

Supplementary Material

Morphological and molecular characterization of cyanobacterial isolates from the mouth of the Amazon River

Elane D. Cunha de Oliveira^{1,2}, Alan C. da Cunha², Natalina B. da Silva³, Raquel Castelo-Branco⁴, João Morais⁴, Maria Paula C. Schneider⁵, Silvia M. M. Faustino², Vitor Ramos^{4*}, Vitor Vasconcelos^{4,6}

¹IEPA, Institute of Scientific and Technological Research of the State of Amapá, 68.903-419, Macapá-AP Brazil. E-mail: elanedsc@yahoo.com.br

²Bionorte Post-Graduate Program, UNIFAP, Federal University of Amapá, 68903-419, Macapá-AP, Brazil

³Scientific Initiation student at IEPA, Institute of Scientific and Technological Research of the State of Amapá, 68.903-419, Macapá-AP Brazil

⁴CIIMAR, Interdisciplinary Centre of Marine and Environmental Research, University of Porto, Terminal de Cruzeiros do Porto de Leixões, 4050-208 Matosinhos, Portugal

⁵UFPA, Federal University of Pará, 66075-110, Belém-PA, Brazil

⁶Department of Biology, Faculty of Sciences, University of Porto, 4069-007 Porto, Portugal

* Corresponding author

TABLE S1. BLAST best-hits results for the 16S rRNA gene sequences of the strains obtained in this study

Strain	Best Hits	Query coverage (%)	Identity (%)	Accession Number
<i>Alkalinema</i> aff.	<i>Alkalinema</i> sp. CMAA1554	100%	99%	KY873313
<i>pantanalense</i> LEGE 15484	<i>Alkalinema</i> sp. CMAA1562	100%	99%	KY873321
	<i>Alkalinema pantanalense</i> CENA531	100%	99%	KF246497
	<i>Alkalinema pantanalense</i> CENA529	100%	99%	KF246495

<i>Cephalothrix lacustris</i> LEGE 15487	<i>Phormidium</i> sp. KS	99%	99%	AB510147
	<i>Cephalothrix lacustris</i> CMAA1561	99%	99%	KY873320
	<i>Cephalothrix lacustris</i> CCIBt 3261	99%	99%	NR_137272
	<i>Cephalothrix komarekiana</i> CMAA1558	99%	99%	KY873317
<i>Limnothrix</i> cf. <i>planctonica</i> LEGE 15485	<i>Limnothrix</i> sp. NIES-3735	99%	99%	LC037450
	<i>Limnothrix planctonica</i> CHAB763	99%	99%	JQ004026
	<i>Limnothrix</i> sp. CENA111	99%	99%	EF088336
	<i>Limnothrix planctonica</i> KLL-C001	99%	99%	KP726239
<i>Leptolyngbya boryana</i> LEGE 15486	<i>Leptolyngbya</i> sp. NIES-504	100%	100%	LC319755
	<i>Leptolyngbya</i> sp. KSU-AQIQ-12	100%	100%	LN997861
	<i>Leptolyngbya</i> sp. KSU-AQIQ-6	100%	100%	LN997856
	<i>Leptolyngbya</i> sp. CENA104	100%	100%	EF088333
<i>Cephalothrix lacustris</i> LEGE 15493	<i>Phormidium</i> sp. KS	100%	99%	AB510147
	<i>Cephalothrix lacustris</i> CMAA1561	99%	99%	KY873320
	<i>Cephalothrix lacustris</i> CCIBt 3261	100%	99%	NR_137272
	<i>Cephalothrix komarekiana</i> CMAA1558	99%	99%	KY873317
<i>Cephalothrix lacustris</i> LEGE 15492	<i>Phormidium</i> sp. KS	99%	99%	AB510147
	<i>Cephalothrix lacustris</i> CMAA1561	99%	99%	KY873320
	<i>Cephalothrix lacustris</i> CCIBt 3261	99%	99%	NR_137272
	<i>Cephalothrix komarekiana</i> CMAA1558	99%	99%	KY873317
<i>Pseudanabaena</i> cf. <i>galeata</i> LEGE 15490	<i>Pseudanabaena</i> sp. CMAA1555	100%	99%	KY873314
	<i>Pseudanabaena mucicola</i> PM201405	100%	99%	KR912197
	<i>Pseudanabaena</i> sp. 0901-3A	100%	99%	AB936779
	<i>Pseudanabaena mucicola</i> CHAB7002	100%	99%	KM386851
<i>Pseudanabaena</i> cf. <i>galeata</i> LEGE 15489	<i>Pseudanabaena</i> sp. CMAA1555	100%	99%	KY873314
	<i>Pseudanabaena mucicola</i> PM201405	100%	99%	KR912197
	<i>Pseudanabaena</i> sp. 0901-3A	100%	99%	AB936779
	<i>Pseudanabaena mucicola</i> CHAB7002	100%	99%	KM386851

<i>Phormidium</i> sp. LEGE 15488	<i>Oscillatoria</i> sp. LEGE 05292	100%	98%	GU085101
	<i>Lyngbya</i> sp. JW-2010b	100%	98%	HQ419206
	<i>Phormidium irriguum</i> f. <i>minor</i> ETS-02	100%	98%	FN813342
	Cyanobacterium PL	100%	98%	DQ072163
unidentified Nostocales LEGE 15494	<i>Nostoc</i> sp. Cam2S01	100%	99%	AM711543
	<i>Nostoc</i> sp. CYN73	100%	98%	JF925315
	<i>Nostoc minutum</i> NIES-26	100%	98%	LC228976
	<i>Nostoc ellipsosporum</i> CCAP 1453/15	100%	98%	HE975023
unidentified Nostocales LEGE 15495	<i>Nostoc</i> sp. Cam2S01	99%	99%	AM711543
	<i>Nostoc</i> sp. CYN73	99%	98%	JF925315
	<i>Nostoc minutum</i> NIES-26	99%	98%	LC228976
	<i>Nostoc ellipsosporum</i> CCAP 1453/15	99%	98%	HE975023
unidentified Nostocales LEGE 15496	<i>Nostoc</i> sp. Cam2S01	100%	99%	AM711543
	<i>Nostoc minutum</i> NIES-26	100%	98%	LC228976
	<i>Nostoc</i> sp. CYN73	100%	98%	JF925315
	Nostocaceae cyanobacterium CENA358	100%	98%	KR137579
<i>Pseudanabaena</i> cf. <i>galeata</i> LEGE 15491	<i>Pseudanabaena</i> sp. CMAA1555	100%	99%	KY873314
	<i>Pseudanabaena mucicola</i> PM201405	100%	98%	KR912197
	<i>Pseudanabaena</i> sp. 0901-3A	100%	98%	AB936779
	<i>Pseudanabaena galeata</i> CHAB2916	100%	98%	KM386853
<i>Limnothrix</i> cf. <i>planctonica</i> LEGE 15497	<i>Limnothrix</i> sp. CENA545	100%	100%	KF246506
	<i>Limnothrix planctonica</i> KLL-C001	100%	99%	KP726241
	<i>Limnothrix</i> sp. PltGTmp21	100%	99%	KM438179
	<i>Limnothrix</i> sp. NIES-3735	100%	99%	LC037450

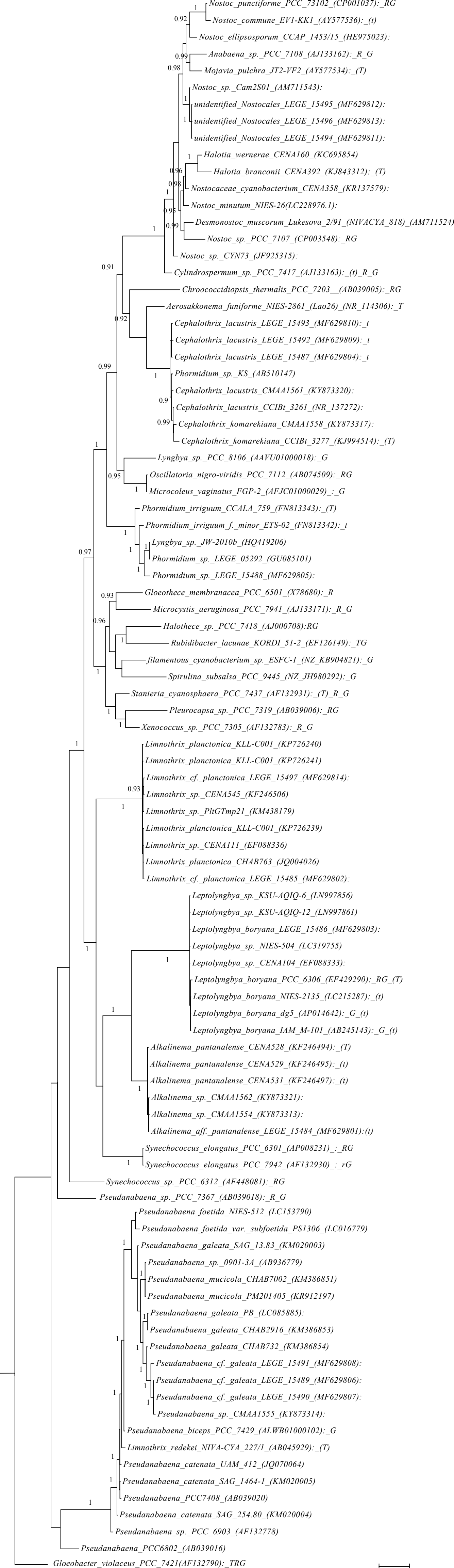


FIGURE S1. BI phylogenetic tree of 16S rRNA genes

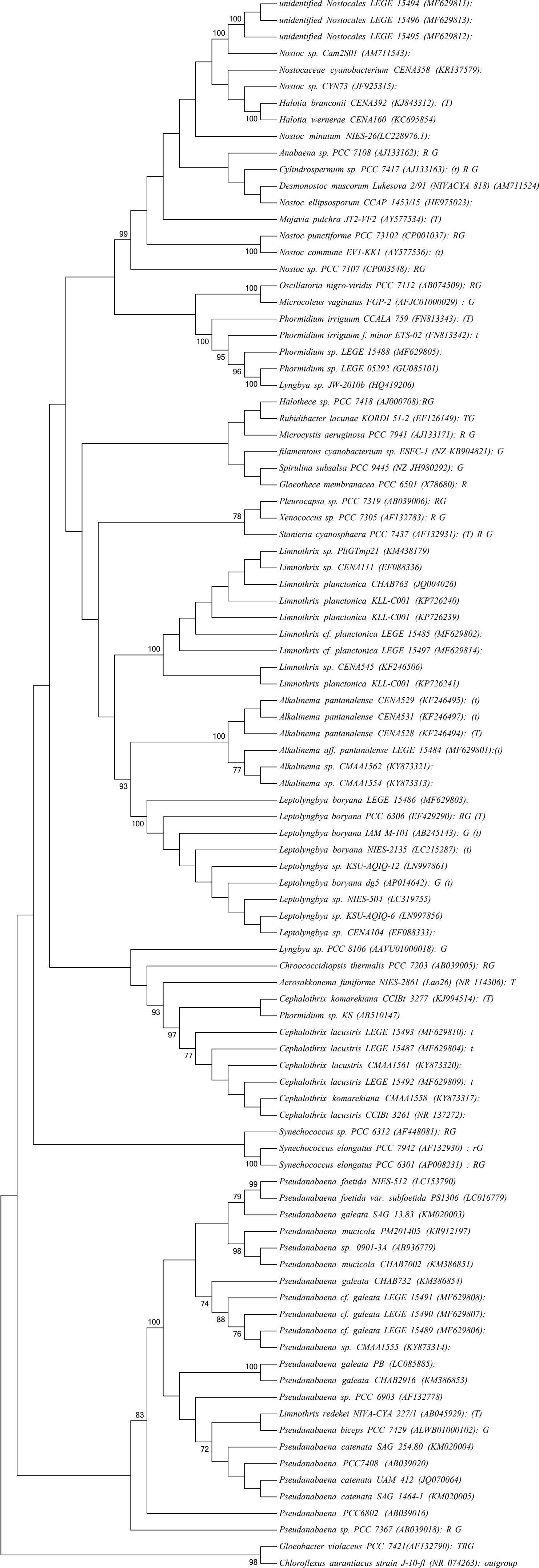


FIGURE S2. MP phylogenetic tree (cladogram)

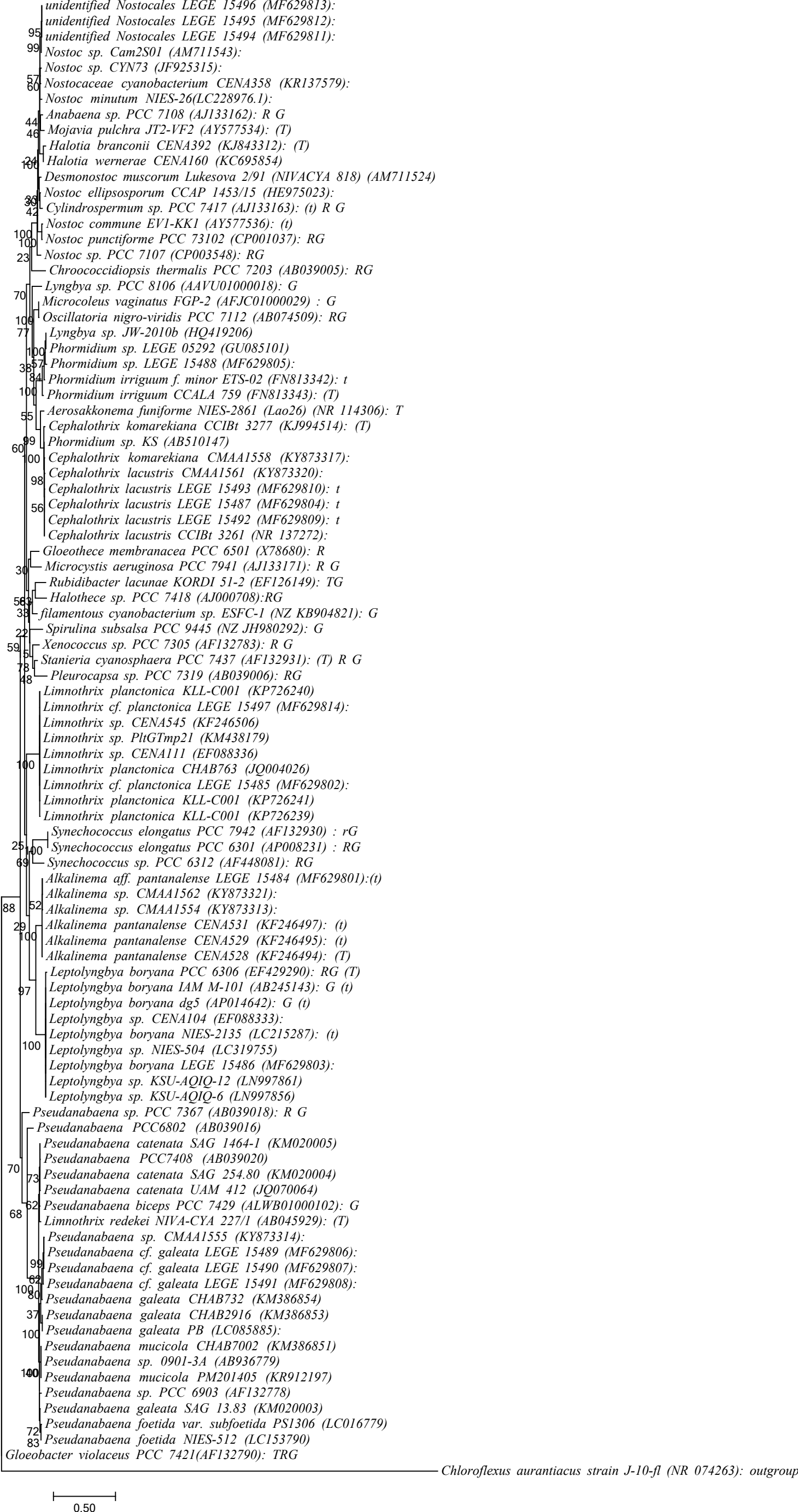


FIGURE S3. Original ML phylogenetic tree, before editing