzuki 2001

Sender: Suzuki, A. 018UA

Strain Characters: biodeteriogen/biodegradation ammonia fungus (fide A. Suzuki). // Culture conditions fruits in culture: clamps, no arthroconidia. // Biodiversity urea amended soil. // Application extracellular peroxidase production.

UAMH 358 *Coprinus sp.* Date Accessioned: 14-Mar-55

Isolation Data: ex stool Edmonton, Alta. Carmichael, J.W. 1955

Strain Characters: biodeteriogen/biodegradation produces extracellular peroxidase effective for removal of aqueous phenol (Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002).

Compounds: extracellular peroxidase, Ikehata & Buchanan, Environmental Technology 23:1355-1367, 2002

UAMH 8260 *Coriolopsis gallica* Date Accessioned: 23-Nov-95

Isolation Data: aspen (Populus tremuloides) Alberta R.J. Bourchier 30-Jul-1954

Sender: Davies, S. FC-161

Cross Ref. Nos.: NOF 138 = ATCC MYA 265

Strain Characters: biodeteriogen/biodegradation white rot. // Application ligninolytic enzymes (Pickard et al., Can. J. Microbiol. 45:627-631, 1999): metabolism of polycyclic aromatic hydrocarbons & oxidation by laccase (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001; Torres-Duarte C, Roman R, Tinoco R, Vazquez-Duhalt R, Chemosphere 77:687-692, 2009; Torres-Duarte C et al 2009; Hildén K, Hakala TK, Lundell T. Biotechnology Letters 31:1117-1128, 2009): pesticide depletion by lignolytic fungi (Torres-Duarte C, Roman R, Tinoco R, Vazquez-Duhalt R, Chemosphere 77:687-692, 2009): direct electron transfer of laccase to improve enzymatic biofuel cell (Martinez-Ortiz J, Flores R, Vazquez-Duhalt R, Biosens Bioelectron 26(5):2626-2631, 2011). // Culture conditions cereal bran for laccase production (Pickard et al., Can. J. Microbiol. 45:627-631, 1999).

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UAMH 8168 *Ganoderma applanatum* Date Accessioned: 23-Aug-95
Isolation Data: Alberta L.L. Kennedy (KW62a)
Sender: Davies, S. FC-043
Strain Characters: biodeteriogen/biodegradation white rot. // Application metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999). // Culture conditions clamps.

UAMH 7964 *Pleurotus ostreatus* Date Accessioned: 07-Jun-95
Isolation Data: cultivated edible mushroom from Weijer (#4) Slovakia
Sender: Davies, S. FC-260
Strain Characters: edible oyster mushroom. // Biodeteriogen/biodegradation high biodegradation and mineralization of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998). // Application metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999).

UAMH 7972 *Pleurotus ostreatus* Date Accessioned: 07-Jun-95
Isolation Data: cultivated edible mushroom from Weijer (#67) Belmondo
Sender: Davies, S. FC-275
Strain Characters: edible oyster mushroom. // Biodeteriogen/biodegradation high degradation of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998). // Application enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001): pesticide depletion by lignolytic fungi (Torres-Duarte C, Roman R, Tinoco R, Vazquez-Duhalt R, Chemosphere 77:687-692, 2009).

UAMH 7980 *Pleurotus ostreatus* Date Accessioned: 07-Jun-95
Isolation Data: cultivated edible mushroom from Weijer (#94) Zadrazil
Sender: Davies, S. FC-285
Strain Characters: edible oyster mushroom. // Application metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001).

UAMH 7988 *Pleurotus ostreatus* Date Accessioned: 07-Jun-95
Isolation Data: cultivated edible mushroom from Weijer (#139)
Sender: Davies, S. FC-297
Strain Characters: edible oyster mushroom. // Biodeteriogen/biodegradation high biodegradation of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998). // Application enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001).

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UAMH 7988 *Pleurotus ostreatus* Date Accessioned: 07-Jun-95

Isolation Data: cultivated edible mushroom from Weijer (#139)
Sender: Davies, S. FC-297
Strain Characters: edible oyster mushroom. // Biodeteriogen/biodegradation high biodegradation of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998). // Application enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001).

UAMH 7992 *Pleurotus pulmonarius* Date Accessioned: 07-Jun-95

Isolation Data:
Sender: Davies, S. FC-304
Strain Characters: edible mushroom. // Biodeteriogen/biodegradation high biodegradation of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998). // Application enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001). // Culture conditions clamp connections (fide UAMH 2013).

UAMH 4521 *Sporotrichum pruinosum* Date Accessioned: 01-Mar-82

Type *Sporotrichum pulverulentum*
Isolation Data: grape fruit & petiole (Vitis vinifera) A.U.C of Micro-Org., Alma-Ata, Kazachstan, USSR T.I. Novobranova 1968
Sender: Burdsall, H. BKM-F-1767
Cross Ref. Nos.: IMI 174727 = ATCC 24725 = CBS 481.73 = QM 9998 = NRRL 6361 = CCRC 36200 = GenBank L18991 = MUCL 19343

Strain Characters: biodeteriogen/biodegradation pine and straw alkali lignins (Eur. J. Appl. Microbiol. Biotechnol. 14: 174-181, 1982): lignin (FEMS Microbiol.Lett. 29: 37-41, 1985; Appl. Environ. Microbiol. 60: 4509-4516, 1994): pulp and paper-mill wastewater (Biotechnol. Lett. 12: 869-872, 1990; J. Biotechnol. 24: 267-275, 1992): olive-mill wastewater (Appl. Microbiol. Biotechnol. 37: 813-817, 1992): fluorene in soil (Biotechnol. Bioeng. 33: 1306-1310, 1989): veratryl alcohol and its methyl ether by lignin peroxidase (Biochemistry 28: 1776-1783, 1989): o-chlorophenol (Water Res. 24: 75-82, 1990; Hazard., Waste & Hazard. Mater. 9: 213-229, 1992): pentachlorophenol (Biotechnol. Bioeng. 35:1125-1134, 1990; Appl. Environ. Microbiol. 54: 2885-2889, 1988): 2,4,6-trichlorophenol (Appl. Environ. Microbiol. 60: 1711-1718, 1994; Biotechnol. Bioeng. 46: 599-609, 1995): 2,4,5-trichlorophenol (Biotechnol. Bioeng. 46: 599-609, 1995): 2,4,5-trichlorophenoxyacetic acid (Appl. Microbiol. Biotechnol. 31: 302-307, 1989): lindane (Pestic. Sci. 47: 51-59, 1996): aldrin, chlordane, dieldrin, heptachlor, lindane, and mirex (Appl. Environ. Microbiol. 56:2347-2353, 1990): DDT (Appl. Environ. Microbiol. 53: 2001-2008, 1987): Acid Yellow 9 and other azo dyes (Appl. Environ. Microbiol. 58:3605-3613, 1992): Amaranth, Azure B, and Orange G (World J. Microbiol. Biotechnol. 10: 556-559, 1994): azo dyes (World J. Microbiol. Biotechnol. 8: 309-312, 1992; Appl. Environ. Microbiol. 58: 3598-3604, 1992): sulfanilic acid (Appl. Environ. Microbiol. 58: 3598-3604, 1992): phenanthrene and other polycyclic aromatic hydrocarbons (Appl. Environ. Microbiol. 55: 154-158, 1989; Appl. Environ. Microbiol. 58:3000-3006, 1992): benzene, ethylbenzene, toluene and xylene

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UAMH 4521 (cont.) (Appl. Environ. Microbiol. 59: 756-762, 1993): Azure B, Congo Red, Tropaeolin O, and Orange II (Appl. Environ. Microbiol. 56: 1114-1118, 1990): trinitrotoluene. TNT (Appl. Environ. Microbiol. 56: 1666-1671,1990; Curr. Microbiol. 28: 185-190, 1994; Appl. Biochem. Biotechnol. 34/35: 709-723, 1992): cyclotrimethylene trinitramine (=RDX) (Appl. Biochem. Biotechnol. 34/35: 709-723, 1992): biphenyl and polychlorinated biphenyls (Biotechnol. Bioeng. 40: 1395-1402, 1992): Rose Bengal (Lett. Appl. Microbiol. 14: 58-60, 1992): DDE (=1,1-dichloro-2,2-bis(4-chlorophenyl)ethene) (Mycol. Res. 97:95-98, 1993; FEMS Microbiol. Lett. 94: 209-216, 1992): 3,4-dichloroaniline and benzo(a)pyrene (Soil Biol. Biochem. 25:279-287, 1993): atrazine (Soil Biol. Biochem. 26: 1665-1671, 1994; Appl. Environ. Microbiol. 60: 705-708, 1994): creosote (Appl. Environ. Microbiol. 61: 2631-2635, 1995): cellobiohydrolase genes (Curr. Genet. 22: 407-413, 1992): white rot: low biodegradation and mineralization of polycholorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998): evaluation of surfactants in stimulating degradation of polycholorinated biphenyl congeners (Beaudette et al., Letters in Appl. Microbiol. 30:155-160, 2000): treatment of methane and swine slurry by biofiltration (Girard M, Viens P, Ramirez AA, Brzezinski R, Buelna G, Heitz M, J Chem Technol Biotechnol 87:697-704, 2012). // Application Decolorization of textile-industry wastewater (Biotechnol. Lett. 17: 761-764, 1995): ligninolytic enzymes (Pickard et al., Can. J. Microbiol. 45:627-631, 1999): metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): oxidation of dibenzyl sulfide to dibenzyl sulfoxide (van Hamme JD, Wong ET, Dettman H, Gray MR, Pickard MA, Appl. Env. Microbiol. 69:1320-1324, 2003). // Benomyl resistant (Environ. Sci. Technol. 25: 1329-1333, 1991). // Culture conditions UV (Environ. Sci. Technol. 25: 1329-1333, 1991). // Molecular systematics glyoxal oxidase cDNA (Proc. Natl. Acad. Sci. USA 90: 7411-7413, 1993): Concordia Univ Fungal Genomics Project (https://fungalgenomics.concordia.ca/fungi/Pchr.php): identification of fungal enzymes for industrial and environmental applications (https://fungalgenomics.concordia.ca/home/index.php). // Thermotolerant.

Compounds: ligninase and peroxidase, J. Biotechnol. 2: 379-382, 1985
lignin peroxidase and manganese peroxidase, FEMS Microbiol. Rev. 13: 125-135, 1994
glyoxal oxidase, J. Bacteriol. 169: 2195-2201, 1987, Proc. Natl. Acad. Sci. USA 87: 2936-2940, 1990
lignin peroxidase, Bio-Technology 6:571-573, 1988, Enzyme Microb. Technol. 11: 322-328, 1989, Arch. Biochem. Biophys. 279: 158-166, 1990, Acta Biotechnol. 12: 191-201, 1992
extracellular peroxidase, FEMS Microbiol. Lett. 29: 37-41,1985, J. Biol. Chem. 262: 419-424, 1987
N-(chlorophenyl)-succinimides, Pestic. Biochem. Physiol. 27: 173-181, 1987
NADH:quinone oxidoreductase, J. Gen. Microbiol. 137: 2209-2214, 1991
aryl-alcohol dehydrogenase, Eur. J. Biochem. 195: 369-375, 1991
xylanase, Appl. Environ. Microbiol. 58: 3466-3471, 1992
cellobiose:quinone oxidoreductase, Biochim. Biophys. Acta 1119: 90-96, 1992
coal-solubilizing agents, Biodegradation 5: 55-62, 1994

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UAMH 8272 *Trametes versicolor* Date Accessioned: 23-Nov-95

Isolation Data: Alberta L.L. Kennedy (K101-D)
Sender: Davies, S. FC-051
Strain Characters: biodeteriogen/biodegradation white rot: high biodegradation and mineralization of polychlorinated biphenyl congeners (Beaudette et al., Appl. Env. Microbiol. 64:2020-2025, 1998): evaluation of surfactants in stimulating degradation of polycholorinated biphenyl congeners (Beaudette et al., Letters in Appl. Microbiol. 30:155-160, 2000). // Application ligninolytic enzymes (Pickard et al., Can. J. Microbiol. 45:627-631, 1999): metabolism of polycyclic aromatic hydrocarbons (Pickard et al., Applied Env. Microbiol. 65:3805-3809, 1999): enzymatic activity & dye decolorization (Rodriguez et al., Curr. Microbiol. 38:27-32, 1999): laccase activity (Tinoco, Pickard & Vazquez-Duhalt, Lett. App. Microbiol. 32:331-335, 2001; Fujihiro S, Higuchi R, Hisamatsu S, Sonoki S. Applied Microbiol Biotechnol 82:853-860, 2009): pesticide depletion by lignolytic fungi (Torres-Duarte C, Roman R, Tinoco R, Vazquez-Duhalt R, Chemosphere 77:687-692, 2009): evaluation of white rot fungi for bioremediation of waste water (Robles-Vargas D, Montoya-Castillo SM, Avelar-Gonzalez FJ, et al, J Environ Sci Health A Tox Hazard Subst Environ Eng 47:589-597, 2012). // Culture conditions cereal bran for laccase production (Pickard et al., Can. J. Microbiol. 45:627-631, 1999).

Zygomycete fungi

UAMH 7369 *Cunninghamella elegans* Date Accessioned: 20-Jul-93

Isolation Data: crude oil North Carolina J. Perry
Sender: Pasutto, F.
Cross Ref. Nos.: ATCC 26269
Strain Characters: biodeteriogen/biodegradation degrades paraffinic hydrocarbons (J. Gen. Appl. Microbiol. 19:151-153, 1973): degrades naphthalene (Appl. Environ. Microbiol. 34:363-370, 1977): degrades polycyclic aromatic compounds (Xenobiotica 16: 733-741, 1986; Int. Biodeterior. Biodegrad. 35: 397-408, 1995): enantioselective reduction of acetylmethylphenylsilane (Biotechnol. Lett. 10:731-736, 1988): reduction of 4-chloro-1-(4-fluorophenyl)butan-1-one (Biotechnol. Appl. Biochem. 17: 139-153, 1993): treatment of methane and swine slurry by biofiltration (Girard M, Viens P, Ramirez AA, Brzezinski R, Buelna G, Heitz M, J Chem Technol Biotechnol 87:697-704, 2012).

Ascomycete fungi

UAMH 4503 *Amorphotheca resinae* Date Accessioned: 25-Jan-82

Isolation Data: jet fuel J.J. Cooney (UD-43)
Sender: Collinson, K.
Cross Ref. Nos.: ATCC 22712
Strain Characters: biodeteriogen/biodegradation utilizes hydrocarbons (Appl. Microbiol. 13:823-824, 1965).

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UAMH 4504 *Amorphotheca resinae* Date Accessioned: 25-Jan-82

Isolation Data:	jet fuel J.E. Sheridan (52-73)
Sender:	Collinson, K.
Cross Ref. Nos.:	ATCC 32945
Strain Characters:	biodeteriogen/biodegradation utilizes hydrocarbons (Int. Biodet. Bull. 10:105-108, 1974).

UAMH 4003 *Beauveria bassiana* Date Accessioned: 24-Apr-85

Isolation Data:	muskeg soil Ft. Good Hope, N.W.T. S. Davies 1976
Sender:	Davies, S. H-52-F
Strain Characters:	biodeteriogen/biodegradation utilizes hydrocarbons (crude oil) (Davies & Westlake, Can. J. Microbiol. 25:146-156, 1979).

UAMH 3972 *Scolecobasidium obovatum* Date Accessioned: 12-May-76[ID?]

Isolation Data:	soil under asphalt Edmonton, Alta. S. Davies (H-37-F) Feb 1976
Sender:	Davies, S. H-37-F
Cross Ref. Nos.:	ATCC 38655
Strain Characters:	biodeteriogen/biodegradation degradation of hydrocarbons in crude oil (Davies & Westlake, Can. J. Microbiol. 25:146-156, 1979).

UAMH 4002 *Tolypocladium inflatum* Date Accessioned: 04-Aug-76

Isolation Data:	muskeg soil Tuktoyaktuk, NWT S. Davies (H-46-F) 1976
Sender:	Davies, S. H-46-F
Cross Ref. Nos.:	ATCC 38656
Strain Characters:	biodeteriogen/biodegradation utilization of aliphatic hydrocarbons (Davies & Westlake, Can. J. Microbiol. 25:146-156, 1979). // Application 4002A single conidial isolate, high cyclosporin producer fide Isaac et al (Isaac et al, Antimicrob. Agents Chemother. 34:121-127, 1990).
Compounds:	cyclosporin, Isaac et al, Antimicrobial. Agents Chemother. 34:121-127, 1990

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