# Canadian Phycological Culture Centre (CPCC)
# (Formerly UTCC)

## List of Cultures, November 20, 2013

## Notes on the List of Cultures

### Explanation of Strain Data

Cultures are listed alphabetically by genus and species and the corresponding information available for each isolate is provided as follows:

CPCC number, depositor, isolator, origin and date of isolation, remarks (Rem:). In the remarks, the code "A" indicates an axenic culture, "B" means the culture may contain bacteria, "F" means the culture currently has a fungal contaminant. Please note that the contamination status of any strain may change. Current status is best obtained from the Technical Curator. The majority of strains are maintained in liquid culture. Some are maintained on agar slants and/or plates and may be ordered either on agar slants or in liquid medium. “L” means the culture is in liquid, “S” means the culture is on solid medium (plate or agar slant). This information may not be up-to-date, so please contact the Technical Curator for current information. Remarks may also include information on ecology, special culture requirements, toxicity, tolerance to heavy metals; a.k.a. = also known as.

Some of the cultures in CPCC are derived from cultures that are also held in the following collections and this information is noted for each culture.

### Abbreviations of Contributing Culture Collections

ATCC = American Type Culture Collection, Rockville, Maryland, U.S.A.
CAUP = Culture Collection of Algae, Charles University, Praha, Czechoslovakia
CCAP = Culture Collection of Algae and Protozoa, Ambleside, Cumbria, U.K.
CGC = Chlamydomonas Genetics Center, Duke University, Durham, NC, USA
CCCM = Canadian Centre for Culture of Microorganisms, UBC, Vancouver, BC (combines NEPCC and the FCC of UBC)
CCMP = Provasoli- Guillard Center for Culture of Marine Phytoplankton, Bigelow Laboratory for Ocean Sciences, West Boothbay Harbor, Maine, USA
CRHGY = Centre de Recherche Hydrobiologie de Gif-sur-Yvette, France
IAM = Institute of Applied Microbiology, University of Tokyo, Tokyo, Japan
LCACC = Loras Culture Collection of Algae, Loras College, Dubuque, IA, USA
NEPCC = Northeast Pacific Culture Collection, UBC, Vancouver, B.C., Canada
NIVA = Norwegian Institute for Water Research, Oslo, Norway
PCC = Pasteur Collection of Cyanobacterial Strains, Institut Pasteur, Paris, France
SAG = Sammlung von Algenkulturen der Universitat Gottingen, Germany
UTEX = University of Texas Culture Collection, University of Texas at Austin, Austin, TX, U.S.A.
UWO = University of Western Ontario Culture Collection, London, ON, Canada
UWOCC = University of Wisconsin Oshkosh Culture Collection, Oshkosh, WI, USA

**The Identity of CPCC Strains**

Each strain is assigned a unique number, which will never change. It is possible that a new genus and species name may, however be assigned as taxonomic studies reveal a new identity for a particular strain. The name given to the culture by the depositor is listed here and alterations are made at the request of the depositor or when publications that are accepted by the scientific community require a change in name. Please use both the CPCC number and species name when requesting cultures and in publications to ensure that the material is correctly identified.

As the CPCC does not have the resources to perform taxonomic studies on all of our strains we welcome investigators in this field to examine any of the cultures at no cost to them. Any subsequent information will be acknowledged and the species names modified accordingly.

**CPCC Strains cited in Publications**

**Please inform us of any publications arising from the use of our cultures and where possible supply us with a reprint. The CPCC strain number and species name must be used in your publications (e.g., CPCC 102 *Synechococcus leopoliensis*) in order to avoid subsequent confusion over the source and identification of the material. Your co-operation in this regard is vital to CPCC as we are creating a data bank of information on the cultures in the CPCC; this information may also be used by potential granting agencies to evaluate proposals for funding.**

## Isolates of Algae and Cyanobacteria

***Amphiprora paludosa*** W. Smith

**662** Isolated by Kay Chen at UTCC, Jul-2005. Collected May-2005 from nearshore water in Bras D'Or Lake, Cape Breton, Nova Scotia, Canada. Rem: LB, grows well in f/2 with artificial sea water base at 18 C.

***Amphora coffeaeformis*** Ag.

**58** See ***Halamphora coffeaeformis***

***Anabaena flos-aquae*** (Lyng.) Breb.

**64** Deposited by C. Ewing in 1987. Isolated by C. Ewing in 1984 from Lake Ontario, ON, Canada. Rem: LSB; produces microcystins (David Bird (UQAM) and Sharon Danielsen (NYSDOH)) and possibly low levels of anatoxin-a; presence of mcyB (not mcyA) operon confirmed by S. Watson using ELISA; O. Kutovaya confirmed the presence of geosmin synthase gene although geosmin production not detected; species name uncertain (i.e., tentatively identified by H. Kling as *Trichornum variabilis*; aka *Anabaena variabilis*).

**67** Deposited by B. Colman 1987 as UTEX 1444. Rem: A; ecotoxicity test strain.

***Anabaena sphaerica*** Born. et Flah.

**437** Isolated Jun-1997 by J. Acreman from Lake Biwa, Japan. Identified by H. Kling. Rem: LB

***Anabaena spiroides*** Klebahn

**68** Deposited by B. Colman 1987 as UTEX 1552. Rem: B

***Anabaena variabilis*** Kutz.

**64** See ***Anabaena flos-aquae***

**105** Deposited by J. Coleman 1987 as ATCC 29413 (=UTEX 1444 *A. flos-aquae*, PCC 7937 *Nostoc* sp.). Rem: A

***Anabaena* sp.**

**387** Also see ***Nostoc* sp**. Deposited by J. Coleman, Feb-1995 as PCC 7120 *Nostoc* sp. Cluster 3. Rem: A

**426** Isolated by J. Acreman, Jun-1996. Collected from Lake Biwa, Japan. Rem: LBF

**427** Isolated by J. Acreman, Jun-1996. Collected from Lake Biwa, Japan. Rem: LBF

**543** Deposited 7-Jul-2001 by UTEX as UTEX LB 2383 *Anabaena flos-aquae*. Isolated by P. Gorham from Burton Lake, Saskatchewan, Canada and deposited in UTEX 4/84 as NRC-44h. Also in CCAP as 1403/21. Rem: LB; BG-11, WC(ed), or CHU-10 (pH 8.5) medium; may produce anatoxin-a (Gorham et al 1964) but Health Canada was unable to confirm the presence of anatoxin-a; possibly *Schizothrix* sp as per Wayne Carmichael.

**544** Isolated by M. Khayatian at CPCC Dec-2001 from a tank of *Salvinia* plants used in BIO 150 labs at University of Toronto, Canada. Rem: LB; BG-11 medium; produces microcystins (Sharon Danielsen (NYSDOH)); needs further quantitative testing.

**631** Collected by Lewis Molot from Lake 227, Experimental Lakes Area (ELA), Winnipeg, MB, Canada. Isolated Jan-2005 by K. Chen at UTCC. Rem: LB; BBM medium at 20 C; identification uncertain: possibly *Aphanizomenon schindlerii*.

**689** Collected Oct-2005 from Bay of Quinte, ON, Canada by A. Chhun. Preliminary isolation by A. Chhun; purified by J. Acreman, Dec-2006. Rem: BBM medium at 20-25 C.

***Anabaenopsis* sp.**

**523** Isolated by J. Acreman, Dec-2000. Collected from Pakowki Lake (small coolie lake that dries up in summer), AB, Canada. Rem: LB

***Ankistrodesmus convolutus*** Corda

**309** Received 1993 from CCAP as 202/10H. Isolated in 1952 by Weis, New Haven, Connecticut, USA. Rem: A; toxicity test organism; food source for other organisms.

***Ankistrodesmus braunii*** (Nageli) Collins

**668** Deposited by L. Hendzel 29-Sep-2006 as FWI #18. Collected, isolated, and identified by F.P. Healey, Mar-1970. Collected from a roadside ditch, South-East of Austin, TX, USA. Rem: LB; modified WC medium.

***Ankistrodesmus falcatus*** (Corda) Ralfs

**63** Deposited in 1987 by C. Ewing. Isolated from Lake Ontario, ON, Canada in 1984 by C. Ewing. Rem: B

**287** Isolated by J. Acreman, Boucher Lake, Sudbury, ON, Canada, Aug-1992. Rem: LB

**366** Isolated by J. Pawlikowski, May-1994 from Point Pelee Park, ON, Canada. Rem: LB

**669** Deposited by L. Hendzel, 29-Sep-2006 as FWI #19. Collected, isolated and identified by F.P. Healey, Mar-1970. Collected from a roadside ditch, south-east of Austin, TX, USA. Rem: LB; modified WC medium; food source for other organisms.

***Ankistrodesmus* sp.**

**505** Isolated by J. Acreman, Jul-1999 from Lake Wilcox, ON, Canada. Rem: LB

**547** Isolated by M. Khayatian at CPCC, Dec-2001 from tank of Salvinia plants in BIO150 lab at University of Toronto, ON, Canada. Rem: LB

***Aphanocapsa conferta*** (W. et GS West) Komárková-Legnerová

**595** Isolated by Andrea Kirkwood, Apr-1999 from pulp and paper effluent pond as PP18 from Rotorua, New Zealand.

***Aphanocapsa rivularis*** (Carmichael) Rabenhorst 1865

**596** Isolated by Andrea Kirkwood, Apr-1999 from pulp and paper effluent pond as PP19 from Rotorua, New Zealand.

***Aphanothece flocculosa*** (Zalessky) Cronberg et Komárek 1994

**597** Isolated by Andrea Kirkwood, Sep-1997 from pulp and paper effluent pond as PP20 from MB, Canada.

***Arthrodesmus* sp.**

**348** Isolated by J. Acreman from Plastic Lake, ON, Canada, Nov-1993. Rem: LB

**349** Isolated by J. Acreman from Plastic Lake, ON, Canada, Nov-1993. Rem: LB

***Arthronema gygaxiana*** Casamatta et Johansen sp. nov.

**393** Isolated by D. Kelly, Jul-1991 as epiphyte on floating leaves of *Nuphar variegatum* in Tasso Lake, Lake of Bays Township, ON, Canada. Rem: Mercury biotransformation: 100 ppb lags growth, 200 ppb lethal at $OD_{665}$ = 0.300, generates $Hg^o$ and HgS.

***Asterionella formosa*** Hass.

**605** Isolated by A. Gonzales, Sep-2002 from Station 2195, Lake Ontario, ON, Canada. Sample collected by Todd Howell. Rem: LB

**692** Collected by Ralph Smith, Apr-2009 from Lake Erie, ON, Canada. Isolated by S. Kerr at CPCC, Apr-2009. In: CHU-10 medium at 10 ºC.

***Asterococcus superbus*** (Cienk.) Scherffel

**363** Received 1994 from UTEX as UTEX 88. Rem: A

***Attheya septentrionalis*** (Oestrup) R.M. Crawford

**48** Deposited by C. Nalewajko 1987 as M-1 *Chaetoceros septentrionalis*. Isolated by C. Nalewajko from Lancaster Sound, NWT, Canada. Rem: BF; marine.

**50** Deposited by C. Nalewajko 1987 as *Chaetoceros septentrionalis*. Isolated by C. Nalewajko from Lancaster Sound, NWT, Canada. Rem: B; marine.

***Bangia atro-purpurea*** (Roth) Ag.

**400** Deposited by R. Sheath/M.L. Vis-Chiasson as LO01-5C. Isolated by M.L. Vis-Chiasson from Jordan Station, Lake Ontario, Canada, 1995. Rem: LB

**401** Deposited by R. Sheath/M.L. Vis-Chiasson as LO05-1A. Isolated by M.L. Vis-Chiasson from Selkirk State Park, Lake Ontario, USA, 1995. Rem: LB

**402** Deposited by R. Sheath/ M.L. Vis-Chiasson as LO11-3C. Isolated by M.L. Vis-Chiasson from Whitby, Lake Ontario, Canada, 1995. Rem: LB

**403** Deposited by R. Sheath/M.L. Vis-Chiasson as LO12-5A. Isolated by M.L. Vis-Chiasson from Oakville, Lake Ontario, Canada, 1995. Rem: LB

**404** Deposited by R. Sheath/M.L. Vis-Chiasson as SL03-4A. Isolated by M.L. Vis-Chiasson from Prescott city park and marina, St. Lawrence River, Canada, 1995. Rem: LB

**405** Deposited by R. Sheath/M.L. Vis-Chiasson as LH04-2A. Isolated by M.L. Vis-Chiasson from Tawas City at town hall park, Lake Huron, ON, Canada, 1995. Rem: LB

**406** Deposited by R. Sheath/M.L. Vis-Chiasson as LH15-4A. Isolated by M.L. Vis-Chiasson from Grand Bend, Lake Ontario, Canada, 1995. Rem: LB

**407** Deposited by R. Sheath/ M.L. Vis-Chiasson as LH16-3B. Isolated by M.L. Vis-Chiasson from Goderich, Lake Huron, Canada, 1995. Rem: LB

**408** Deposited by R. Sheath/M.L. Vis-Chiasson as LE07-1C. Isolated by M.L. Vis-Chiasson from Park at Bay Village, Lake Erie, Ohio, USA, 1995. Rem: LB

**409** Deposited by R. Sheath/M.L. Vis-Chiasson as LE08-2C. Isolated by M.L. Vis-Chiasson from Ashtabula at Walnut Beach, Lake Erie, Ohio, USA, 1995. Rem: LB

**410** Deposited by R. Sheath/M.L. Vis-Chiasson as LE11-2C. Isolated by M.L. Vis-Chiasson from Hamburg, Buffalo suburb at beach, Lake Erie, NY, USA, 1995. Rem: LB

**411** Deposited by R. Sheath/M.L. Vis-Chiasson as LM04-2C. Isolated by M.L. Vis-Chiasson from White Lake channel, Lake Michigan, MI, USA, 1995. Rem: LB

**412** Deposited by R. Sheath/ M.L. Vis-Chiasson as SIM02-3A. Isolated by M.L. Vis-Chiasson from Alcona waterfront park, Lake Simcoe, Ontario, Canada, 1995. Rem: LB

**413** Deposited by R. Sheath/M.L. Vis-Chiasson as SIM03-1A. Isolated by M.L. Vis-Chiasson from Roch Point, Lake Simcoe, ON, Canada, 1995. Rem: LB

***Boekelovia hooglandii*** Nicolai & B. Becking

**484** Isolated by W. Barclay (Solar Energy Research Inst, Golden, CO, USA), 15-Jul-1984 from saline spring near the junction of Piceance Creek and the White River in NW Colorado, USA. Deposited by J. A. Hellebust as Boeke1, Sep-1998. Rem: L; marine; ASW or f/2 medium (needs ammonium); up to 42% lipid under nitrogen limitation.

***Carteria olivieri*** G.S. West

**183** Deposited by T. Sawa 1990 as 86-0080 (= UTEX LB 1032). Rem: LB

***Chaetoceros muellerii*** Lemmerman

**485** Isolated at Solar Energy Research Inst, Golden, CO, USA. Deposited by J. Hellebust as Ch9, Sep-1998. Rem: ASW or f/2 medium.

***Chaetoceros septentrionalis*** Oestr.

**48** See ***Attheya septentrionalis***

**50** See ***Attheya septentrionalis***

***Chaetophora* sp.**

**679** Deposited by L. Hendzel, 29-Sep-2006 as FWI #69. Collected, isolated, and identified by F.P. Healey, 22 Oct-1970. Collected from Lake 240 in the Experimental Lakes Area (ELA) in north-west Ontario, Canada. Rem: LB; modified WC medium.

***Chlamydomonas acidophila*** Negoro

**121** Isolated and deposited by M. Twiss as SRB1 from Sudbury, ON, Canada, Dec-1986. Rem: A

**123** Isolated and deposited by M. Twiss as Site A from Sudbury, ON, Canada, Dec-1986. Rem: B

**354** Received 1994 from CAUP as CAUP G204. Rem: LBF

**611** Deposited Feb-2003 by Antonio Pollio, Dipartmento di Biologia vegetale, Universita Degli Studi di Napoli Federico II, Italy as #238 from acid bog in Italy.

***Chlamydomonas applanata*** Ettl

**120** Deposited by M. Twiss as CCAP Nov-1996. Isolated by R. Lewin, Scotland, 1951. Rem: A; formerly known as *Chlamydomonas acidophila*.

***Chlamydomonas moewussi*** Gerloff

**31** Deposited by C. Nalewajko 1987 as UTEX 96 (= CCAP 11/16g). Rem: BF; mt- strain.

***Chlamydomonas nivalis*** (F.A.Bauer) Wille

**528** Deposited by William Thomas, Jan-2001. Collected by T. Thomas in 1994 from snowfield at Saddlebag Lake, Tioga Pass, Sierra Mountains, CA, USA. Isolated by W. Thomas, 1994. Rem: LB; CHU-10 medium at 10 C.

***Chlamydomonas reinhardtii*** Dang.

**11** Deposited by Y. Tarmohammed as CGC 125 mt+ strain. Isolated by G. M. Smith, Amherst. Rem: LA; HSM medium; ecotoxicity test strain.

**12** Deposited by Y. Tarmohammed as CGC 400 cw-15 mt+ strain. Isolated by D.R. Davies and D. Grant. Rem: LA; HSM medium; walless form.

**84** Deposited by B. Colman as UTEX 89. Rem: LBF

**243** Deposited by T. Sawa as C. reinhardtii mt- strain. Rem: A; BBM medium; food source for other organisms.

**244** Deposited by T. Sawa as C. reinhardtii mt+ strain. Rem: B; BBM medium.

**258** Deposited by C. Glass, Feb-1991 as CGC 621 wild type 137C mt- strain. Rem: A; HSM medium.

**532** Deposited by E. Harris, CGC, Apr-2001 as cc125 wild type mt+ strain. Rem: A; HSM medium.

***Chlamydomonas variabilis*** Dang.

**110** Deposited by J. Helwig as CRHGY #511/5. Rem: BF

***Chlamydomonas* sp.**

**85** Deposited by B. Colman as Ogren #2137A. Rem: LA

**418** Isolated by J. Acreman from lake near Resolute, NWT, Canada, 1995. Rem: LB; identification not certain

***Chlorella ellipsoidea*** Gerneck

**706** Received from UTEX as UTEX B20 Nov-2010. Isolated by E. Pringsheim, pre-1948. Relatives: CCAP 211/1A; SAG 211-1a; ATCC 30404; IAM C-87; CAUP H 1990. Rem: B; BBM medium.

***Chlorella emersonii*** Shihira et Krauss

**86** Deposited by B. Colman as CCAP 211/8p. Rem: A

***Chlorella fusca* var. *fusca*** Shihira et Krauss

**394** Deposited by L. Wong Sep-1994 as UTEX 343. Isolated by R. A. Lewin in 1987. Formerly *C. pyrenoidosa* in UTEX 1987 catalogue; related to CCAP 211/23 *C. fusca*. Rem: B; ecotoxicity test strain

***Chlorella fusca* var. *vacuolata*** Shihira et Krauss

**89** Deposited by B. Colman Feb-1987 as *C. pyrenoidosa* UTEX 252. Isolated in 1926 by R. Emerson as *C. pyrenoidosa* from tap water in O. Warburg's lab, Berlin, Germany. Related to CCAP 211/8c, SAG 211-8c, IAM C-105. Rem: A; ecotoxicity test strain.

***Chlorella kessleri*** Fott & Novakova

**266** Deposited by IAM as C-531. Isolated by R. Pratt, USA, pre-1946. Originally deposited as *Chlorella vulgaris.* Identified as *Chlorella kessleri* by Kessler and Huss, 1992. Relatives: UTEX 263, CCAP 211/11h, SAG 211-11h, ATCC 11468. Rem: A; used as a food source for *Daphnia*; ecotoxicity test strain.

***Chlorella luteoviridis*** (Chod.) Oltmans

**705** Received from UTEX as UTEX 24 Nov 2010. Isolated by E. Pringsheim pre-1929 as *Chlorella vulgaris* 2. Relatives: SAG 211-5a, CCAP 211/5a, ATCC 30546, UTCC 87; a.k.a. *Chlorella miniata.* Rem: A; BBM medium.

***Chlorella miniata*** (Nag.) Oltmanns

**88** Deposited by B. Colman as Miyachi C-143. Probably isolated by Miyachi. Rem: A

***Chlorella protothecoides*** Kruger

**707** Received from UTEX as UTEX B25 Nov-2010. Relatives: CCAP 211/7A, Stamm 1, SAG 211-7a; ATCC 30407; UTCC 14; IAM C-99, IAM C-202; CAUP H 6301. Rem: LB; BBM medium.

***Chlorella pyrenoidosa*** Chick

Note: Based on molecular work, recent taxonomic revisions indicate that *Chlorella pyrenoidosa* is no longer a valid name (Kessler & Huss, 1992; Huss et al., 1999), therefore the following three strains have been renamed:

**36** See ***Chlorella vulgaris***

**89** See ***Chlorella fusca* var. *vacuolata***

**90** See ***Chlorella vulgaris***

**138** See ***Chlorella sorokiniana***

References:

Huss, V.A.R., C. Frank, E.C. Hartmann, M. Hirmer, A. Kloboucek, B.M. Seidel, P. Wenzeler, and E. Kessler. 1999. Biochemical Taxonomy and Molecular Phylogeny of the Genus *Chlorella* Sensu Lato (Chlorophyta). *J. Phycol.* 35: 587–598.

Kessler, E. & Huss, V.A.R. 1992. Comparative physiology and biochemistry and taxonomic assignment of the *Chlorella* (Chlorophyceae) strains of the Culture Collection of the University of Texas at Austin. *J. Phycol.* 28:550-3.

***Chlorella saccharophila*** (Krug.) Migula

**91** Deposited by B. Colman Mar-1987 as UTEX 27. Note: UTEX 27 is now replaced by UTEX 2469, which was isolated in 1981 by B. Colman from UTEX 27. Origin of UTEX 27: isolated 1892 by W. Kruger from sap of wounded *Populus alba,* Germany. Related to CCAP 211/9A. SAG 211-9a, ATCC 30408, CAUP H 1912. Rem: A

**272** Deposited by IAM as #C-211. Isolated by E. Pringsheim in 1939 from garden soil, W. Humble, Dorking, England. Related to SAG 211-9b. Re-identified by Kessler in 1992. Rem: A

***Chlorella sorokiniana*** Shihira et Krauss

**138** Deposited by T.C. Hutchinson 1987 as UTEX 1230 *Chlorella pyrenoidosa*. Isolated by C. Sorokin from "warm local surface waters", Austin, Texas, USA and deposited in UTEX by J. Meyers as high temperature (39 $^{o}$ C) strain Tx 7-11-05. Rem: BF

***Chlorella vulgaris*** Beij.

**36** Deposited by C. Nalewajko 1987 as *Chlorella pyrenoidosa*; Isolated by E. Pringsheim. Related to UTEX 26, ATCC 30582. Rem: BF?; BBM medium.

**90** Deposited by B. Colman Feb-1987 as *Chlorella pyrenoidosa* UTEX 395; R. Emerson's quantum yield alga. Rem: A; food source for other organisms.

**92** Deposited by B. Colman as "Miyachi strain" Rem: B

**111** Deposited by B. Colman. Related to UTEX 259; Rem: B

**139** Deposited by T.C. Hutchinson as Venus 1. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**140** Deposited by T.C. Hutchinson as Venus 2. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**141** Deposited by T.C. Hutchinson as Venus 3. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**142** Deposited by T.C. Hutchinson as Venus 4. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**143** Deposited by T.C. Hutchinson as Venus 5. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**144** Deposited by T.C. Hutchinson as Venus 8. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**145** Deposited by T.C. Hutchinson as Venus 10. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**146** Deposited by T.C. Hutchinson as Venus 11. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

**147** Deposited by T.C. Hutchinson as Venus 12. Isolated by C. Nakatsu from mine tailings runoff, Venus Pond, Yukon, Canada 1978. Rem: B; tolerant to 20 ppm As.

***Chlorella* sp.**

**23** Deposited by C. Nalewajko as FW #14. Isolated by M. O'Mahoney and B. Paul from Lake St. Nora, ON, Canada in 1984. Rem: LB

**493** Isolated by S. Pollock, Feb. 1996. Collected by B. Petri from Lake of Bays, ON, Canada. Deposited Mar-1999. Rem: LB

**522** Isolated by M. Twiss, 11-Aug-1998 from Lake Erie, Canada, Station 84 (41 55 57 N, 81 39 35 E). Rem: LB; epi-pelagic; easily Zn limited, will use Cd to replace Zn.

**565** Deposited by B.A. Whitton, Sep-2001 as D0643. Collected by K. Thompson from Mount Erebus, Antarctica. Isolated by C. Rajendran. Rem: LA?; CHU-10 medium with $NH_4$-N(7) + Al(5) at pH 3.

**573** Deposited by B.A. Whitton, Sep-2001 as D0829. Collected by B.A. Whitton from Site 0097-01, England, 7-Jun-1988. Isolated by M.J. Hutchinson. Rem: LB; CHU-10 medium with Cd (0.25) at pH 5.

***Chlorococcum hypnosporum*** Starr

**178** Deposited by T. Sawa as 86W 00130. Isolated by R.C. Starr as F35-1 from soil in Beldsoe Co., TN, USA. Related to UTEX 119. Rem: A

***Chlorococcum* sp.**

**513** Isolated by Beata Kluczyk from salt collected at salt graduation tower in Poland. Rem: B

***Chroococcus* sp.**

**623** Isolated in Oct-2004 by A. Anton at UTCC. Collected Aug-2004 by J. Acreman from Craigleith Park, Lake Huron, Georgian Bay, ON, Canada. Rem: F; BG-11 medium.

***Cladophora glomerata*** (L.) Kutz.

**13** Deposited by L. Brown and D. Rose as University of Western Ontario local strain. Isolated from river near London, ON, Canada. Rem: LB

***Cladophora* sp.**

**636** Isolated by J. Acreman from Oakville area of Lake Ontario, Canada as Oakville #4. Rem: LB; WC and CHU-10 medium with Lake ON water.

**637** Isolated by J. Acreman from Oakville area of Lake Ontario, Canada as Oakville #5. Rem: LB; WC and CHU-10 medium with Lake ON water.

**638** Isolated by J. Acreman from Cooksville Creek area of Lake Ontario, Canada as Cooksville #1. Rem: LB; WC and CHU-10 medium with Lake ON water.

***Closterium* cf. *closteroides***

**190** Deposited by T. Sawa as 86W 0160. Tentatively identified to species by A. St. Amand, Jul-2013. Rem: LB; BBM medium at 20C.

**288** Isolated by J. Acreman from Boucher Lake, Sudbury, ON, Canada, Aug-1992. Rem: B

***Coccochloris peniocystis*** ( Kutz.) Drouet and Daily

**71** Deposited by B. Colman Mar-1987 as UTEX 1548 "new" having acquired it from UTEX in 1983. Origin as per UTEX 1978 catalogue: Fitzgerald and Gerloff; M.M. Allen 6307. Rem: LBF

***Coccomyxa simplex*** Mainx

**175** Deposited by M. Twiss as UTEX 274. Isolated by F. Mainx from water culture, Munster, Germany. Related to UTEX 274, CCAP 216/9B; a.k.a. Stamm 2. Rem: A

***Coccomyxa* sp.**

**508** Isolated at CPCC by C. Chung, Jul-1999 from Boomerang Lake, near Red Lake, ON, Canada. Metal contaminated site. Formerly identified as *Chlorella* sp. Identified to species by Volker Huss. Rem: A; MAM or BBM medium; tolerant to low pH and was tolerant to 100-micromole nickel.

***Coelastrum* sp.** Naegli

**16** Deposited by C. Nalewajko as FW #2. Isolated by M. O'Mahoney and B. Paul from Plastic Lake, ON, Canada, 1984. Rem: LB

**606** Isolated by J. Acreman, Oct-2002 from Lake Ontario, Canada Station 2195.

**607** Isolated by A. Anton, Oct-2002 from Lake Ontario, Canada, Station 2195.

***Coleochaete scutata*** Breb.

**305** Received from UTEX as LB 2567. Isolated by S. Cooke from artificial pond, Davis, CA, USA. Rem: LB

***Coleochaete nitellarum*** Jost

**306** Received from UTEX as LB 1261. Isolated by Starr from Massachusetts, USA. Rem: LB

***Cosmarium minimum* var. *subrotundatum*** West and West

**350** Isolated by J. Acreman from Alice Lake, ON, Canada, Nov-1993. Rem: LB; resistant to at least 1 ppm Ni.

**351** Isolated by J. Acreman from Alice Lake, ON, Canada, Nov-1993. Rem: LB; resistant to at least 1 ppm Ni.

***Cosmarium* sp.**

**683** Deposited by L. Hendzel, 29-Sep-2006 as FWI #103. Collected, isolated, and identified by F.P. Healey, Apr-1977. Collected from Lake 303 in the Experimental Lakes Area (ELA) in north-west Ontario, Canada. Rem: LB; modified WC medium.

***Cryptomonas erosa*** Ehrenberg

**446** Collected, isolated, and identified by F.P. Healey, 17-Oct-1970. Collected from a roadside pond near MacArthur Falls Generating Station, MB, Canada. Deposited by S. Watson Oct-1996 who had received it from Len Hendzel as FWI #40. Rem: LB; BBM medium.

***Cryptomonas* cf. *rostratiformis*** Skuja

**343** Isolated by R. Stemberger from Lake Michigan, MI, USA. Deposited by J. Gilbert Oct-1993 as *Cryptomonas erosa*. Identified by S. Watson in 2007 as *C. cf. rostratiformis.* Rem: LB

***Cryptomonas* sp.**

**320** Isolated by J. Acreman from Chub Lake, ON, Canada, Sep-1993. Rem: LB

**322** Isolated by J. Acreman from Chub Lake, ON, Canada, Sep-1993. Rem: LB

**335** Isolated by J. Acreman from St. Nora Lake, ON, Canada, Oct-1993. Rem: LB

**336** Isolated by J. Acreman from St. Nora Lake, ON, Canada, Oct-1993. Rem: LB; CHU-10 medium.

**375** Isolated by J. Pawlikowski from Ruth Roy L., Killarney, ON, Canada, Oct-1994. Rem: LB

**377** Isolated by J. Pawlikowski from Ruth Roy L., Killarney, ON, Canada, Oct-1994. Rem: LB

**379** Isolated by J. Pawlikowski from Ruth Roy L., Killarney, ON, Canada, Oct-1994: Rem: LB

**389** Isolated by J. Acreman from under-ice sample from Alice Lake, ON, Canada, Mar-1995. Rem: LB

***Cyanosarcina* sp.**

**598** Isolated by Andrea Kirkwood, Jan-1997 from pulp and paper effluent pond as PP21 from Brazil.

***Cyclotella* sp.**

**432** Isolated by J. Acreman from Lake Biwa, Japan, Jul-1996. Rem: LA?; food source for other organisms.

**433** Isolated by J. Acreman from Lake Biwa, Japan, Jul-1996. Rem: LB

**537** Isolated by A. Gonzales, Jul-2001 from Lake Erie, Canada. Collected by M. Twiss. Rem: LB

***Cyclotella meneghiniana*** Kutzing

**710** Collected by A. Zastepa 25-Aug-2010 from a surface shoreline accumulation, Lakeland Estates, Greely, ON, Canada. Isolated and identified to genus at CPCC by J. Acreman, Nov-2010. Identified to species by A. St. Amand, Jul-2013. Rem: LB; CHU-10 or WC medium at 20C.

***Dactylococcus dissociates*** Randar et Trainor

**47** Deposited by C. Nalewajko 1987. Isolated by R. Hilton pre-1966. Relatives: UTEX 1537. Rem: LBF; BBM medium.

***Desmidium* sp.**

**674** Deposited by L. Hendzel, 29-Sep-2006 as FWI #33. Collected, isolated, and identified by F.P. Healey, 20-Oct-1970. Collected from Lake 240 in the Experimental Lakes Area (ELA) in north-west Ontario, Canada. Rem: LB; modified WC medium.

***Desmococcus* sp.**

**548** Isolated by J. Acreman, Dec-2001 from tank of *Salvinia* plants in BIO150 lab at University of Toronto, Canada. Rem: LB

***Desmodesmus* sp.**

**666** Deposited by L. Hendzel, 29-Sep-2006 as *Scenedesmus quadricauda* FWI #11. Collected, isolated, and identified by F. P. Healey, Sep-1969. Collected from a fish pond in Abbotsford, BC, Canada. Rem: LF; modified WC medium.

***Diatoma elongatum*** (Lyngbye) C.Agardh

**62** See ***Diatoma tenuis***

***Diatoma tenuis*** C. Agardh

**62** Isolated and deposited by C. Ewing from Lake Ontario, Canada Sep-1984 as *Diatoma elongatum* (Lyngbye) C.Agardh. Rem: LB

***Diatoma vulgare*** Bory

**61** Isolated and deposited by C. Ewing from Lake Ontario, Canada Sep-1984. Rem: LB

***Diatoma* sp.**

**417** Isolated by J. Acreman from North Lake, Resolute, NWT, Canada 1995

***Dictyosphaerium ehrenbergianum*** Nageli

**489** Deposited by D. Kushner, 1998 as UTEX 75. Collected by L.E.R. Picken from a garden pond in Cambridge, England. Isolated in 1940 by E.G. Pringsheim. Relatives: CCAP 221/1A *Dictyosphaerium pulchellum*; SAG 222-1a; ATCC 30427.

***Dictyosphaerium pulchellum*** Wood

**501** Isolated by M. Olaveson, 1999 from B-zone pit in northern Saskatchewan, Canada. Site high in nickel and arsenic. Deposited May 27, 1999.

***Dictyosphaerium* sp.**

**684** Deposited by L. Hendzel, 29-Sep-2006 as FWI #106/107. Collected, isolated, and identified by F.P. Healey, Apr-1977. Collected from Lake 227 in the Experimental Lakes Area (ELA) in north-west Ontario, Canada. Rem: LF; modified WC medium; atypical morphology.

***Dinobryon* sp.**

**392** Deposited by C. Nalewajko as UTEX 2267. Rem: LB

***Dunaliella acidophila*** (Kalina) Massjuk

**307** Deposited by NEPCC as #721, Mar-1993. Rem: LB; Albertano medium at pH 1.

***Dunaliella salina*** (Dunal) Teodoresco

**197** Deposited by T. Sawa as 86W 0171. Rem: LBF

***Dunaliella tertiolecta*** Butcher

**420** Deposited by J. Hellebust 30-Apr-1996 as CCMP 1320 (=WHO "Dun"). Rem: LA; marine; food source for other organisms.

***Dunaliella* sp.**

**457** Isolated by J. Acreman from surface brine storage pond for industrial use (salt content of pond = 24%), May-1998, Sarnia, ON, Canada. Collected by Clay Ferguson, Pollutech Enviroquatics Ltd., Apr-1998.

***Eremosphaera viridis*** de Bary

**127** Isolated by J. Acreman and Y. Wei from Plastic Lake, ON, Canada Sep-1987. Rem: LB

***Euastrum bidentatum*** Naegeli var. ***speciosum*** (Boldt) Schmidle

**368** Isolated by J. Pawlikowski, Jul-1994 from Opeongo Lake, Algonquin Park, ON, Canada. Rem: LB

***Eudorina elegans*** Ehr.

**381** Isolated by T. Sawa Nov-1994 from lake in Algonquin Park, ON, Canada. Rem: LB; WC or CHU-10 medium at 20C.

***Euglena gracilis*** Klebs

**95** Deposited by B. Colman 1987 as UTEX 753. Isolated in 1950 by E. G. Pringsheim; a.k.a Pringsheim's 25. Rem: LA; used in bioassay of vitamin B12.

**469** Isolated by M. Olaveson Aug-1995 from a lake with nickel mine tailings, pH 2.8, near Sudbury, ON, Canada as SG-1 (field strain). Deposited by M. Olaveson 20-Jul-1998. Rem: LB

***Euglena mutabilis*** Schmitz

**132** Isolated by J. Acreman from mine drainage site, Sudbury, ON, Canada, Sep-1987. Rem: LB

**293** Isolated by M. Olaveson, from sulphuric acid plant site on Serpent River, ON, Canada, 1980. Rem: LF

**382** Isolated by J. Acreman, Oct-1994 from Ruth Roy Lake, Killarney, ON, Canada. Rem: LB

**451** Isolated by M. Olaveson from Elliott Lake, ON, Canada as EL-3. Deposited Dec-1997. Rem: LB

**452** Isolated by M. Olaveson from Lavack nickel mine site as LV-L. Deposited Dec-1997. Rem: LB

**488** Deposited by D. Kushner, 1998 as UTEX 2650. Isolated in 1924 by F. Mainx as *Euglena klebsii* from pond sand in Hirschberg, Czechoslovakia. Relatives: CCAP 1224/9B; SAG 1224-9b.

**645** Deposited 22-Sep-2003 by M. Olaveson as EM-1. Orignated from UTEX 364 prior to that strain being lost at UTEX and replaced with *Euglena gracilis.* Isolated by F. Mainx, 1924 from Czechoslovakia, Grossteich near Hirschberg. Relatives: SAG 1224-9b. Rem: A

**646** Deposited 22-Sep-2003 by M. Olaveson as AV-1. Collected Aug-1998 from acid mine drainage from a copper mine, Avoca, Ireland. Isolated by M. Olaveson 1998.

**647** Deposited 22-Sep-2003 by M. Olaveson as BZ-1. Collected from B-Zone Pit, uranium mine, northern Saskatchewan, Canada. Isolated by M. Olaveson.

**648** Deposited 22-Sep-2003 by M. Olaveson as EL-1. Collected Sep-1988 from acid mine drainage, Crotch Lake uranium mine tailings, Elliot Lake, ON, Canada. Isolated by M. Olaveson.

**649** Deposited 22-Sep-2003 by M. Olaveson as EL-2. Collected from acid mine drainage, Nordic tailings, uranium mine, Elliot Lake, ON, Canada. Isolated by M. Olaveson.

**650** Deposited 22-Sep-2003 by M. Olaveson as FB-1. Collected Aug-1985 from acid mine drainage, Fecunis tailings, copper/nickel mine, Onaping, ON, Canada. Isolated by M. Olaveson.

**651** Deposited 22-Sep-2003 by M. Olaveson as FB-2. Collected Aug-1995 from acid mine drainage, Fecunis tailings, copper/nickel mine, Onaping, ON, Canada. Isolated by M. Olaveson.

**652** Deposited 22-Sep-2003 by M. Olaveson as LG-1. Collected Jun-1997 from coal mine, Lake Lugteich, Brandenburg, Germany (GDR former East Germany). Isolated by M. Olaveson.

**653** Deposited 22-Sep-2003 by M. Olaveson as LV-2. Collected Aug-1985 from acid mine drainage, Levack tailings, copper/nickel mine, Levack, ON, Canada. Isolated by M. Olaveson.

**654** Deposited 22-Sep-2003 by M. Olaveson as SB-1. Collected from acid mine drainage, QC, Canada. Isolated by M. Olaveson.

**655** Deposited 22-Sep-2003 by M. Olaveson as SM-1. Collected from acid mine drainage, NS, Canada. Isolated by M. Olaveson.

**656** Deposited 22-Sep-2003 by M. Olaveson as ST-1. Collected from acid mine drainage at tailings pipe discharge, Onaping, ON, Canada. Isolated by M. Olaveson.

**657** Deposited 22-Sep-2003 by M. Olaveson as TM-1. Collected Jul-1995 from acid mine drainage, gold mine tailings, Timmins, ON, Canada. Isolated by M. Olaveson.

**658** Deposited 22-Sep-2003 by M. Olaveson as TM-2. Collected Jul-1995 from acid mine drainage, gold mine tailings, Timmins, ON, Canada. Isolated by M. Olaveson.

**659** Deposited 22-Sep-2003 by M. Olaveson as WH-1. Collected Jun-1999 from acid mine drainage at wheel-house, zinc/copper mine, Ear Falls, ON, Canada. Isolated by M. Olaveson.

***Eunotia* sp.**

**357** Isolated by J. Pawlikowski, May-1995, Point Pelee National Park, ON, Canada. Rem: LB

***Fragilaria crotenensis*** Kitton

**269** Received from CCAP as 1029/8. Isolated by Jaworski, 1984 from Esthwaite Water, Cumbria, England; originally designated as "FBA" L403. Rem: LB

**542** Collected by R.M. McKay (BGSU, OH, USA) Jul/01 from Whitefish Bay, Lake Superior. Isolated by J. Acreman and A. Gonzales (UTCC) Dec-2001. Identified by J. Acreman Dec-2001.

***Geitlerinema amphibium*** (Ag. ex Gom.) Anagnostidis

**591** Isolated as PP14 by A. Kirkwood, Sep-1997 from pulp and paper effluent pond in MB, Canada

***Geitlerinema carotinosum*** (Geitler) Anagnostidis

**586** Isolated as PP9 by A. Kirkwood, Apr-1999 from pulp and paper effluent pond in Rotorua, New Zealand

***Geitlerinema* sp.**

**99** Deposited by J. Coleman as L/P/P (Lyngbya/Plectonema/Phormidium). Relatives: ATCC 29126 "Geitlerinema" sp. and PCC 7407 Geitlerinema Cluster 1. Rem: BF

**311** Isolated by J. Acreman from sand dune near Presqu'ile, ON, Canada, Mar-1993. Rem: BF; clonal isolate.

**439** Isolated in Sep-1996 by J. Acreman from effluent pond at a pulp and paper mill in Brasil. Rem: B

***Gonium pectorale*** Muller

**380** Isolated by T. Sawa, Nov-1994 from lake in Algonquin Park, ON, Canada. Rem: LB

***Gonium* sp.**

**195** Deposited by T. Sawa as 86W 0185. Rem: LB

***Haematococcus pluvialis*** Flotow em. Wille

**93** Deposited by B. Colman as UTEX 16 *Haematococcus lacustris* (Girod-Chantrans) Rostaf. Isolated by E.G. Pringsheim from sample collected by F. Mainx in Czechoslovakia. Relatives: UTEX 16, SAG 34-1b, ATCC 30402, IAM C-393, CCAP 34/1b. Rem: LB; astaxanthin (carotenoid) accumulation.

***Halamphora coffeaeformis*** (C.Agardh) Levkov

**58** Deposited by C. Nalewajko 1987 as *Amphora coffeaeformis*. Isolated by D. Voltolina as M-34, Victoria, BC, Canada 1983. Rem: LB; marine.

***Hydrodictyon reticulatum*** (L.) Laegerh.

**194** Deposited by T. Sawa as 86W 0185. Rem: LB

***Isochrysis galbana*** Parke 1949

**690** Deposited by CCCM as NEPCC 633. Isolated by M. Parke in 1938 from a marine fish pond, Port Erin Marine Station, Isle of Man, British Isles. Relatives: SMBA 58, CCAP 927/1, UTEX 987; CCMP 1323; NEPCC 2; NEPCC 633. Rem: marine; f/2 medium; used in aquaculture as a food source for other organisms.

***Kirchneriella* sp.**

**609** Isolated at CPCC by A. Anton, Nov-2002 from Station LV-3, Lake Ontario, Canada.

***Klebsormidium rivulare*** (Kützing) M.O.Morison & Sheath

**569** Deposited by B.A. Whitton, Sep-2001 as D0547. Rem: LB; CHU-10 medium with Zn(5) at pH 5.

**575** Deposited by B.A. Whitton, Sep-2001 as D0832. Collected by B.A. Whitton from Site 0097-01, England, 7-Jun-1988. Isolated by M.J. Hutchinson. Rem: LB; CHU-10 medium with Cd(0.25) at pH 5.

***Klebsormidium subtile*** (Kützing) Tracanna ex Tell

**577** Deposited by B.A. Whitton, Sep-2001 as D0834. Collected by B.A. Whitton from Site 0071-95, England, 7-Jun-1988. Isolated by M.J. Hutchinson. Rem: LBF; CHU-10 medium with Cd(0.25) at pH 5.

***Klebsormidium* sp.**

**554** Deposited by B.A. Whitton, Sep-2001 as D0451. Collected and isolated by B.A. Whitton from Copperhill, Tenessee, USA; site has following specifications: pH 3.05, metals (concentration in mg/L): Mg (92), Ca(219), MN(22), Fe(389), Zn(8.8), Cd(0.0072), Pb(0.005). Rem: LB; CHU-10 medium with $NH_4$-N(7) + Al at pH 3; morphology in culture: filaments 7 microns wide, cells short.

**555** Deposited by B. Whitton, Sep-2001 as D0452. Collected by B.A. Whitton from Burra Burra Creek, Copperhill, Tennessee, USA, 5-May-1977. Isolated by J.W. Simon. Rem: LB; CHU-10 medium with $NH_4$-N(7) + Al at pH 3; morphology in culture: long filaments.

**561** Deposited by B. Whitton, Sep-2001 as D0531. Collected and isolated by B.A. Whitton from Site 4006-01, Germany. Rem: LB; not clonal; CHU-10 medium + Zn (5 mg/L); failed viability test in liquid nitrogen in Whitton lab.

***Leptolyngbya angustata*** Casamatta et Johansen sp. nov.

**473** Isolated by W. Vincent, Dec-1990 from benthic substrate of Kuparuk River, (near Toolik Lake), Alaska, USA. Identifiied by R. Sheath, 13-May-1998. Deposited by W. Vincent as O-120, 19-Aug-1998. Rem: LB; maintained at $10^{o}$ C.

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Leptolyngbya* cf. *boryana***

**688** Collected Jul-2006 by A. Lentini from a pond in Puerto Rico. Isolated by J. Acreman and S. Tobin at UTCC, Nov-2006. Identified by H. Kling. Rem: B.

***Leptolyngbya tenerrima*** (Kutz. ex Hansgirg) Kom. in Anagost.

**77** Deposited by B. Colman as #S.R.BROWN, Queen's University, Canada. Formerly identified as *Phormidium molle* (Kutz.) Gom. Rem: A

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Leptolyngbya* sp.**

**696** Collected by S. Wilhem from Lake Erie. Isolated by G. Espie Mar-2008. Identified by G. Espie & S. Short Aug-2008. Deposited by G. Espie May-2010. Based on 16S rDNA partial sequence, this strain may be related or identical to Leptolyngbya sp. PCC 73110. Low light

adapted cells (15-20 microEin/m2/sec) tolerate periodic exposure to extreme PPFD (2000 uE/m2/sec) without obvious photoinhibition. Rem: B ; BG-11 medium at 20-30ºC.

***Lyngbya* sp.**

**313** See ***Microcoleus acremanii***

**506** Isolated by J. Acreman from brackish pond in Puerto Rico, May-1999. Rem: LB

**525** Isolated by J. Acreman from Pakowki Lake (small coolie lake that dries up in summer), AB, Canada, Dec-2000. Rem: LB

**545** Isolated by M. Khayatian at CPCC, Dec-2001 from tank of *Salvinia* plants at BIO 150 labs at University of Toronto, Canada. Rem: LBF; morphology atypical (similar to *Phormidium* sp.); BG-11 medium at 20ºC.

**592** Isolated by Andrea Kirkwood, Jul-1999 as PP15 from activated sludge, AB, Canada

***Mallomonas papillosa*** Harris & Bradley

**449** Deposited by S. Watson, 1997 as CCMP 476. Collected from freshwater, England. Rem: LB

***Mallomonas* sp.**

**440** Deposited by C. Nalewajko, 1995 as AN1-14. Collected by M. Fawley, 21-Jan-1995 from Arrowwood Lake ND, USA as under-ice sample. Rem: LB

***Melosira granulata f. curvatulum*** (Ehr.) Ralfs

**397** Deposited by C. Nalewajko, Nov-1995. Isolated from Lake Biwa, Japan. Rem: LBF

***Melosira moniliformis*** (O.F. Mull.) Ag.

**53** Deposited by C. Nalewajko as M-29. Isolated by C. Nalewajko from Mason Bay, NWT, Canada. Rem: LB; marine.

***Merismopedia*** sp.

**428** Isolated by J. Acreman, Jun-1996. Collected from Lake Biwa, Japan. Rem: LBF

**526** Isolated by A. Gonzales, Feb-2001 from Pakowki Lake (small coolie lake that dries up in summer) AB, Canada. Rem: LB; BG-11 medium in low light at 23ºC.

**711** Collected by A. Zastepa 25-Aug-2010 from a surface shoreline accumulation, Lakeland Estates, Greely, ON, Canada. Isolated and identified at CPCC by J. Acreman Nov-2010. Rem: LB; BG-11 medium at 23ºC.

***Mesotaenium kramstai*** Lemm.

**188** Deposited by T. Sawa as 86W 0260. Rem: LB

***Micrasterias radiata*** Hassall

**131** Isolated by J. Acreman from Plastic Lake, ON, Canada Sep-1987. Rem: LB

**137** Isolated by J. Acreman from Plastic Lake, ON, Canada Sep-1987. Rem: LB; non-clonal.

***Microcoleus acremanii*** Casamatta et Johansen sp. nov.

**313** Isolated by J. Acreman from sand dune near Presqu'ile, ON Canada, Mar-1993. Rem: B

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Microcoleus antarcticus*** Casamatta et Johansen sp. nov.

**474** Isolated by W. Vincent, Dec-1990 from benthic substrate of a lake on McMurdo Ice Shelf, Antarctica (78° S, 166° E). Identified by R. Sheath 13-May-1998. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as O-025. Rem: LB; 10°C.

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Microcoleus glaciei*** Johansen et Casamatta sp. nov.

**475** Isolated by W. Vincent, Dec-1990 from benthic substrate of a lake on McMurdo Ice Shelf, Antarctica (78° S, 166° E). Identified by P. Broady, 1991. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as O-099. Rem: LB; 10°C.

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Microcystis aeruginosa*** Kutz.em. Elenkin

**124** Isolated by J. Acreman Jul-1987 from Heart Lake, ON, Canada. Rem: LB; non-toxic.

**299** Deposited by E. Prepas/A. Lam as #45-2A. Isol A. Lam from Pretzlaff Pond, AB, Canada, 7-Aug-1990. Rem: LA?; toxic strain: produces microcystin as 415 ug/g of dry weight.

**300** Deposited by E. Prepas/A.Lam as #45-4A. Isolated by A. Lam from Pretzlaff Pond, AB, Canada, 7-Aug-1990. Rem: LB; toxic strain: produces microcystin as 204 ug/g of dry weight.

**436** Isolated by J. Acreman from Lake Biwa, Japan, Jul-1996. Rem: LBF

**459** Isolated by P. Gorham and A. Zehnder, 27-Sep-1954 from Little Rideau Lake, ON, Canada as NRC-1 > Jeff Eloff > D. Parker (23-Nov-1981) > CPCC 07/98 as UWOCC #1. Equivalent to UTEX 2667. See also CPCC 468 which was reported to be derived from NRC-1 but may not be *Microcystis*). Rem: LBF; cells are coccoid and have gas vacuoles; reported as toxic by J. Eloff; toxic when studied by Gorham.

**463** Isolated by E.A.D. Allen and P. Gorham, Aug-1980 from Trampling Lake, SK, Canada as S80-93. Deposited by D. Parker, Jul-1998 as UWOCC #E3. Rem: LBF; produces agar-like gel; cells are bacillary rather than coccoid.

**464** Isolated by E.A.D. Allen and P. Gorham, Aug-1980 from Trampling Lake, SK, Canada as S80-97. Deposited by D. Parker, Jul-1998 as UWOCC #E7. Rem: LB; produces agar-like gel.

**466** Isolated by D. Parker, 15-Aug-1982 from Lake Michigan, Green Bay, WI, USA. Deposited by D. Parker, Jul-1998 as UWOCC # P3. Rem: LBF; gas vacuoles; coccoid cells in colonies.

**468** Isolated by A. Zehnder and P. Gorham, 27-Sep-1954 from Little Rideau Lake, ON, Canada as NRC-1 > W.W. Carmichael (purified, 1974) > D. Parker (Feb-1984) > CPCC as UWOCC #SS-17. Relatives: PCC 7941; CCAP 1450/4; SAG 14.85; NIVA-CYA 31; UTEX 2386. Rem: LB; cells are bacillary rather than coccoid; in UTEX as non-toxic strain; may not be *Microcystis*.

**632** Received Mar-2005 from UTEX as UTEX LB 2061. Isolated Sep-1948 by G.C. Gerloff from Lake Mendota; Madison, WI-USA. Deposited in UTEX as Patterson's 1036AX (Gerloff et al. 1950). Tested by Francis Pick, University of Ottawa, and found to be non-toxic. Relatives: CCAP 1450/1 a.k.a. *Diplocystis aeruginosa*, *Anacystis cyanea*; PCC 7005

*Microcystis* sp.; UTCC LB 73. Rem: LB; non-toxic; able to withstand cooler temperatures and darkness quite well.

**633** Received Mar-2005 from UTEX as UTEX LB 2386. Collected Sep-1954 by A. Zehnder; Little Rideau Lake, ON, Canada. Isolated by W. Carmichael. Deposited Apr-1984 by P. Gorham as NRC-1(SS-17). Tested by Francis Pick, University of Ottawa, and found to be non-toxic. Relatives: UTEX lists it as equivalent to CCAP 1450/4; SAG 14.85; PCC 7941 *Microcystis aeruginosa* TYPE CULTURE; UTCC 468; NIVA CYA 31. NOTES: (Allen & Gorham 1981). However, a number of published papers using PCC 7941 indicates that it is toxic. Rem: LB; non-toxic.

***Microcystis flos-aquae*** Kutz. em. Elenkin

**460** Isolated by L.C. Dempsey from Fox River, Station 2, Oshkosh, WI. USA, 30-Aug-1975. Deposited by D. Parker, Jul-1998 as UWOCC # C3(3X). Rem: LBF; parent unialgal culture of UTCC 461 (= UWOCC #C3-40); coccoid cells with gas vacuoles; large colonies in a copious slime layer.

**461** Isolated by L.C. Dempsey from Fox River, Station 2, Oshkosh, WI. USA, 30-Aug-1975. Deposited by D. Parker, Jul-1998 as UWOCC #C3-40. In UTEX as 2677. Rem: LB; coccoid cells with gas vacuoles; large colonies in a copious slime layer.

**465** Isolated by D. Parker, 15-Aug-1982 from Lake Michigan, Green Bay, WI, USA. Deposited by D. Parker, Jul-1998 as UWOCC #N. In UTEX as 2673. Rem: LB; gas vacuoles; coccoid cells in colonies.

***Microcystis* sp.**

**516** Isolated by J. Acreman, Nov-1999 from an industrial effluent pond, ON, Canada. Sample collected by C. Ferguson, Pollutech Inc. Rem: LBF

**524** Isolated by J. Acreman, Dec-2000. Collected from Pakowki Lake (small coolie lake that dries up in summer), AB, Canada. Rem: LB

**664** Collected Oct-2005 from Bay of Quinte, ON, Canada by A. Chuun. Isolated by A. Chuun and purified by J. Acreman, May-2006. Rem: LB; 3N BBM medium at 20-25 C.

**701** Collected by A. Zastepa 25-Aug-2010 from a surface shoreline accumulation, Lakeland Estates, Greely, ON, Canada. Isolated and identified at CPCC by J. Acreman Oct-2010 as LL3-2; deposited by F. Pick 31-Jan-2012. Rem: LB; BG-11 medium; non-toxic strain: did not test positive for microcystin RR, YR, 7dmLR, LR, WR, LY, LW, LF, nor LA as determined by A. Zastepa and F. Pick at the University of Ottawa, ON, Canada, 2011.

**702** Collected by A. Zastepa 25-Aug-2010 from a surface shoreline accumulation, Lakeland Estates, Greely, ON, Canada. Isolated and identified at CPCC by J. Acreman Oct-2010 as LL4-1; deposited by F. Pick 31-Jan-2012. Rem: LB; BG-11 medium; toxic strain: tested positive for variable quantities of microcystin RR, YR, 7dmLR, LR, and WR as determined by A. Zastepa and F. Pick at the University of Ottawa, ON, Canada, 2011.

**703** Collected by A. Zastepa 25-Aug-2010 from a surface shoreline accumulation, Lakeland Estates, Greely, ON, Canada. Isolated and identified at CPCC by J. Acreman Oct-2010 as LL4-2; deposited by F. Pick 31-Jan-2012. Rem: LB; BG-11 medium; toxic strain: tested positive for variable quantities of microcystin RR, YR, 7dmLR, LR, and WR as determined by A. Zastepa and F. Pick at the University of Ottawa, ON, Canada, 2011.

**704** Collected by A. Zastepa 25-Aug-2010 from a surface shoreline accumulation, Lakeland Estates, Greely, ON, Canada. Isolated and identified at CPCC by J. Acreman Oct-2010 as LL4-4; deposited by F. Pick 31-Jan-2012. Rem: LB; BG-11 medium; toxic strain: tested positive for variable quantities of microcystin RR, YR, 7dmLR, LR, and WR as determined by A. Zastepa and F. Pick at the University of Ottawa, ON, Canada, 2011.

***Microspora* sp.** Thuret

**189** Deposited by T. Sawa as 86W 0275. Rem: LB

***Microthamnion* sp.**

**512** Isolated by Beata Kluczyk, Dec-1999 from salt collected at a salt graduation tower in Poland. Rem: B

***Monodopsis subterranea*** (Petersen) Hibberd

**116** Deposited by C. Nalewajko as CCAP 848/1. Isolated in 1949 by R. Lewin from wet rock in river, Marion, CT-USA. Relatives: CCAP 848/1, SAG 848-1, ATCC 30593 and UTEX 151 *Monodus subterraneus*. Rem: LB

***Monoraphidium braunii*** (Nageli) Komarkova-Legnerova

**625** Received 8-Jun-2004 from SAG collection in Germany as SAG 202 7-d. Rem: A; BBM medium at 20ºC.

***Monoraphidium contortum*** (Thuret) Kom.-Leg.

**626** Received 8-Jun-2004 from SAG collection in Germany as SAG 4780. Rem: A; BBM medium at 20ºC.

***Monoraphidium* sp.**

**621** Isolated 2004 by J. Sanchez at UTCC from Long Pond, Bonavista, NL, Canada. Rem: LB

***Mougeotia* sp.**

**4** Deposited by P.M. Stokes as MC-41. Isolated Aug-1982 by P. Turner from Chub Lake, ON, Canada (Chub Lake is an acidified lake due to acid rain). Rem: LB

**134** Isolated Sep-1998 by J. Acreman from Plastic Lake, ON, Canada. Rem: LB

**167** Isolated Jun-1988 by J. Acreman from Plastic Lake, ON, Canada. Rem: LB

**168** Isolated Jun-1988 by J. Acreman from Plastic Lake, ON, Canada. Rem: LBF; BBM medium at 20ºC.

**172** Isolated and deposited by R. Gensemer from McNearny Lake, MI, USA. Rem: LB

**174** Isolated Aug-1988 by J. Acreman from Lake Ontario, Canada. Rem: LB

**562** Deposited by B.A. Whitton, Sep-2001 as Mougeotia D0536. Collection and isolation information are undetermined. Rem: CHU-10 at pH 5 medium.

***Navicula comta***

**511** Isolated by B. Kluczyk, Dec-1999 from salt collected from salt graduation tower, Poland. Rem: B

***Navicula pelliculosa*** (Breb.) Hilse

**552** Isolated prior to 1975 by R.A. Lewin as “80” from hot, dusty arroyo, CA, USA. Received from CCAP 26/04/02 as CCAP 1050/3c as axenic culture. Relatives: UTEX 2030. Rem: LA; CHU-10 medium; used as toxicity test organism.

***Navicula* sp.**

**55** Deposited by C. Nalewajko as M-32A. Isolated by C. Nalewajko from Mason Bay, NWT, Canada. Rem: B; marine.

***Nitzschia palea*** (Kutz). W. Smith

**160** Deposited by B. Colman and C. Rotatore as UTEX 1813. Collected Jan-1967 from Cedar Creek, Piscataway, NJ, USA. Isolated Jan-1970 by M.R. Droop as axenic using antibiotics. Rem: A; used as toxicity test organism; food source for other organisms.

***Nitzschia* sp.**

**49** Deposited by C. Nalewajko as M-7. Isolated by C. Nalewajko, pre-1986 from Jones Sound, NWT, Canada. Rem: LBF

**57** Deposited by C. Nalewajko as M-33. Isolated by C. Nalewajko from Beaufort Sea, NWT, Canada. Rem: A, marine.

**499** Isolated by J. Acreman, Apr-1999 from effluent pond at St. Mary's River pulp and paper mill, Sault Ste. Marie, ON, Canada. Collected by ESG International Ltd. Rem: LB

***Nostoc punctiforme*** (Kutz.) Hariot

**41** Deposited by C. Nalewajko as #32. Rem: B

***Nostoc* sp.**

**106** Deposited by J. Coleman as ATCC 29411. Rem: LBF

**387** Deposited by J. Coleman, Feb-1995 as PCC 7120 *Nostoc* sp. Cluster 3. a.k.a. *Anabaena variabilis*. Relatives: ATCC 27347 = ATCC 27893 = DCC D0672 as *Anabaena* sp. = IRRI Ab 47 XX = SAG 25.82 as *Anabaena* sp. = UTEX 2576 as *Anabaena* sp. Rem: A

***Oocystis polymorpha*** Groover and Bold

**9** Deposited by P.M. Stokes as UTEX 1645. Isolated by B. Richardson as contaminant from *Chlorella* culture. Rem: B

**35** Deposited by C. Nalewajko, 1987 as UTEX 80. Isolated by W. Vischer, Switzerland. Relatives: CCAP 257/2 a.k.a. Vischer 119; SAG 257-2; ATCC 30417. Rem: B

***Oscillatoria priestleyii*** West and West

**476** See ***Phormidium lumbricale***

***Oscillatoria* sp.**

**393** See ***Arthronema gygaxiana***

***Pandorina* sp.**

**192** Deposited by T. Sawa as 86W 0400. Rem: LBF; BBM medium at 20ºC.

***Pediastrum simplex?*** Meyen

**431** Isolated by J. Acreman from Lake Biwa, Japan, Jul-1996. Rem: LB

***Pediastrum* sp.**

**527** Isolated by M. Khayatian, Dec-2000 from West Lake (an embayment of Lake Ontario), near Belleville, ON Canada. Rem: LB

***Pedinomonas* sp.**

**32** Deposited by C. Nalewajko as UTEX 1027. Rem: LB

***Phaeodactylum tricornutum*** Bohlin

**162** Collected from Plymouth, England. Isolated in 1910 by E.G. Pringsheim. Deposited in CPCC 1987 by B. Colman and C. Rotatore as UTEX 642. Relatives: CCAP 1052/1a *Nitzschia closterium* f. *minutissima*; renamed in 1974 by J.C. Lewin. Rem: A; used for ecotoxicity testing.

***Phormidium animale*** (Ag. ex Gom.) Anag

**578** Isolated as PP1 by A. Kirkwood, Jul-2000 from pulp and paper effluent pond in Woodland, ME, USA.

***Phormidium autumnale*** (Ag.) Gom.

**471** See ***Pseudanabaena tremula***

**579** Isolated as PP2 by A. Kirkwood, Jul-2000 from pulp and paper effluent pond in Woodland, ME, USA.

***Phormidium deflexoides***

**582** Isolated as PP5 by A. Kirkwood, Jun-1998 from pulp and paper effluent pond in Lewiston, Idaho, USA.

**583** Isolated as PP6 by A. Kirkwood, Sep-1997 from pulp and paper effluent pond in Manitoba, Canada.

***Phormidium insigne*** (Skuja) Anagnostidis

**584** Isolated as PP7 by A. Kirkwood, Sep-1996 from pulp and paper effluent pond in Brazil.

***Phormidum molle*** (Kutz.) Gom.

**77** See ***Leptolyngbya tenerrima***

***Phormidium murrayii*** West and West

**475** See ***Microcoleus glacei***

***Phormidium lumbricale*** Johansen et Cassamatta sp. nov.

**476** Isolated by W. Vincent, Dec-1990 from substrate of a saline pond on McMurdo Ice Shelf, Antarctica (78$^{o}$S, 166$^{o}$E). Identified by P. Broady, 1991. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as O-Salt., *Oscillatoria priestleyii.* Rem: LB; BG-11 with 5g/l of NaCl medium at 10$^{o}$C.

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Phormidium rimosum*** (Komárek) Anagnostidis & Komárek

**580** Isolated as PP3 by A. Kirkwood, Jul-2000 from pulp and paper effluent pond in Woodland, Maine, USA.

**581** Isolated as PP4 by A. Kirkwood, Jul-2000 from pulp and paper effluent pond in Woodland, Maine, USA.

***Phormidium subfuscum*** Kutz.

**474** See ***Microcoleus antarcticus***

***Phormidium tenue*** Gomont

**424** Received from IAM, May-1996 as IAM M-40 (= NIES 30). Isolated by M. Ishikawa from rice field, Akita-city, Japan. Rem: A.

**473** See ***Leptolyngbya angustata***

***Phormidium* sp.**

**502** Isolated by J. Acreman, Apr-1998 from St. Mary's Paper Mill effluent pond, St. Mary's River, Sault Ste. Marie, ON, Canada. Sample provided by J. Reid, ESG International, Guelph, ON. Rem: LB

***Planktothrix rubescens*** (D.C. ex Gomont) Anag. & Kom.

**507** Isolated by J. Acreman, Jun-1999 from under-ice sample taken from Lake Wilcox, ON, Canada. Sample collected by D. Olding from a bloom producing microcystin. Possibly *Planktothrix prolifica* according to H. Kling. Rem: LB; WC or CHU-10 at pH 8.5 medium at 10-12°C or 18-24°C; may produce novel toxins.

***Platymonas* sp.**

**196** See ***Tetraselmis* sp.**

***Porphyridium purpureum*** (Bory) Drew et Ross

**365** Received 1994 from UTEX as UTEX 161 ***Porphyridium cruentum***. Rem: A; marine; unicellular.

***Pseudanabaena* cf. *mucicola***

**698** Collected 6-Sep-2009 by H. Kling from Low Whylie Point, Lake Winnipeg, MB, Canada. Isolated by H. Roshon, November 2009. Tentatively identified by H. Kling. Rem: LB; Juttner or BG-11 medium at 10ºC in low light.

***Pseudanabaena rutilis-viridis***

**697** Collected 6-Sep-2009 by H. Kling from Low Whylie Point, Lake Winnipeg, MB, Canada. Isolated by J. Acreman Nov-2009. Identified by H. Kling who described it as a new species. Rem: LB; Juttner or BG-11 medium at 10ºC in low light.

References:

Kling, H.J., Laughinghouse IV., H.D., Samarda, J., Komárek , J., Acreman, J., Bruun, K., Watson, S. B. & Chen, F. 2012. A new red colonial Pseudanabaena (Cyanoprokaryota, Oscillatoriales) from North American large lakes. Fottea 12(2): 327-339.

***Pseudanabaena tremula*** Johansen et Casamatta sp. nov.

**471** Isolated by S. Vezina, Aug-1993 from benthic substrate of pond at Bylot Is., NWT, Canada (73$^{o}$ N, 78 $^{o}$ W). Identified by P. Broady, 1993. Deposited 19-Aug-1998 by W. Vincent and E. Tang as O-152. Rem: LB; 10ºC.

References:

Casamatta, D.A., J.R. Johansen, M.L. Vis, and S.T. Broadwater. 2005. Molecular and morphological characterization of ten polar and near-polar strains within the Oscillatoriales (Cyanobacteria). J. Phycol. 41, 421–438.

***Pseudanabaena* sp**.

**593** Isolated as PP16 by A. Kirkwood, Sept-1997 from pulp and paper effluent pond in Windsor, PQ, Canada

**678** Deposited by L. Hendzel, 29-Sep-2006 as FWI #63. Collected, isolated and identified by F.P. Healey, 17-Oct-1970. Collected from the Lee River in eastern Manitoba, Canada. Rem: LB; WC medium.

***Pseudokirchneriella subcapitata*** (Korshikov) Hindak

**37** Deposited by C. Nalewajko as UTEX 1648. Isolated by O. Skulberg as NIVA CHL1, 1959, Norway, Akershus River Nitelva. Formerly known as ***Selenastrum capricornutum***. Relatives: CCAP 278/4, ATCC 22662 as Selenastrum capricornutum. Rem: A; ecotoxicity test strain; food source for other organisms.

***Radaisia* sp.**

**599** Isolated as PP22 by A. Kirkwood, Jul-1999 from pulp and paper effluent pond in Grand Prairie, AB, Canada

***Rhodomonas minuta*** Skuja

**344** Isolated by R. Stemberger from Lake Michigan, MI, USA, 1981. Deposited by J. Gilbert, Oct-1993. Rem: LB; food source for planktonic rotifers and larval stages of molluscs.

***Scenedesmus acutus* f*. alternans*** Hortobagyi

**8** Deposited by P.M. Stokes Dec-1986 as UTEX 72. Rem: A

**10** Dep P.M. Stokes as B4 Dec-1986. Isolated by P.M. Stokes from Boucher Lake, Falconbridge, ON, Canada, Jun-1970. Rem: A; Cu and Ni tolerant; food source for other organisms.

**282** Isolated by J. Acreman from Alice Lake, Sudbury, ON, Canada, Jul-1992. Rem: BF

**285** Isolated by J. Acreman from Boucher Lake, Sudbury, ON, Canada, Jul-1992. Rem: B

**353** Derived from CPCC 8 by D. Jin. Deposited by D. Jin, Nov-1994. Rem: B, resistant to 5 micromole Ni.

***Scenedesmus denticulatus*** Lagerheim

**153** Isolated by J. Acreman Oct-1987 from Terry Lake, ON, Canada. Rem: LBF

***Scenedesmus obliquus*** (Turp.) Kutz.

**5** Deposited by P. M. Stokes Dec-1986. Origin unknown. Rem: A; BBM medium; food source for other organisms.

**157** Deposited by C. Trick as UWO #201. Isolated from Thames River, London, ON, Canada. Rem: LBF

***Scenedesmus quadricauda*** (Turp.) Breb.

**158** Isolated by J. Acreman Oct-1987 from Lake Erie at Point Pelee, ON, Canada. Rem: LBF

***Scenedesmus* sp.**

**20** Deposited by C. Nalewajko as FW #10. Isolated in 1984 by M. O'Mahoney and B. Paul from Plastic Lake, ON, Canada. Rem: LB

**286** Isolated by J. Acreman from Boucher Lake, Sudbury, ON, Canada, Jul-1992. Rem: LB

**297** Isolated by J. Acreman from high salt seep, Toronto, ON, Canada, Nov-1992. Rem: LB

**316** Isolated by J. Acreman from Plastic Lake, ON, Canada, Sep-1993. Rem: B

**317** Isolated by J. Acreman from Plastic Lake, ON, Canada, Sep-1993. Rem: B

**318** Isolated by J. Acreman from Plastic Lake, ON, Canada, Sep-1993. Rem: B

**319** Isolated by J. Acreman from Plastic Lake, ON, Canada, Sep-1993. Rem: B

**423** Deposited by C. Nalewajko as AN1-10. Collected by M. Fawley, 21-Jan-1995 from Arrowwood Lake, ND, USA as under-ice sample. Rem: B

**531** Isolated by M. Khayatian, Feb-2001 from West Lake (an embayment of Lake Ontario) near Belleville, ON, Canada. Rem: LB

***Schizothrix calcicola*** (Ag.) Gom.

**472** Isolated by E. Tang, Aug-1995 from nearshore of Meretta Lake, Resolute, NWT, Canada (74$^{o}$ N, 94$^{o}$W). Identified by R. Sheath, 13-May-1998. Deposited by E. Tang 19-Aug-1998 as E-18. Rem: LB; maintained at 10ºC.

***Schizothrix* sp.**

**543** See ***Anabaena* sp.**

***Selenastrum capricornutum*** Printz

**37** See ***Pseudokirchneriella subcapitata***

**667** Deposited by L. Hendzel, 29-Sep-2006 as *Selenastrum capricornutum* FWI #14; identification uncertain. Isolated from lake water by John Stockner, Jun-1971. Rem: LF?; modified WC medium.

***Selenastrum* sp.**

**15** Deposited by C. Nalewajko as FW #1. Isolated in 1984 by M. O'Mahoney and B. Paul from Plastic Lake, ON, Canada. Rem: LB

**248** Isolated Jun-1990 by J. Acreman from artificial lake near Dorset, ON, Canada. Rem: LB

***Sphaerozosma* sp.**

**284** Isolated by J. Acreman from Baby Lake, Sudbury, ON, Canada, Jul-1992. Rem: LB

***Spirogyra* sp.**

**169** Isolated by J. Acreman Jun-1988 from Plastic Lake, ON, Canada. Rem: LBF; BBM medium at 20ºC.

***Spirulina* sp.**

**695** Received Aug-2003 from CCCM as CCCM 7045 *Spirulina* sp. Received at CCCM as UTEX LB 2179. Collected 1972 by R.B Channell from dried-up pothole, Cumberland River, Nashville, TN, USA. Identified by F. Drouet as *Arthrospira jenneri*; deposited in UTEX by Harold C. Bold; renamed by Richard C. Starr but identity still uncertain. Originally accessioned as UTCC 614; this strain contained an amoeba and has now been purified and accessioned as CPCC 695. Rem: LBF; BG-11 and 3N BBM medium; freshwater species; slow-growing strain; not for human consumption.

***Staurastrum arachne*** Ralfs

**347** Isolated by J. Acreman from Plastic Lake, ON, Canada, Oct-1993. Rem: LB

***Staurastrum furcigerum*** Breb.

**358** Isolated by J. Pawlikowski, Jul-1994 from Algonquin Park, Opeongo Lake, ON, Canada. Rem: LB

***Staurastrum johnsonii*** West and West

**128** Isolated by J. Acreman Sep-1987 from Bent Shoe Lake, ON, Canada. Rem: LB

***Staurastrum orbiculare* var. *ralfsii*** W. and G.S. West

**40** Deposited by C. Nalewajko as UTEX 430. Isolated by K. Ondracek as 4 *Cosmarium*; Czechoslovakia; identified by Cedercreutz. Relatives: UTEX 430, CCAP679/2. Rem: LB

***Staurastrum cf. sebaldi* var. *ornatum*** Nordstedt

**447** Isolated by S. Watson, summer 1996 from pond on University of Calgary campus, Calgary, AB, Canada. Rem: LB

***Staurastrum subpygmaceus*** (West) Groos.

**386** Isolated by J. Pawlikowski, Oct-1994 from Kakakise Lake, ON, Canada. Rem: LB

***Staurastrum* sp.**

**682** Deposited by L. Hendzel, 29-Sep-2006 as FWI #102. Collected, isolated, and identified by F.P. Healey, Apr-1977. Collected from Lake 303 in the Experimental Lakes Area (ELA) in north-west Ontario, Canada. Rem: LF; modified WC medium.

***Stephanodiscus hantzschii*** Grunow

**267** Received from CCAP Apr-1991 as CCAP 1079/4. Isolated in 1983 by Jaworski from Esthwaite Water, Cumbria, England. Rem: LB; food source for other organisms.

***Stichococcus baccillaris*** Nag.

**177** Deposited by T. Sawa as 86W 0680. Rem: A

**563** Deposited by B.A. Whitton, Sep-2001 as D0542. Collected 9-Jun-1978 by P.J. Say from Site 3313-05, France. Rem: clonal culture; CHU-10 + Zn (5 mg/L) medium; reported by B.A. Whitton as viable in liquid nitrogen without cryopreservative but low survival rate.

***Stichococcus* sp.**

**419** Isolated by J. Acreman, Nov-1995. Collected as under-ice sample from North Lake, Resolute, NWT, Canada, 1995. Rem: LBF

**556** Deposited in CPCC by B.A. Whitton, Sep-2001 as D0460. Collected by B.A. Whitton, isolated by C. Rajendran from Site 0127-50, England, UK. Rem: clonal culture; CHU-10 with $NH_4$-N(7mg/L) + Al (5 mg/L) medium at pH 3.

**558** Deposited in CPCC by B.A. Whitton, Sep-2001 as D0478. Collected 15-Jun-1980 by B.A. Whitton, isolated by C. Rajendran from Site 9011-01, USA. Rem: CHU-10 with $NH_4$-N(7 mg/L) + Al (5 mg/L) medium at pH 3.

**559** Deposited in CPCC by B.A. Whitton, Sep-2001 as D0479. Collected 15-Mar-1980 by B.A. Whitton, isolated by C. Rajendran from Site 0216-15 England, UK. Rem: clonal culture; CHU-10 with $NH_4$-N(7 mg/L) + Al (5 m/L) medium at pH 3.

**574** Deposited by B.A. Whitton, Sep-2001 as D0831. Collected by B.A. Whitton from Site 0097-1, England, 7-Jun-1988. Isolated by M.J. Hutchinson. Rem: LB; CHU-10 medium with Cd (0.25) at pH 5.

**616** Deposited by B.A. Whitton, Sep-2001 as D0555. Collected from Site 4027-1, Germany. Rem: LB; CHU-10 medium with Zn(5) at pH 5.

***Synechococcus cedorum*** Sauvg.

**79** Deposited by B. Colman as UTEX LB 1191. Rem: LB

***Synechococcus elongatus*** Nag.

**97** Deposited by K. Smith as UTEX LB 563. Rem: LB

***Synechococcus leopoliensis*** (Racib.) Komarek

**102** Deposited by J. Coleman Apr-1987 as UTEX 625. Collected by W. Kratz from Waller Creek, Austin, TX, USA. Isolated in 1952 by M.B. Allen as axenic M2.1.1. Identified by F. Drouet as *Anacystis nidulans*; renamed in 1970 by Komarek. Relatives: UTEX 625; CCAP 1405/1, SAG B1402-1, ATCC 27144 *S*.sp. a.k.a. ATCC 27344 *S*.sp. a.k.a. IUCC 625 phage host, PCC 6301 etc. (see UTEX catalogue for complete list). Rem: A

**708** Received from UTEX as UTEX 2434 Nov-2010. Relatives: UTEX 2434; PCC 7942 Synechococcus (cluster 1) sp.; UTCC 100; NIBB 1113. A.k.a. *Anacystis nidulans* R2. Rem: A?; BG-11 medium.

**709** Formerly UTCC 100 *Synechococcus leopoliensis*; recovered from D. Nobles Nov-2010 who received it as UTCC 100 in 1999. Rem: B; BG-11 medium.

***Synechococcus linearis*** (Schmidle & Lauterborn) Komárek

**673** Deposited by L. Hendzel, 29-Sep-2006 as FWI #27. Collected, isolated and identified by F.P. Healey, 17-Oct-1970. Collected from a road-side pond near MacArthur Falls, MB, Canada. Rem: LB?; BG-11 medium; identification uncertain: creates filaments and rounded cells.

***Synechococcus* sp.**

**246** Isolated Aug-1990 by J. Acreman from artificial pond near Dorset, ON, Canada. Rem: LB

**434** Isolated Jul-1996 by J. Acreman from Lake Biwa, Japan. Rem: LB

**477** Isolated Aug-1993 by S. Vezina from pond on Bylot Island, Nunavut, Canada (73$^{o}$ N, 78$^{o}$ W) as P1. Identified by P. Broady 1993. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as P-211. Rem: LB; DNA sequence is available.

**478** Isolated Aug-1993 by S. Vezina from pond on Bylot Island, Canada (73$^{o}$ N, 78$^{o}$ W) as P2. Identified by S. Vezina 1993. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as P-212. Rem: LB; DNA sequence is available.

**479** Isolated Aug-1993 by S. Vezina from pond on Bylot Island, Canada (73$^{o}$ N, 78$^{o}$ W) as P3. Identified by S. Vezina 1993. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as P-213. Rem: LB; DNA sequence is available.

**480** Isolated Aug-1993 by S. Vezina from pond on Bylot Island, Canada (73$^{o}$ N, 78$^{o}$ W) as P4. Identified by S. Vezina 1993. Deposited by W. Vincent and E. Tang, 19-Aug-1998 as P-214. Rem: LB; DNA sequence is available.

**660** Deposited by George Bullerjahn 25-May-2006 as **GSL**. Derived from PCC 7942 *Synechococcus elongatus*. Collected by K. Floyd in 1973 from freshwater site in California, USA. Bioreporter strain constructed by Osnat Gillor. Rem: BG-11 medium with addition of 20 ug ml$^{-1}$ of spectinomycin. This strain is a derivative of PCC 7942 in which a promoter fusion to the Vibrio fischeri luciferase genes has been engineered into the chromosome. Specifically, the nitrogen-responsive glnA promoter has been fused to V. fischeri luxAB. This construct allows strain KAS101 to be a luminescent biosensor (bioreporter) for bioavailable combined nitrogen in fresh water. Thus, the strain is an analytical tool for scientists to measure nitrate and ammonium availability to phytoplankton. The strain contained heterotrophic bacteria on deposition.

References:

Gillor, O., A. Harush, O. Hadas, A.F. Post and S. Belkin. 2003. A *Synechococcus* P*glnA::luxAB* fusion for estimation of nitrogen bioavailability to freshwater cyanobacteria. *Appl. Env. Microbiol*. 69: 1465-1474.

**661** Deposited by George Bullerjahn 25-May-2006 as **KAS101.** Derived from PCC 7942 *Synechococcus elongatus.* Collected by K. Floyd in 1973 from freshwater site in California, USA. Bioreporter strain constructed by Kathyrn Durham. Rem: BG-11 medium with addition of 20 ug $ml^{-1}$ each of spectinomycin and kanamycin. This strain is a derivative of PCC 7942 in which a promoter fusion to the *Vibrio fischeri* luciferase genes has been engineered into the chromosome. Specifically, the iron-responsive *isiA* promoter has been fused to *V. fischeri luxAB.* This construct allows strain KAS101 to be a luminescent biosensor (bioreporter) for bioavailable iron in fresh water. Thus, the strain is an analytical tool for scientists to measure iron availability to phytoplankton. The strain contained heterotrophic bacteria on deposition.

References:


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Porta, D., G.S. Bullerjahn, M.R. Twiss, S.W. Wilhelm, L. Poorvin and R.M.L. McKay. 2005. Determination of Bioavailable Fe in Lake Erie Using a Luminescent Cyanobacterial Bioreporter. J. Great Lakes Res. 31(supplement 2): 180-194.

Hassler, C.S., M.R. Twiss, R.M.L. McKay and G.S. Bullerjahn 2006. Optimization of a cyanobacterial (*Synechococcus* sp. PCC 7942) bioreporter to measure bioavailable iron. J. Phycol. 42: 324-335.


**663** Deposited by G. Bullerjahn 28-Sep-2005 as ARC-11. Collected by S. Wilhelm 25-Aug-2004 from Lake Erie, Environment Canada Station 84. Identified by A. Cupp and G. Bullerjahn in 2005. Isolated and cloned by A. Cupp 2005. Relatives: PCC 9005 *Synechococcus* sp. Rem: B; BG-11 medium; in GenBank as DQ026832.

**672** Deposited by L. Hendzel, 29-Sep-2006 as FWI #23. Collected, isolated, and identified by F.P. Healey, 4-Oct-1970. Collected from the Delta Marsh in the south of Lake Manitoba, MB, Canada. Rem: LB; WC medium.

***Synechocystis* sp.**

**352** Isolated by J. Acreman from Plastic Lake, ON, Canada, Nov-1993. Rem: LB

**534** Isolated by J. Acreman, Apr-2001 from Burlington Bay, Lake Ontario, ON, Canada. Collected by S. Watson. Rem: LB

***Synedra* sp.**

**540** Isolated by A. Gonzales (UTCC) Nov-2001 from Whitefish Bay, Lake Superior; identified by J. Acreman Nov-2001; collected by R.M. McKay (BGSU, OH, USA) Jul-2001.

***Synura petersenii*** Korshikov

**495** Received 16-Feb-1999 from R. Andersen as CCMP 866. Collected 15-Aug-1982 by R. Andersen from a shallow pond at junction of TransCanada Hwy #1 and Newfoundland Hwy 410, NL, Canada. Rem: LB

***Synura uvella*** Ehr.

**422** Deposited by C. Nalewajko 1995 as AN1-1. Collected by M. Fawley, 21-Jan-1995 from Arrowwood Lake, ND, USA as under-ice sample. Rem: LB

***Tabellaria fenestrata*** (Lyngbye) Kützing

**617** Isolated by A. Anton, Nov-2003 from Big Pond, Bay Bulls, NL, Canada. Rem: LB

**618** Isolated by A. Anton, Nov-2003 from Big Pond, Bay Bulls, NL, Canada. Rem: LB

**619** Isolated by J. Acreman, Nov-2003 from Big Pond, Bay Bulls, NL, Canada. Rem: LB

***Tabellaria flocculosa*** (Roth) Kutzing

**65** Isolated Nov-1986 by J. Acreman from Plastic Lake, ON, Canada. Rem: LB

**372** Isolated by J. Pawlikowski, Oct-1994 from Kakakise Lake, ON, Canada. Rem: LBF

***Tabellaria* sp.**

**166** Isolated Jun-1988 by J. Acreman from Plastic Lake, ON, Canada. Rem: LB

***Tetraselmis* sp.**

**196** Deposited by T. Sawa as 86W 0480 *Platymonas* sp. Rem: LB

***Trichormus variabilis*** (Kützing ex Bornet & Flahault) Komárek & Anagnostidis

**64** See ***Anabaena flos-aquae***

***Tychonema bourellyi*** (J.W.G.Lund) Anagnostidis & Komárek

**594** Isolated by A. Kirkwood, Apr-1999 from pulp and paper effluent pond as PP17 from Rotorua, New Zealand.

***Ulothrix* sp.**

**509** Isolated by C. Chung, Aug-1999 from Boomerang Lake, near Red Lake. Metal contaminated site. Rem: B; maintained in MAM; tolerant to low pH and was tolerant to 100 micromole nickel.

**546** Isolated by M. Khayatian at CPCC, Dec-2001 from tank of *Salvinia* plants in BIO 150 lab at University of Toronto, ON, Canada. Rem: LBF; BBM or CHU-10 medium.

**568** Deposited by B.A. Whitton, Sep-2001 as D0836. Collected from Site 0093-04, England. Rem: LB; CHU-10 medium with Cd(0.25) at pH 5.

***Uroglena* sp.**

**276** Isolated Nov-1991 by J. Acreman as DL-1 from Dickie Lake, ON, Canada. Rem: LB

**278** Isolated Nov-1991 by J. Acreman as DL-4 from Dickie Lake, ON, Canada. Rem: LB

***Urosolenia* sp.**

**388** Isolated by J. Acreman, Mar-1994 from Alice Lake, ON, Canada. Rem: LB

***Zygogonium tunetanum*** Gauthier-Lievre

**136** Isolated Sep-1987 by J.Acreman from Plastic Lake, ON, Canada. Rem: LBF

**Isolates of Uncertain Identity:**

**"unicellular chlorophyte"**

**28** Isolated 1984 by M. O'Mahoney and B. Paul from Chubb Lake, ON Canada. Deposited by C. Nalewajko, 1987 as FW-22. Rem: LB; contains zooflagellates.

**51** Isolated by C. Nalewajko from Mason Bay, NWT, Canada. Deposited by C. Nalewajko, 1987 as M-23A. Rem: LB; marine.

**56** Isolated by C. Nalewajko from Mason Bay, NWT, Canada. Deposited by C. Nalewajko, 1987 as M-32B. Rem: LB; marine.

**450** Isolated by A. Kirkwood from pulp and paper mill effluent pond, Windsor, QC, Canada, Jul-1997.

**513** Isolated by B. Kluczyk Dec-1999 from salt collected at a salt graduation tower in Poland. Rem: LB

**514** Isolated by B. Kluczyk Dec-1999 from salt collected at a salt graduation tower in Poland. Rem: LB

**610** Isolated by J. Acreman, Nov-2002 from Lake Ontario, Canada, Station 2195.

**627** Isolated by H. Weger from a pond in a waterfowl sanctuary in a park in Regina, SK, Canada, Jul-2004. Received Aug-2004 as *Microcystis aeruginos*a Strain GP1 from H. Weger but has since been found to be a unicellular chlorophyte based on pigmentation analysis (contains chlorophyll a and b along with xanthophylls).

"**unicellular cyanobacterium"**

**52** Isolated by C. Nalewajko from Mason Bay, NWT, Canada. Deposited by C. Nalewajko, 1987 as M-25A. Rem: LB; marine.

**332** Isolated by J. Acreman from Plastic Lake, ON Canada, Sep-1993.

**"unicellular unknowns"**

**641** CD-1 Red. Received Apr-2005 from G. Bullerjahn. Collected 19-May-2004 by G. Bullerjahn from Lake Superior, Canada, Station CD1, lat 46 54.500, long 89 17.500. Isolated by Ma'moon Al_Rshaidat 5-Jan-2005.

"**unidentified cryptomonad"**

**699** Collected from Lake Superior; deposited by S. Guildford; purified Jul-2010 by J. Acreman but may still have a picocyanobacteria contaminant. Identity uncertain: may be *Cryptomonas* sp.

"**filamentous cyanobacterium"**

**74** Isolated by T. Gibson as 4 from Scotland. Deposited in 1988 by B. Colman as UTEX 584 *Nostoc commune*, however, molecular data indicates it is not *Nostoc commune*. Rem: A References:

Wright, D., T. Prickett, R. Helm, & M. Potts. 2001. Form species *Nostoc commune* (Cyanobacteria). International J. of Systematic and Evolutionary Microbiology 51: 1839-1852.

## Isolates of Aquatic Macrophytes

***Lemna gibba*** L.

**310** Deposited by R. Roshon, May-1993 as G3. Collected by Appel in the Botanical Garden of Catania, Sicily, Italy, circa 1970. Identity re-examined and certified by Dr. Elias Landolt (the world's leading authority on the taxonomy of the Lemnaceae) of the Geobotanisches Instititut ETH in Zurich, Switzerland. Rem: A; ecotoxicity test organism.

***Lemna minor*** L.

**490** Isolated 1977 by E. Landolt as L. minor #8434. Collected by B.E. Giles in 1977 from Wainfleet, Stinking Barn, Niagara peninsula, ON, Canada. Deposited in CPCC 5-Jan-1999 as #8434 by A. Stomp who had received it from E. Landolt. Rem: A; ecotoxicity test organism.

**492** Isolated 1973 by E. Landolt as L. minor #7730. Collected by B.R. Baillie in 1973 from Elk Lake, Saanich Municipality (480 31.5' N, 1230 23.3'W), BC, Canada. Deposited in CPCC 5-Jan-1999 as #7730 by A. Stomp who had received it from E. Landolt. Rem: A; ecotoxicity test organism.

***Lemna trisulca*** L.

**399** Deposited by M. Moody, Isolated from retention pond, Saskatoon, SK, Canada, Jul-1991. Rem: A