

ELECTRONIC APPENDIX

This is the Electronic Appendix to the article

The extent of protist diversity: insights from molecular ecology
of freshwater eukaryotes

by

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Electronic appendices are refereed with the text; however, no attempt is made
to impose a uniform editorial style on the electronic appendices.

Slapeta *et al.* - Electronic appendix: Fig. S1

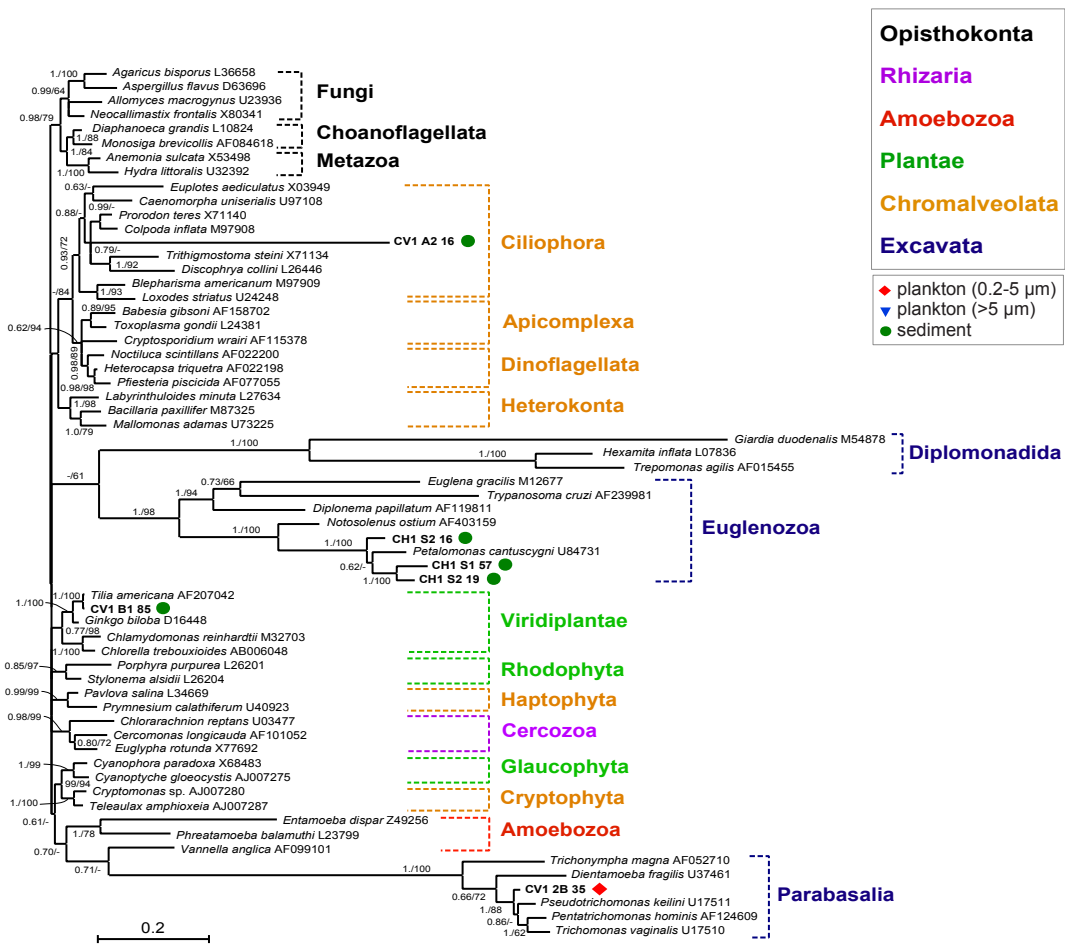


Fig. S1. Bayesian phylogenetic tree of eukaryotic SSU rDNA sequences retrieved from sediment and plankton of a suboxic pond (CV1) and an oxic freshwater shallow lake (CH1) showing the position of excavate and plant phylotypes and one divergent sequence, probably from a ciliate species. The tree was reconstructed using 1140 unambiguously aligned positions of 62 sequences of wide taxonomic distribution. Sequences derived from this study are highlighted in bold. The type of environment each phylotype was identified in is indicated by geometric symbols. Posterior probabilities >0.6 (left) and bootstrap values (right) > 60% are given at nodes. The scale bar represents the number of substitutions per 100 positions per a unit branch length.

Slapeta *et al.* - Electronic appendix: Table S1

Table S1. Eukaryotic SSU rDNA clones and phylotypes from plankton and sediment of the oxic lake (CH1) and the suboxic pond (CV1) analysed in this work. Acc. No., accession number. The number of clones of a given phylotype retrieved from the planktonic fraction between 0.2-5 μm (0.2), that > 5 μm (5), and from sediment (S), is indicated. A phylotype is arbitrarily defined as a group of sequences having >97% nucleotide identity, and is represented by one sequence. The systematic affiliation was based in BLAST and phylogenetic analyses.

Clone name	Acc. No.	0.2	CV1 5	S	0.2	CH1 5	S	Systematic affiliation	Closest NCBI-BLAST hit (Acc. No.)	BLAST alignment identities*	BLAST alignment Gaps**
CV1_A2_16	AY821980	0	0	1	0	0	0	Eukaryota incertae sedis	\$Caenomorphidae gen. sp. (AJ009661)	844/1126 (74%)	101/1126 (8%)
CH1_S2_24	AY821921	0	0	0	0	0	1	Eukaryota: Alveolata: Apicomplexa: Gregarina: Eugregarinida	Uncultured alveolate clone CCA5 (AY179988)	1610/1707 (94%)	24/1707 (1%)
CV1_2A_27	AY821925	1	0	0	0	0	0	Eukaryota: Alveolata: Ciliophora	<i>Cryptocaryon irritans</i> (AF351579)	1417/1582 (89%)	56/1582 (3%)
CV1_A1_16	AY821934	0	0	1	0	0	0	Eukaryota: Alveolata: Ciliophora	<i>Cryptocaryon irritans</i> (AF351579)	1418/1590 (89%)	55/1590 (3%)
CV1_B2_43	AY821940	0	0	2	0	0	0	Eukaryota: Alveolata: Ciliophora: Litostomatea	<i>Didinium nasutum</i> (U57771)	1281/1419 (90%)	49/1419 (3%)
CH1_2A_27	AY821917	0	0	0	1	0	0	Eukaryota: Alveolata: Ciliophora: Litostomatea: Haptoria: Haptorida	<i>Spathidium</i> sp. (Z22931)	1426/1459 (97%)	8/1459 (0%)
CV1_2A_28	AY821926	1	0	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Litostomatea: Haptoria: Pleurostomatida	<i>Hemophysys proceca</i> (AY102175)	1366/1470 (94%)	14/1470 (0%)
CV1_5B_12	AY821931	0	1	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Litostomatea: Trichostomalia: Vestibuliferida: Plagioplyidae	<i>Plagioplyla frontata</i> (Z29440)	1535/1587 (96%)	13/1587 (0%)
CV1_2A_17	AY821923	4	0	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Oligohymenophorea	<i>Dextrichides pangii</i> (AY212805)	1438/1585 (90%)	49/1585 (3%)
CV1_2A_18	AY821924	1	0	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Oligohymenophorea: Hymenostomatida: Tetrahymenina	<i>Glaucoma scintillans</i> (AJ511861)	1516/1545 (98%)	5/1545 (0%)
CV1_5A_22	AY821929	0	1	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Oligohymenophorea: Peniculida	<i>Frontonia</i> sp. (AF255359)	1442/1571 (91%)	48/1571 (3%)
CH1_S1_82	AY821919	0	0	0	0	0	1	Eukaryota: Alveolata: Ciliophora: Oligohymenophorea: Scuticociliata: Pleuronematida	<i>Pleuronema coronatum</i> (AY103188)	1567/1580 (97%)	10/1580 (0%)
CV1_B1_45	AY821939	0	0	1	0	0	0	Eukaryota: Alveolata: Ciliophora: Oligohymenophorea-like	<i>Cyclidium porcatum</i> (Z29517)	1416/1582 (89%)	54/1582 (3%)
CV1_B2_52	AY821941	0	0	6	0	0	0	Eukaryota: Alveolata: Ciliophora: Oligohymenophorea-like	<i>Anophyroides haemophila</i> (U51554)	1390/1521 (91%)	41/1521 (2%)
CV1_A1_26	AY821935	0	0	1	0	0	0	Eukaryota: Alveolata: Ciliophora: Phyllopharyngae	<i>Heliohypha erhardi</i> (AY007448)	1253/1493 (83%)	84/1493 (5%)
CH1_S1_92	AY821920	0	0	0	0	0	1	Eukaryota: Alveolata: Ciliophora: Prostomatea: Prorodontida: Prorodontidae: Prorodon	<i>Prorodon teres</i> (X71140)	1567/1575 (99%)	3/1575 (0%)
CV1_2A_6	AY821927	2	0	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea	<i>Uroleptus gallina</i> (AF508779)	1466/1596 (91%)	58/1596 (3%)
CV1_B1_13	AY821938	0	0	3	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea	<i>Halteria grandinella</i> (AF194410)	1547/1601 (96%)	12/1601 (0%)
CV1_A1_11	AY821933	0	0	4	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Armophorida: Caenomorphidae: Caenomorpha	<i>Caenomorpha</i> sp. (AJ009663)	1250/1255 (99%)	2/1255 (0%)
CV1_A2_24	AY821936	34	28	12	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Armophorida: Caenomorphidae: Caenomorpha	<i>Caenomorpha uniserialis</i> (U97108)	1462/1493 (97%)	15/1493 (1%)
CV1_5A_8	AY821930	2	12	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Armophorida: Metopidae	<i>Metopus palaeformis</i> (AY007452)	1439/1566 (91%)	52/1566 (3%)
CV1_B2_81	AY821942	0	0	1	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Armophorida: Metopidae	<i>Metopus palaeformis</i> (AY007452)	1408/1483 (94%)	25/1483 (1%)
CV1_5A_17	AY821928	0	4	23	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Armophorida: Metopidae: Brachonella	<i>Brachonella</i> sp. (AJ009665)	1270/1275 (99%)	1/1275 (0%)
CH1_5A_5	AY821918	0	0	0	2	10	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Chroocitrichia: Tetinimida: Codonellidae	<i>Tintinnopsis tubulosoides</i> (AF399111)	1553/1595 (97%)	8/1595 (0%)
CH1_2A_10	AY821916	0	0	0	2	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Chroocitrichia: Chroocitrichidae: Strobilidiidae	<i>Strobilidium caudatum</i> (AY143573)	1511/1596 (94%)	20/1596 (1%)
CV1_B1_1	AY821937	0	0	3	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Hypotrichia: Euplotida	<i>Aspidisca steini</i> (AF305625)	1389/1575 (88%)	61/1575 (3%)
CV1_5B_8	AY821932	2	1	0	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Hypotrichia: Euplotida: Euplotidae: Euplotes	<i>Euplotes octocarinatus</i> (AJ310489)	1710/1735 (98%)	10/1735 (0%)
CV1_2A_16	AY821922	4	0	2	0	0	0	Eukaryota: Alveolata: Ciliophora: Spirotrichea: Slichotrichia: Slichotrichidae: Oxytrichidae	<i>Oxytricha granulifera</i> (X53486)	1543/1567 (98%)	4/1567 (0%)
CV1_B1_93	AY821943	0	0	1	0	0	0	Eukaryota: Centrohelzoa	<i>&Pterocystis</i> sp. JJP-2003 (AY268043)	962/1035 (92%)	35/1035 (3%)
CV1_B2_46	AY821944	0	0	1	0	0	0	Eukaryota: Centrohelzoa	<i>&Pterocystis</i> sp. JJP-2003 (AY268043)	989/1054 (93%)	17/1054 (1%)
CH1_2A_20	AY821945	0	0	0	1	0	0	Eukaryota: Cercozoa	<i>Cryothecomonas longipes</i> (AF290540)	1508/1651 (91%)	55/1651 (3%)
CV1_B1_11	AY821946	0	0	1	0	0	0	Eukaryota: Cercozoa	<i>Cryothecomonas longipes</i> (AF290540)	1521/1626 (93%)	24/1626 (1%)
CV1_B1_41	AY821947	0	0	1	0	0	0	Eukaryota: Cercozoa	<i>&Uncultured eukaryote clone CCA33 (AY180002)</i>	1463/1652 (88%)	76/1652 (4%)
CV1_B1_36	AY821948	0	0	1	0	0	0	Eukaryota: Choanoflagellida	<i>&Monosiga ovata</i> (AF271999)	892/962 (92%)	20/962 (2%)
CV1_B2_17	AY821949	0	0	1	0	0	0	Eukaryota: Choanoflagellida	<i>Monosiga ovata</i> (AF271999)	1398/1559 (89%)	55/1559 (3%)
CH1_5A_4	AY821954	0	0	0	6	2	0	Eukaryota: Cryptophyta	<i>Chromonas</i> sp. (AJ420699)	1446/1613 (89%)	55/1613 (3%)
CH1_2A_33	AY821950	0	0	0	1	0	0	Eukaryota: Cryptophyta: Cryptomonadaceae: Cryptomonas	<i>Cryptomonas ovata</i> (AJ421147)	1557/1571 (99%)	2/1571 (0%)
CH1_2B_6	AY821952	0	0	0	1	0	0	Eukaryota: Cryptophyta: Cryptomonadaceae: Cryptomonas	<i>Cryptomonas</i> sp. (AJ007281)	1601/1605 (99%)	1/1605 (0%)
CH1_5A_2	AY821953	0	0	0	0	1	0	Eukaryota: Cryptophyta: Cryptomonadaceae: Cryptomonas	<i>Cryptomonas ovata</i> (AJ421147)	1562/1578 (98%)	3/1578 (0%)
CH1_S1_20	AY821955	0	0	0	30	14	3	Eukaryota: Cryptophyta: Cryptomonadaceae: Cryptomonas	<i>Cryptomonas</i> sp. (AJ007280)	1598/1606 (99%)	3/1606 (0%)
CH1_2B_4	AY821951	0	0	0	2	0	0	Eukaryota: Cryptophyta: Teleostea	<i>Teleaulax amphioxiae</i> (AJ007287)	1563/1585 (98%)	9/1585 (0%)
CH1_S1_57	AY821956	0	0	0	0	1	1	Eukaryota: Euglenozoa: Euglenida: Sphenomonadales: Sphenomonadidae	<i>Petalomonas cantuscygni</i> (U84731)	1576/1923 (81%)	148/1923 (7%)
CH1_S2_16	AY821957	0	0	0	0	1	1	Eukaryota: Euglenozoa: Euglenida: Sphenomonadales: Sphenomonadidae	<i>Petalomonas cantuscygni</i> (AF386635)	1648/1987 (82%)	139/1987 (6%)
CH1_S2_19	AY821958	0	0	0	0	1	1	Eukaryota: Euglenozoa: Euglenida: Sphenomonadales: Sphenomonadidae	<i>Petalomonas cantuscygni</i> (AF386635)	1406/1675 (83%)	106/1675 (6%)
CV1_B1_65	AY821966	0	0	1	0	0	0	Eukaryota: Fungi: Ascomycota: Pezizomycotina	<i>Cucurbitaria berberidis</i> (U42481)	1609/1623 (99%)	1/1623 (0%)
CV1_B1_18	AY821993	0	0	1	0	0	0	Eukaryota: Fungi: Ascomycota: Taphrinomycetes: Taphrinales	<i>Taphrina virginica</i> (AB000960)	1599/1616 (98%)	4/1616 (0%)
CH1_S1_66	AY821990	0	0	0	0	0	1	Eukaryota: Fungi: Basidiomycota: Hymenomycetes: Heterobasidiomycetes: Tremellomycetidae	<i>Cryptococcus carnescens</i> (AB085798)	1632/1635 (99%)	2/1635 (0%)
CV1_B1_42	AY821994	0	0	1	0	0	0	Eukaryota: Fungi: Basidiomycota: Hymenomycetes: Heterobasidiomycetes: Tremellomycetidae	<i>Cryptococcus carnescens</i> (AB085798)	1610/1628 (98%)	1/1628 (0%)
CV1_B2_69	AY821998	0	0	2	0	0	0	Eukaryota: Fungi: Basidiomycota: Ustilaginomycetes: Exobasidiomycetidae: Microstromatales	<i>Rhodotorula bacarum</i> (AJ496257)	1429/1432 (99%)	-
CH1_2B_29	AY821989	0	0	0	1	0	0	Eukaryota: Fungi: Chytridiomycota	<i>Catenomyces</i> sp. JEL342 (AY635830)	1510/1603 (94%)	23/1603 (1%)
CV1_B1_10	AY821992	0	0	2	0	0	0	Eukaryota: Fungi: Chytridiomycota	<i>Allomyces arbuscula</i> (AY552524)	1580/1691 (93%)	36/1691 (2%)
CV1_B1_58	AY821995	0	0	1	0	0	0	Eukaryota: Fungi: Chytridiomycota	<i>Allomyces arbuscula</i> (AY552524)	1564/1697 (92%)	45/1697 (2%)
CH1_S2_50	AY821991	0	0	0	0	0	1	Eukaryota: Fungi: Fungi incertae sedis	Unidentified eukaryote LKM11 (AJ130849)	1350/1500 (87%)	71/1500 (4%)
CV1_B2_34	AY821997	0	0	2	0	0	0	Eukaryota: Fungi: Fungi incertae sedis	Unidentified eukaryote LKM11 (AJ130849)	1417/1463 (96%)	7/1463 (0%)
CV1_B1_97	AY821959	0	0	1	0	0	0	Eukaryota: Haptophyceae	# Uncultured dinoflagellate CCA32 (AY179990)	536/626 (85%)	43/626 (6%)
CV1_B2_32	AY821960	0	0	1	0	0	0	Eukaryota: Haptophyceae	# <i>Sporodiniella umbellata</i> (AF157160)	553/636 (86%)	34/636 (5%)
CV1_B1_92	AY821961	0	0	1	0	0	0	Eukaryota: Lobosia	Uncultured eukaryote BOL868 (AF327925)	1349/1522 (88%)	54/1522 (3%)
CH1_S1_77	AY821984	0	0	0	0	7	0	Eukaryota: Metazoa: Annelida: Ciliellata: Oligochaeta: Haplotaxida: Tubificina: Tubificidae	<i>Limnodrilus hoffmeisteri</i> (AF360992)	1609/1613 (99%)	2/1613 (0%)
CV1_5A_4	AY821985	0	1	0	0	0	0	Eukaryota: Metazoa: Arthropoda: Crustacea: Ostracoda: Podocopa: Podocopida	<i>Cypridopsis</i> sp. (AF363307)	1601/1615 (99%)	4/1615 (0%)
CH1_S1_38	AY821982	0	0	0	0	19	0	Eukaryota: Metazoa: Gastrotricha: Chaetonolida: Paucitubulatina: Chaetonolidae	<i>Chaetonotus</i> sp. (AJ001735)	1637/1669 (98%)	6/1669 (0%)
CV1_B1_5	AY821983	0	0	42	0	0	0	Eukaryota: Metazoa: Gastrotricha: Chaetonolida: Paucitubulatina: Chaetonolidae	Unidentified eukaryote LKM88 (AJ130867)	1533/1550 (98%)	4/1550 (0%)
CH1_S1_25	AY821981	0	0	0	0	1	0	Eukaryota: Metazoa: Nematoda: Enoplea: Enopliida	Unidentified nematode PTrPsp (AY284737)	1542/1642 (93%)	21/1642 (1%)
CH1_S1_76	AY821983	0	0	0	0	13	0	Eukaryota: Metazoa: Platyhelminthes: Turbellaria: Macrostromorpha: Macrostromida	<i>Microstromum lineare</i> (D85092)	1621/1652 (98%)	26/1652 (1%)
CV1_A1_10	AY821986	0	0	2	0	0	0	Eukaryota: Metazoa: Rotifera: Bdelloidea: Philodinida: Philodinidae	<i>Philodina acuticornis</i> (U41281)	1621/1655 (97%)	15/1655 (0%)
CV1_A1_28	AY821987	0	0	1	0	0	0	Eukaryota: Metazoa: Rotifera: Monogononta	<i>Lepadella patella</i> (AY218117)	1623/1637 (99%)	-
CV1_2B_35	AY821962	2	0	0	0	0	0	Eukaryota: Parabasalidae: Trichomonadida: Trichomonadidae: Trichomonadidae	<i>Pentatricomonas hominis</i> (AF124609)	1249/1345 (92%)	22/1345 (1%)
CV1_S1_35	AY821967	0	0	0	0	1	0	Eukaryota: stramenopiles	<i>Ochromonas tuberculata</i> (AF123293)	1461/1605 (91%)	46/1605 (2%)
CV1_B2_82	AY821977	0	0	1	0	0	0	Eukaryota: stramenopiles: Bacillariophyta	<i>Dickieia ulvacea</i> (AY485462)	1461/1543 (94%)	21/1543 (1%)
CV1_B1_87	AY821973	0	0	1	0	0	0	Eukaryota: stramenopiles: Bacillariophyta: Bacillariophyceae: Bacillariophycidae: Bacillariales	<i>Nitzschia thermalis</i> (AY485458)	1566/1587 (98%)	4/1587 (0%)
CV1_B1_61	AY821971	0	0	1	0	0	0	Eukaryota: stramenopiles: Bacillariophyta: Bacillariophyceae: Bacillariophycidae: Naviculales	<i>Navicula</i> sp. (AY485513)	1567/1588 (98%)	1/1588 (0%)
CV1_B2_38	AY821975	0	0	1	0	0	0	Eukaryota: stramenopiles: Bacillariophyta: Bacillariophyceae: Eunotiophyceae: Eunotiales	<i>Eunotia monodon</i> (AB085831)	1540/1553 (99%)	4/1553 (0%)
CH1_2A_3	AY821964	0	0	0	1	0	0	Eukaryota: stramenopiles: Bicosocida	<i>Adriamonas peritocrescens</i> (AF243501)	1432/1598 (89%)	59/1598 (3%)
CH1_2B_3	AY821965	0	0	0	1	0	0	Eukaryota: stramenopiles: Bicosocida	<i>Adriamonas peritocrescens</i> (AF243501)	1494/1597 (93%)	30/1597 (1%)
CH1_5A_8	AY821966	0	0	0	0	1	0	Eukaryota: stramenopiles: Bicosocida	<i>Adriamonas peritocrescens</i> (AF243501)	1494/1605 (92%)	