

VALERIA C. MUSCHNER, ALINE P. LORENZ, ARMANDO C. CERVI, SANDRO L. BONATTO, TATIANA T. SOUZA-CHIES, FRANCISCO M. SALZANO, AND LORETA B. FREITAS. 2003. A first molecular phylogenetic analysis in *Passiflora* (Passifloraceae). *American Journal of Botany* 90(8): 1229-1238.

APPENDIX 1. List of the *Passiflora* species studied classified by subgenus, with details about their geographical origin, and GenBank accession number.

Subgenera or tribe	Species	Geographical origin	Lat. (S)	Long. (W)	GenBank Accesion			
					ITS1	ITS2	<i>trnL-trnF</i>	<i>rps4</i>
<i>Passiflora</i>	<i>P. actinia</i> Hook	S. Francisco Paula, RS	29°18'	50°24'	AY032832	AY032791	AY032767	AY212301
	<i>P. alata</i> Curtis	Viamão, RS	30°21'	51°1'	AY032826	AY032785	AY032765	AY212323
	<i>P. amethystina</i> Mikan	Munhoz, MG	22°36'	46°18'	AY102347	AY102367	AY102397	AY212316
	<i>P. caerulea</i> L.	S. Francisco Paula, RS	29°18'	50°24'	AY032824	AY032782	AY032772	AY212294
	<i>P. cincinnata</i> Mast.	Jardim, MS	21°30'	56°18'	AY102363	AY102383	AY102400	AY212302
	<i>P. edmundoi</i> Sacco	Palmeiras, BA	12°36'	41°30'	AY102351	AY102371	AY102399	AY212303
	<i>P. edulis</i> Sims	Viamão, RS	30°21'	51°1'	AY032831	AY032790	AY032769	AY212304
	<i>P. eichleriana</i> Mast.	Três Cachoeiras, RS	29°24'	49°54'	AY102346	AY102366	AY102388	AY212295
	<i>P. elegans</i> Mast.	Porto Alegre, RS	30°12'	51°6'	AY032833	AY032792	AY032766	AY212305
	<i>P. gabrielliana</i> sp. new	French Guiana <sup>1</sup>			AY210953	AY210934	AY210960	AY212319
	<i>P. galbana</i> Mast.	Camocim S. Felix, PE	8°18'	35°42'	AY032843	AY032787	AY032770	
	<i>P. garkeyi</i> Mast.	French Guiana <sup>1</sup>			AY210952	AY210933	AY210961	AY212320
	<i>P. incarnata</i> L.	Jaboticabal, SP	21°6'	48°18'	AY032830	AY032789	AY032768	AY212306
	<i>P. jilekii</i> Wawra	Rancho Queimado, SC	27°42'	49°00'	AY102360	AY102380	AY102387	AY212318
	<i>P. kermesina</i> Link & Otto	Jaboticabal, SP	21°6'	48°18'	AY032825	AY032783	AY032762	
	<i>P. maliformis</i> L.	Dominica <sup>1</sup>			AY210956	AY210937	AY210964	AY212321
	<i>P. miersii</i> Mast. in Mart.	Águas de Lindóia, SP	22°30'	46°36'	AY102350	AY102370	AY102395	
	<i>P. mucronata</i> Lam.	C. S. Agostinho, PE	8°18'	35°42'	AY210951	AY210932	AY210979	
	<i>P. quadrangularis</i> L.	Jaboticabal, SP	21°6'	48°18'	AY032827	AY032786	AY032764	AY212322
	<i>P. recurva</i> Mast in Mart.	Diamantina, MG	17°48'	43°42'	AY102349	AY102369	AY102391	AY212310
	<i>P. serratifolia</i> L.	Surinam <sup>1</sup>			AY210954	AY210935	AY210973	
	<i>P. serratodigitata</i> L.	Martinique <sup>1</sup>			AY210957	AY210938	AY210972	
	<i>P. setacea</i> DC.	Jaboticabal, SP	21°6'	48°18'	AY102356	AY102376	AY102398	AY212296
	<i>P. sidaefolia</i> M. Roemer	Munhoz, MG	22°36'	46°18'	AY102353	AY102373	AY102394	AY212298
	<i>P. tenuifila</i> Killip	Braga, RS	27°36'	53°42'	AY032823	AY032781	AY032771	AY212299
	<i>P. urubicensis</i> Cervi	Urubici, SC	28°00'	49°36'	AY102355	AY102375	AY102393	AY212300
	<i>Dysosmia</i>	<i>P. foetida</i> L.	Recife, PE	8°00'	34°54'	AY032834	AY032793	AY032763
<i>Astrophea</i>	<i>P. citrifolia</i> (Juss.) Mast.	French Guiana <sup>1</sup>			AY210939	AY210920	AY210958	AY212311
	<i>P. haematostigma</i> Mart. ex Mast.	Guaratuba, PR	25°42'	48°48'	AY032835	AY032794	AY032773	AY212292
	<i>P. macrophylla</i> Spruce ex Mast.	Brazil <sup>1</sup>			AY210944	AY210925	AY210965	AY212313
	<i>P. mansoi</i> (Mart.) Mast.	Chapadão do Sul, MS	18°48'	52°48'	AY102361	AY102381	AY102401	AY212307
<i>Tacsonioides</i>	<i>P. mendoncae</i> Harms	Guaratuba, PR	25°42'	48°48'	AY102358	AY102378	AY102389	

	<i>P. reflexiflora</i> Cav.	Ecuador <sup>1</sup>			AY210947	AY210928	AY210970	
<i>Decaloba</i>	<i>P. capsularis</i> L.	Quatro Barras, PR	25°24'	49°00'	AY032837	AY032796	AY032775	
	<i>P. coriacea</i> Juss.	Colombia <sup>1</sup>			AY210940	AY210921	AY210959	
	<i>P. helleri</i> Peyer	Mexico <sup>1</sup>			AY210942	AY210923	AY210962	
	<i>P. misera</i> HBK.	Santa Maria, RS	29°42'	53°48'	AY032838	AY032797	AY032777	
	<i>P. morifolia</i> Mast. in Mart.	Porto Alegre, RS	30°12'	51°6'	AY032842	AY032801	AY032780	AY212314
	<i>P. organensis</i> Gardn.	Quatro Barros, PR	25°18'	49°00'	AY032839	AY032798	AY032779	
	<i>P. ornithoura</i> Mast.	Guatemala <sup>1</sup>					AY210968	
	<i>P. pohlii</i> Mast. in Mart.	Pirapora, MG	17°12'	44°54'	AY032840	AY032799	AY032778	
	<i>P. punctata</i> L.	Peru <sup>1</sup>			AY210946	AY210927	AY210969	
	<i>P. rubra</i> L.	Caruaru, PE	8°6'	36°00'	AY032836	AY032795	AY032776	
	<i>P. rufa</i> Feuillet	French Guiana <sup>1</sup>			AY210948	AY210929	AY210971	AY212315
	<i>P. sexflora</i> Juss.	Dominican Republic <sup>1</sup>			AY210949	AY210930	AY210974	
	<i>P. suberosa</i> L.	Viamão, RS	30°21'	51°1'	AY032841	AY032800	AY032774	
	<i>P. talamancensis</i> Killip	Costa Rica <sup>1</sup>					AY210976	
	<i>P. tricuspis</i> Mast. in Mart.	S. J. Rio Preto, SP	20°42'	49°24'	AY102348	AY102368	AY102396	
	<i>P. trifasciata</i> Lemaire	Pitangui, MG					AY210980	
	<i>P. truncata</i> Regel	Rancho Queimado, SC	27°42'	49°00'	AY102354	AY102374	AY102390	
	<i>P. xiiikdoz</i> MacDougal				AY210950	AY210931	AY210975	
<i>Dysosmioides</i>	<i>P. campanulata</i> Mast.	Guaratuba, PR	25°42'	48°48'	AY032829	AY032788	AY032760	AY212317
	<i>P. setulosa</i> Killip	Guaratuba, PR	25°42'	48°48'	AY032828	AY032787	AY032761	AY212297
	<i>P. villosa</i> Vell.	Varzeão Minas, MG	18°24'	46°00'	AY102357	AY102377	AY102403	AY212308
<i>Distephana</i>	<i>P. speciosa</i> Gardn.	Corumbá, MS	18°24'	56°48'	AY102362	AY102382	AY102402	AY212293
	<i>P. vitifolia</i> HBK.	Colombia <sup>1</sup>					AY210977	
<i>Adopogyne</i>	<i>P. multiflora</i> L.	Dominica <sup>1</sup>			AY210945	AY210926	AY210967	
<i>Murucuja</i>	<i>P. tulae</i> Urban	Puerto Rico			AY102352	AY102372	AY102392	
<i>Pseudomurucuja</i>	<i>P. cuprea</i> L.	Bahamas <sup>1</sup>			AY210941	AY210922		
<i>Deidamioides</i>	<i>P. lancetillensis</i> MacDougal & Meerman	French Guiana <sup>1</sup>			AY210943	AY210924	AY210963	AY212312
	<i>P. microstipula</i> Gilbert & MacDougal	Mexico					AY210966	
Passifloreae tribe	<i>Adenia keramanthus</i> <sup>2</sup>	Chase 682 K			AY102364	AY102384	AY102405	
Passifloreae tribe	<i>Mitostemma brevifilis</i>	Campo Grande, MS	20°42'	54°18'	AY102359	AY102379	AY102386	AY212309
Passifloreae tribe	<i>Tetrastylis ovalis</i>	Bahia, Brazil			AY210955	AY210936	AY210978	AY216662
Paropsieae tribe	<i>Paropsia madagascariensis</i> <sup>2</sup>	M Zyhra 949, WIS			AY102365	AY102385	AY102404	AY216663

*Note.* The classification in subgenera was made in accordance with Killip (1938), MacDougal (1994), and Cervi (1997). Abbreviations in the places of origin refer to Brazilian states as follows: BA: Bahia; MG: Minas Gerais; MS: Mato Grosso do Sul; PE: Pernambuco; PR: Paraná; RS: Rio Grande do Sul; SC: Santa Catarina; SP: São Paulo. <sup>(1)</sup> Type locality; fresh leaves furnished by Maurizio Vecchia, personal collection (Ripalta Cremasca – Italy). <sup>(2)</sup> DNAs sent by M. Chase (Royal Botanic Gardens, Kew, UK).

**Internal transcribed spacer Alignment**

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dimensions ntax=59 nchar=586;
format interleave datatype=DNA missing=N gap=-;
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incarnata      TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTGTCGAAAACAA-----
edulis         TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTGTCGAAAACAA-----
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serratodigitata NNN-NNNNNNNNNNNNNNNNNN-NNNN-C-GACC--G-CGA--AC-GTTG-CGAAAATCA-----
serratifolia   NNG-TCGAAACCTGCAATGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAAATCA-----
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gabrielliana   NNN-NNNNNNNNNNNNNNNNNN-NNNN-N-NNNNN-NNNGA--AC-GTTG-CGAAAAC-A-----
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recurva        TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAAACAN-----
villosa        TTG-TCGAAACCTGCAA-GC-ACAA-C-GACCC-G-CGA--ACCGTTG-CTAAGATCA-----
setulosa       TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CTAAGATCA-----
campanulata    TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CTAAGATCA-----
jilekii        TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
tenuifila      TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
caerulea       TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
galbana        TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATAA-----
mucronata      TTG-TCGAAAG-TGCAAAGC-AGAA-C-GACC--G-CGA--ACCGTTG-CGAAGATCA-----
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urubiscensis  TTG-TCGAAACCTGCANAGC-AGA--C-GACCC-G-CGA--ACCGTTG-CGAACATCA-----
edmundoi       TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
actinia        TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
elegans        TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
sidaefolia     TTG-TCGAAACCTGCAA-GC-AGCA-C-GACCC-G-CGA--ACCGTTG-CGAAGATCA-----
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 foetida TTG-TCGAAACCTGCAAAGC-AGAA-C-GACCC-G-CGA--ACCGTTG-CGAATACCA-----  
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 macrophylla TTG-TCGAAACCTGCACTGC-AGAA-C-GACCC-G-CGAA-TCTGTTGTCTGA-TA-CA-CGGGG-A-TGCGTCGGGCCC---GGCCACGGCG-C-TT-CC  
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 rufa TTG-TCGAAACCTGCAAAGC-AGATAT-GACCC-G-CGAA-CATGTTGTGAAAAT--AA-GGGAT-T-GCGTCGGGCATTGC---CGTGATGCTCTCCTA

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 serratodigitata -----CGGCGGGGCTG-TGGGG-AGAGC----CGCGGGCGCACGT-C--CGTCTCTCTCTCTCCG-GG-----ACCCGCC-CCAACG  
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gabrielliana -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CA-GT-C-CCGCTCTCTCTCCC-GG-----ACCCGCC-CCA-CG  
speciosa -----CGACGGCGGGG-CGGGG-CGAGC----CGCGGGCCC--GT-C-C-GCTCTCTCTCCCC--GC-----ACCCGCC-CCA-CG  
cincinnata -----CGGCGGGCGGGG-CGGGGGGCGAGC----CGCGGGCCC--GT-C-CCGCCCTCTCCCC--GC-----ACCCGCC-CCA-CG  
recurva -----CGGCGGGGG---CGGGGGCGAGC----CGCGGAC-CN-GT-C-CCGCTCTCTCTCCCC-GG-----ACCCGCC-CCA-CG  
villosa -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCTCTCTCTCTCC-GG-----ACCCGCC-CGA-CG  
setulosa -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCTCTCTCTCCCC-CGG-----ACCCGCCCA-A-CG  
campanulata -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-T-CCGCTCTCTCTCCCC-CGG-----ACCCGCCCA-A-CG  
jilekii -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCTCTCTCTCCCC-CGG-----ACC-GGCCACA-CG  
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caerulea -----CGGCGGGGG---CGGGGGATGGC---NGCGGGCCC--GT-C-CCGCTCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
galbana -----CGGCGGGGA---CGGGGGCGAGC----CGGGGGC-CT-GT-C-CCCTCTCTCTCTCC-CGG-----ACCCGCC-NCA-CG  
mucronata -----CGGCGGGGG---CGGGGGCGAAC---CGCGGGC-CT-GT-C-CCGCTCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
miersii -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCTCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
amethystina -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CA-GTGC-CCGCTCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
garkey -----CGGCGGGGG---CGGGGGCGGGC---TGCGGGCAC--GT-C-CCGTCTCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
urubiscensis -----CGGCGGGGG---CGGGGGCGGGC---CGCGGGC-CA-GT-C-CCGATCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
edmundoi -----CGGCNNGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCTCTCTCTCCCC-CGG-----ATCCGCC-AAA-CG  
actinia -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GC-C-CCGCTCTCTCTCCCCACGT-----CCCCGCC-AGA-CG  
elegans -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGTCC--GT-C-CCGCTCTCTCTCCCCACGT-----CCCCGCC-ACA-GG  
sidaefolia -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GC-C-CCGCTCTCTCTCCCC-CGG-----ACCTGCC-CCA-CG  
eichleriana -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCCCTCCCCC--GG-----ACCCGCC-TACA-CG  
reflexiflora -----CGGCGGGGG---CGGGGGCGAGC----CGCGGGC-CT-GT-C-CCGCTCTCTCTCCCC-CGG-----ACCCGCC-ACA-CG  
foetida ---CGGTCGGCGGGGA---CAGAGGGGAGT---TGAGGGC-CT-GT-C-CCGTGCTCTCTCT-GCTG-----ACCCGCC-GAA-CG  
adenia -----AT-CGGGGTGA-----TCTGCCACGACGCCATCCTCTCTTGC-GTTGGAGGCAGGACGCAGACCGTCTGTCTGTC-TCC-TCCA-CG  
haematostigma C-ACGGCGGGCGGG---ACGGACGGGAGCGGCGGAATC---GTTCCGGTCTC-TCCGGCCCCGAT-CCTCGTCCCCC-----AAA--C  
mansoi CCACGGCGGGCGGG---ACGGACGGGAGCGGCGGACTCC--GTTCCGTCA--TCCCGCCCCGAT-CCTCGCCCCC-----AAA-CC  
macrophylla CCACGGTGGGTGGGG--ACGGATCGGAGCGGCGGACTC---GTTCCATCC--TCCGGCCCCGA-CCTCGCCCCC-----GAA-CC  
mitostemma CTCTTCGNGGTGGTAGGTGTGCTGAG-GCNACGGGTGC---GTTCCGTCC--TCCCGCGCTCGCTCCCCAC-----GAA-CA  
tetrastilyl C--NNGGGGCGG-T---CGGGA-----GAACCCCGCTCCCCAC-----G  
paropsia C--GGGGTTCGGGT-----GCGACGGGTGCCCGTTCATCCCCGTTCCCCG--TCCCCAC-----G  
citrifolia CAAAGGG-TGGGCGGGGACGGATCGGAGCGGTGG-A-CCC-GTTCCATCC--TTCGGCCCCGAA-CCTCGCCCCC-----GAACA  
truncata T----GGGGGTTCGGTGTGGAAGGGGTTGGT-GGGCCTGTCCCATCCTC-CTCTC-TGTGC-CGTCTC-----CCAAC-----G  
rufa T----GGGGGGCCGGTGCAGGAAGGGATTGGT-GGGCTTGTCCCATCCTCTCTCTCTGTGTGC-TACCTC-----CCAACA-----  
morifolia T----GGGGGA-GGTGCGACTGGAGGGGT-GGGATTTTCCATCCTCTCTTGCACGCAC-CGTCTC-----CCAAAA-----  
misera T----GGGGGACAGTGTGGATGGGGGCGGT-GGAAGTGTCCATCCTCTTTTGC--ACGC-TGTCTA-----CCAACA-----G  
tricuspis T----GGGGGACAGTGTGGATGGGGGCGGT-GGAAGTGTCCATCCTCTTTTGC--GCGC-TGTCTC-----CCAACA-----G  
pohlii T----GGGGGACAGTGTGGATGGGGGCGGT-GGAAGTGTCCATCCTCTTTTGC--GCGC-TGTCTC-----CCAACA-----G

organensis T-----GGGGGGCAGTGTGGATGGGGGCGGT-GGAACTGTTCCATCCTCTTTTCT--GCGC-TGTCCTC-----CCAACA-----G  
punctata T-----GGGAGGCAGTGTGGATGGGGGCGGT-GGAACTGTTCCATCCTCTTTTGC--GCGC-TGTCCTC-----CCAATA-----G  
tulae TGGGGGGGGGGACAGTGTGGATGGGGGCGGT-GGACCTGTTCCATCCTCTTTTGC--GTAC-TGTCCTC-----CCAACA-----G  
cuprea T-----GGGGGGACAGTGTGGATGGGGGCGGT-GGACCTGTTCCATCCTCTTTTGC--GTAC-TGTCCTC-----CCAACA-----G  
helleri T-----GGGGGGACAGTGTGGATGGGGGCGGT-GGACCTGTTCCATCCTCTTTTGC--GTAC-TGTCCTC-----CCAACA-----G  
rubra T-----GGGTGA-TAGTGC GGATGGGAGTGGT-GGATCTGATCCATCCTCTTTTGT--GCAT-TGTCCTC-----CTAACA-----A  
capsularis T-----GGGTGA-CAGTGC GGATGGGAGTGGT-GGATCTAATCCATCCTGTTTTGT--GCGT-TGTCCTC-----CTAACA-----A  
sexflora T-----GGGGGGTAGTGC GGATGGGAGTGGT-GGATTTCTTCCATCCTTTTTTAT--GCAC-TGTCCTC-----CCAACA-----A  
coriacea TT----GGGG-GCGGTGCATAAGCTAGCGATTGGGCTTGTTCATCCTTTGTTTT--GCAT-TGTCCTC-----CAAAC-----  
xiikzodz TT----GGGG-GCGGTGCATAAGCGAGCGATTGGACTTGTTCATCCTTTGTTTT--GCAC-TGTCCTC-----CAAAC-----  
suberosa TT----GGGG-GCGGTGCATAAGCGACCGATTGGGCTAGTTCATCCTATGTTTA--GCAC-TGTCCTC-----CAAAC-----  
lancetilensis ---GGGGGAGGGTGGGGCAGATGAGAGCGCT-GGGCTTGTTCATCCTCTTATAT--GCACCTCTTCTC-C--CCCATA-----

alata AACAAAA-CCCCG-GCGCGAGATGCGCC-AAGG-AACAAAAACGAAA-AGATAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATTTCTCG  
quadrangularis AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AACAAAAACGAAA-AGATAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATTTCTCG  
incarnata AACAAAA-CCCCG-GCGCGAGATGCGCC-AAGG-AATCAAAAACGAAA-AGACAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-G-TCTCTCG  
edulis AACAAAA-CCCCG-GCGCGAGATGCGCC-AAGG-AATCAAAAACGAAA-AGACAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATCTCTCG  
maliformis AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAA-ATATCGGGAAGGGAC-GGCC-GTCGGGTGCC--GGGAACG-GATTTCTCG  
serratodigitata AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAAATATGCCGGAAGGGAC-GGCC-GTCGGGTGCC--GGGAACG-GATTTCTCG  
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setacea AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAA-ACACAGGGAAGGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATTTCTCG  
mendocaei AACAAAA-CCCCG-GCGCGAGATGCGCCAAGGCAATCGAAAACGAAA-AGATGGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATCTCTCG  
gabrielliana AACAAAA-CCCCG-GCGCGATATGCGCC-AAGG-AATCAAAAACGAAA-AGATAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATTTCTCG  
speciosa AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAA-AGACAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATTTCTCG

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recurva AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAA-ATACAGGNAACGGGC-GGCC-GTCGCGTGCC--GGAAACG-GATTTCTCG  
villosa AACAAAA-CCCCG-GCGCGAGATGCGCC-AAGG-AATCGAAAACG-----GGC-GGCC-GTCGCGTGCC--GGAAACGAGATCTCTCG  
setulosa AACAAAA-CCCCG-GCGCGAGATGCGCC-AAGG-AATCGAAAACGAAAA-GATAGGGAACGGGC-GGCC-GTCGAGCGCC--GGAAACG-GATCTCTCG  
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tenuifila AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCAAAAACGAAAA-NACAGGGAACGGGC-GGCCCGTCGAGTGCC--GGAGACG-GATCTCTCG  
caerulea AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCAAAAACGAAAA-NACAGGGAACGGGC-GGCCCGTCGAGTGCC--GGAGACG-GATCTCTCA  
galbana AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAAAT-GATAGGGAACGGGC-GGCC-GTCGCGTGCC--GGAGACG-GATCTCTCG  
mucronata AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGAAAACGAAAA-GATGGGGAACGGGC-TGCC-GTCGAGCGCC--GGAGACG-GATCTCTCG  
kermesina TACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCAAAAACGAAAA-GATGGGGAACGGGC-GGCC-GTCGAGCGCC--GGAGACG-GATCTCTCG  
miersii AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCAAAAACGAAAA-GATGGGGAACGGGC-GGCC-GTCGAGCGCC--GGAGACG-GATCTCTCG  
amethystina AACAAAA-CCCCG-GCGCGAGTGC GCGCC-AAGG-AATCAAAAACGAAAAAGATAGGGAACGGGC-GGCC-GTCGAGCGCC--GGAGACG-GATCTCTCG  
garkey AACAAAA-CCCCGTGCGCGAGACGCGCC-AAGG-AATCAGAAAACGAAAA-GACAGGGAACGGGCTGGCCCTGTCGAGAGCCT--GGAGACG-GATCTCTCG

urubiscensis AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AAAATAAAACGAAAG-GACGGGGAACGGGC-GGCC-GTCGAGCGCC--GGAGACG-GATCTCTCG  
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 eichleriana AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATAGAAAACGAAAA-GATAGGGAGCGGGC-GGCC-GTCGAGCGCC--GGAGACG-GATCTCTCG  
 reflexiflora AACAAAA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCTGAAACGAAAG-GATAGGGAACGGGC-GGTCC-GTGGAGTGCC--GGAAACG-GATCTCTCG  
 foetida AACAAAA-CCCCG-GCGCGATATGCGCC-AAGG-AATCGAAAACGAAAA-GATAGGGAATGGGC-TGCC-GTCGCGTGCC--GGAAACG-GAATCCGCA  
 adenia AAC-AAA-CCCCG-GCGCAAGACGCGCC-AAGG-AATCCACAAAGCGAAA--GAAGGCACGTGC---CCTC--CGTTTC----GAG--CGG-----  
 haematostigma AACAAAA-CCCCG-GCGCGGAATGCGCC-AAGG-AATCGAAAA--ATAAAACGAAGGGACGGGC---CCCCGCAGCGTGCC--GGAAACG-GAATTCGCA  
 mansoi AACAAAA-CCCCG-GCGCGGAATGCGCC-AAGG-AATCGGAAA--ACAAAACGAAGGGACGAGC---CCCCGTAGCGTGCC--GGAAACG-GAATTCGCA  
 macrophylla AACAAAA-CCCCG-GCGTGAATGCGCC-AAGG-AATCAGAAA--ACGAAACGAAGGAACGAGC---CCCCGTGCGTGTC--GGAAACG-GAATTCGCA  
 mitostemma -----AA-CCCCG-GCGCGAGACGCGCC-AAGG-AATCGTAA-----GAAAAAAGAAACGCGC---CCCCGTGCGTGCCCCGGGAACG-GAATTCGCA  
 tetrastylis AACAAAA-CCCCG-GCGCGAATGCGCC-AAGG-AATCACAAACGAAAAGAAAAGGGAACGGGC---CCCCGTGCGTGCC--GGAAACG-GAACCOCG  
 paropsia AACAAAA-CCCCG-GCGCATGATGCGCC-AAGG-AATCTCAAC----GAGAAAAGG-AACGTGC---CCCCGCAGCGTGCC--GGAAACG-GAAA-CGCA  
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 truncata AACTAAAACCCCCG-GCGTGAATGCGCC-AAGG-AATCAGAAATGAAAAGTGAAGGGAACGGGTG----CCTGGCGTGCC--GGAAACG-GAATATGCT  
 rufa AAC-AAAACCCCCG-GCGTAAAATACGCC-AAGG-AATCGGAAATGAAAAGTGAAGGGAACGGGTG----CCTTAGTGTGTC--GGAAACG-GAATTCGCT  
 morifolia AAC-AAAACCCCCG-GCGTGAATGCGCC-AAGG-AATCGGAAATGATTAGAGAAGGGAGTGAGCG---CCCCTG-TGTTCT-GGGAACA-GACCTCACG  
 misera AACCAACCCCCCG-GCGTAAAATGCGCC-AAGG-AATCTTAAATGAAAAGAGAAGGTAGCCAGCA----CCTTAGCGTGCC--GGG--C-----  
 tricuspis AACAAACCCCCCG-GCGTAAAATGCGCC-AAGG-AATCTTAAATGAAAAGAGAAGGTAACCAACA----CCTAGCGTGCC--GGAAACG-GAATTCGCA  
 pohlii AACAAACCCCCCG-GCGTAAAATGCGCC-AAGG-AATCTTGAATGAAAAGAGAAGGTAACCAGCA----CCTAGCGTGCC--GGAAACG-GAATTCGCA  
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 cuprea AACAAA-CCCCCG-GCGTAAAATGCGCC-AAGG-AATCCTAAATGAAAATAGAAGGGAAGCAGCA----CCTAGCGTGCC--GGAAACG-GAATTCGCA  
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 sexflora AACAAAA-CCCCG-GCGCAGAAATGTGCC-AAGG-AATGGAAATAAAAATAAAAGGTAATGAGTG----CCTAGCGTTCC--GGAAACG-GAATTTGCA  
 coriacea AACAAAA-CCCCG-GCGCAAAAATGCGCC-AAGG-AACCAAAAACAAAAAGAGAAGGGAATGAGCG----CATTGCGTTCC--GGGACG-GAAATCGTG  
 xiikzodz AACAAA--CCC GG-GCGCAAAAATGCGCC-AAGG-AACCAAAAACAAAAAGAGAAGGGAATGAGCG----CCTTTGCGTTCC--GGGACG-GAAATCGTG  
 suberosa AACAAAA-CCCCG-GCGCAAAAATGCGCC-AAGG-AATCGAAAACAAAAAGAGAAGGGAATGAGCA----CCTTTGCGTTCC--GGGACG-GAAATCTTG  
 lancetilensis AACAAA-CCCCCG-GCGCGAATGCGCC-AAGG-AATAAAAAACAAAATGAAAAGAGAACGAAC--CCCCAATGCATGCC--GGAAACG-GTATTTGCA  
  
 alata CGG-C-GGCCCTTTCTCATT-CGAAAA-CAAACGACTCT-----CG-CGTC-GCC-CCCC--ATC-CTT-CCGAC-TCCCC--CGAGGGGG--AAGG  
 quadrangularis CGGTC-CGCCCTTTCTCGTT-CGAAAA-CAA-GC-AT-----CGTC-GCC-CTCC---ATC-CTT-CCGAC-TCCCC--CGAGGGGG--AAGG  
 incarnata CGGGC-GGCCCTTTCTCTTT-CGAAAA-CAAACGAT-CT-----C--GGTC-GCC-CCCC--ATC-CTT-CCGTC-T-CCCC--CGAGGGGG--AAGG  
 edulis CGGGC-GGCCCTTTCTCTTT-CGAAAA-CAATGC-AT-C-----GTC-GCC-CCCC--ATC-CTT-CCGTC-T-CCCC--CGAGGGGG--AAGG

maliformis	CGGAC-GACCCTTTCCCGTT-CGGAAA-CAATGC-ATTC-----GTC-GCC-CCCCCAATC-CTT-CCGAC-TCCACC-CCGAGGGGG--AAGG
serratodigitata	TGGGC-GGCCCTCTCCCGTT-CGGAAA-CAA-GC-AT-C-----GTC-GCC-CCCC--ATCACCT-CCGACGTACCCC-CCGAGGGGG--AAGA
serratifolia	CGGGC-GGCCCTTTCCCGTC-CGGAAA-CAA-GC-AC-C-----GTC-GCC-CCCC---ATC-CTA-CCGACTTCCCCCGT-GAGGGGGGGAAGG
setacea	CGGGC-GGCCCTCTCCCGAT-CGGAAA-CAA-GC-AT-C-----GTC-GCC-CCCC--ATC-CTT-CCGGC-T-CCCC-ACGAGGGGG--AAGG
mendocaei	CGGGC-GGCCCTTTCTCGTT-CGGAAA-CAA-GC-AT-C-----NTC-GCC-CNTCCC-ATC-CTT-CCGCC-TCCCC--CGAGGGGG--AAGG
gabrielliana	CGGGC-GGCCCTTTCTCCTC-CGTAAA-CAA-GC-AT-C-----GTC-GCC-CC-CCC-ATC-CTT-CCGAC-TCCCCCGACGAGGGGG--AAGG
speciosa	CGGGC-GGCCCTTTCTCCTT-CGGAAA-CAA-GC-AT-C-----GTC-GCC-CCCC--ATC-CTT-CCGAC-TCCCC--CGAGGGGGGAAGAGG
cincinnata	CGGGC-GGCCCTTTCTCCTT-TCGAA--CAA-GC-ATGC-----GTC-GCC-CCCC--ATC-CTT-CCGAC-TCCCC--CGAGGGGG-AAGGG
recurva	CGGGC-GGCCCTCTTCCGTT-CGGAAA-CAAAGCGACTCT----CGGCATC-GTNGCCCCCCCCATC-CTT-CTGGCCCCCCCC---GAGGGG--AAAGG
villosa	CGGGC-GGCCCTTTCTCGTT-CGGAAA-CGAA--AACGCA-----TG-CATC-GTCGCCCCC-ATC-CTT-CCGACCCCCC--CGAGGGGG--AAGG
setulosa	CGG-C-GGCCCTTTCTCGTT-CG-AAA-CAA-----GTC-GCC-CCC--C-ATC-CTT-CCGAC-TCCCC--CGA-GGGGG-AAGG
campanulata	CGGGC-GGCCCTTTCTCGTT-CGGAAA-CAATGC-ATC-----GTC-GCC-CCC--C-ATC-CTT-CCGAC-TCCCC--CGA-GGGGG-AAGG
jilekii	CGGGC-GGCCCTTTCTCGTT-CGGAAA-CAA-GC-ATC-----GTC-GCC-CCC--CCATC-CTT-CCGAC-TCCCC--CGAAGGGGG-AAGG
teuifila	CGGGC-GGCCATTCCCGTT-CGGAAA-CAATGC-ATC-----GTC-GCC-CCTTCCCATC-CTT-CCGGC-TCCCC--CGAGGGGGAAAAGG
caerulea	CGGGC-GGCCATTCCCGTT-CGGAAA-CAATGC-ATC-----GTCAGCC-CCTCCCATC-CTT-CCGGC-TCCCC--CGAGGGGGAAAAGG
galbana	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAATGC-ATC-----GTC-GCC-CC-CCC-ATC-CTT-CCGAC-TCCCCA--CGAGGGGG--AAGG
mucronata	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAA-GC-ATC-----GTC-GCC-CC-CCCCATCACTT-CCGAC-TCCCC--CGAGGGGG--AAGG
kermesina	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAATGC-ATC-----GTC-GCC-CCCTCCCATC-CTT-CCGAC-TCCCC--CGAGGGGG--AAGG
miersii	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAA-GC-ATC-----GTC-GCC-CCCTCCCATC-CTT-CCGAC-TCCCC--CGAGGGGGGAAGGGG
amethystina	CGGGC-GGCCCTTCTCGTT-CGGAAAACA--GCGT-C-----GTC-GCC-CCC--CCATC-CTTCCGAC-TCCCC--CGAGGGGGGAAGGGG
garkey	CGGGCTGGCCCCCTTCTCGTT-CGGAAA-CAA-GC-ATC-----GTC-GCC-CCC--CCATC-CTT-CCGAC-TCCCC--CGAGGGGGGAAGGGG
urubiscensis	CGGGC-GGCCCTTCCCTTT-CGGAA--CAA-GCG-TC-----GTC-GCC-CCC--CCATC-CTT-CCGAC-TCCCC--CGAGGGGGAAAGGG
edmundoi	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAAAGC-ATC-----GTC-GCC-CCC--CCATC-CTT-CCGAC-TCCCC--CGAGGGGGGAAGGGG
actinia	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAATGC-ATC-----GTC-GCC-CACCCCCATT-----
elegans	CGGGC-GACCCCTTCTCGTT-CGGAAA-CAA-GCCTGCCTGGGT----GTC-----ATG-CGT--CGTC-GCCCC--CGACC-----
sidaefolia	CGGGC-GGCCCTTCTCGTT-CGGAAA-CAA-----G-C-----AT-----CGTT-GCCCC--C-AT-----
eichleriana	CGGGC-GGCCCTCTCTCGTT-CGGAAA-CAA-GC-ATC-----GTC-GCC-CCCC-CCATC-CTT-CCGAC-TCCCC--CGAGGGGGGAAGGGG
reflexiflora	CGGGC-GGCCCTTCCCGTT-CGAAAA-CAATGC-ATC-----GTC-GCC-CCC--CCATC-CGT-CCGAC-TCCCC--CGAGGGGG-AAGAA
foetida	CGGGA-GGCCCTTCTCTT--CTGGAAACAATGC-ATC-----GTC-GCC-CCCC-T-ATC-CGT-CCG-----AGAAGGA
adenia	--GGTGTGCAGTGT-TTT--GAAAACCA--GT-ATC-----GTC-GCCTCCTCC--CTC--AAACCTC-----GTAGGGG-----
haematostigma	CGGGTGGCCCCGTCTTGT--CGAAAACCAT-GC-AAC-----GTC-GCC-CC-----ATC-CA--ACTCACTCCCCT-CC-GGGGGAGA--CA
mansoi	CGGGTGGCCCCGTCTTGT--CGAAAACCAAGC-AAC-----GTC-GCC-CC-----ATC-CG--AC----TCCCCT-CCTGTGGGAGA--CG
macrophylla	CGGGTGGCCCCGTCTTGT--CGAAAACCA--GC-AAC-----GTC-GCC-CCC-----TC-CG--AC----TCCCCTTT-GGGGG-AGAGACG
mitostenma	CGGGCGGCACGTTCTTCT--CGAAAACAA-GC-ATC-----GTC-GCC-CC-----ATC-CC--ACT--ACT-CCTTGCCCCGGGATA--CG
tetrastilys	CGGGTGGCCCGTACTCGTT--CGAAA-CAA-GT-ACC-----GTC-GCC-CCCC---ATC-CA-TCCG--ANCGCCCCNC---GGAGGGAGTC
paropsia	CGGGCGGCTCCGTATTCTT--CGAAAA-CAA-GC-ATC-----GTT-GCC-CC-----CA-TCCC-ACTCCC-TCCGC--GGGAG---C-
citrifolia	CGGGTGGCCCCGTCTCGTT--CGAAAACCA--GC-AAC-----GTC-GCC-CC-----ATC-CA--AC----TCCCCTCTCTATCTATGGGGGA
truncata	GGGGTGGCCAG-TCCCCTATTCGAAAACCA---GTATC-----GTT-GCC-CC-----ATC-CG--AC----TCACC--TCGCAGG-AGCTCGG
rufa	GGGGTGGCCAG-TTCCCCTATACGAAAACCTAT-G-TATT-----GTTT-CC-CC-----ATC-CA--AC----TCTTCTTTCACGGG-AGATCAA



morifolia GGGGTGGTTGGCTTGCCTATTCGAAAACATAT-G-TATC-----GTT-GCC-CC-----ATC-CA--AC----TCCCT--CTGTGGG-AGACAGG  
 misera -----GTT-GCC-CC-----ATC-CA--AC----TCCCT--CTGTGGGGAGATTGG  
 tricuspis AGGGCGGCTGGTTT---CCTTGTTTTAAAACTA-GTATC-----GTT-GCC-CC-----ATC-CA--AC----TCCCT--TTGTGGGGAGATCGG  
 pohlii AGGGCGG-TGGTTT---CCTTGTTTTAAAACTAAA-TATCTCGGCAACGGGTT-GCC-CC-----ATC-CA--AC----TCCTT--TTGTGGGGAGATCGG  
 organensis AGGGCGGCTGGTTT---CCTTGTTGAAAAACAATGTACC-----GTT-GCC-CC-----ATC-CA--AC----TCCCT--TTGTGGGGAGATCGG  
 punctata AGGGCAGCTGGTTT---CCTTGTTTTGAAAACATA-GTACC-----GTT-GCC-CC-----ATC-CA--AC----TCCCT--TTGCGGGGATATCGG  
 tulae AGGGTTGCTGGTTT---CCTTGTTTTAA-----GTACC-----GTT-GCC-CC-----TTC-CA--AC----TCCCT--CTGTGGGGAGATCGG  
 cuprea AGGGTGGCTGGTTT---CCTCGTTTTGAAAACATA-GTACC-----GTT-GCC-CC-----TCCCA--AC----TCCCT--CTGTGGGGAGATCGG  
 helleri AGGGCGGCTGGTTT---CCTTGTTTTGAAAACATA-GTACC-----GTT-GCC-CC-----ATC-CA--AC----TCCCT--CTGTGGGGAGAACGG  
 rubra AAGGTTGCTTGT---CCTTGTTTTAG-AACTAAATACTCTCGGC---GTT-GCC-CC-----ATC-CATAAC---TCCCA--TTGTGGG-AGTATCC  
 capsularis AAGGTTGCTTGT---CCTTGTTTTGACAACATATGTATT-----GTT-GCC-CC-----ATC-CACAAC---TCCCA--TTGTGGG-AGTATCC  
 sexflora AAGGT-GTCAGTTT---CCTTGTTTTGAAAACATA-GTATT-----GTT-GCC-CC-----ATC-CA--AC----TCCTT--TTGTGG-AGATTGG  
 coriacea AGGTTGGCTACTTT---CCTTATCTAAAAATCA-GTATT-----GTT-GCC-CC-----ATC-CA--AC----TCCTT--GCGTGGG-ACATTGG  
 xiikodz AGGTTGGTTACTTT---CCTTATCTAAAAATCA-GTATC-----GTT-GCC-CC-----ATC-CA--AC----TCCTT--AAGTGGG-ATATTGG  
 suberosa AGGTTGGCTACTTT---CCGTATCTAAAAATCA-GTATC-----GTT-GCC-CC-----ATC-CA--AC----TCCTT--ACGTGAG-ACAATGG  
 lancetilis TGGGTGG--GGT-CCGGTCTCGTTTCGAAAAC-A-GTATC-----GTC-GCC-CC-----ATC-TG--CC----TCCAT--TTGTCCG-AGATTGG

alata GGG--TAC-----GGGGCGGGCGGAAACTGGTCTCCCCTGCGCTCCC-GCTC-GTGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 quadrangularis GGG--TAC-----GGGGTGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCCGAAATACTAGAGT-TGTTGGCGGCCGAGA-GCGC  
 incarnata GGG--TAC-----GGGGCGGGCGGAGATTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATACA-GAGT-TGTTGGCGGCCGAGA-GCGC  
 edulis GGG--TAC-----GGGGCGGGCGGAGATTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 maliformis GG--ATAC-----GGGGCGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGG-GCGT  
 serratodigitata GG--TGGCAC----GGGGCGGGCGGAGAGTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 serratifolia GG--TAC-----GGGGCGGGCGGATACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGTCGAGA-GCGC  
 setacea GGG--TAC-----GGGGCGGGCGGAGAAATGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGANA-GCGC  
 mendocaei GGG--TAC-----GGGAGGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGGTA-GCGC  
 gabrielliana GGG--TAC-----GGGGCGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 speciosa GGG--TAC-----GGGGCGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAA--GAGT-TGTTGGCGGCCAAGA-ACGC  
 cincinnata GGG--TAC-----GGGGAGGGCGGAGAAATGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-ACGC  
 recurva GGG--TAC-----GGGGCGGGCGGAGAAATGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 villosa GGG--TAC-----GGGACGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 setulosa GGG--TAC-----GGGACGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGATA-GCGC  
 campanulata GGG--TAC-----GGGACGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 jilekii GGG--TAC-----GGGACGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 tenuifila GGGG-TAC-----GGGACGGGCGGAGAAATGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 caerulea GGGG-TAC-----GGAACGGGCGGAAAATGGTCTCCCCTGCCCTCCC-GTTC-GCGGTTGGCC-AAAATAC--AAGT-TGTGGCGGCCAAAA-GCGC  
 galbana GGG--TACA-----GGGGCGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAACAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 mucronata GGG--TAC-----GGGGCGGGCGGAGACTGGTCTCCCCTGCGCTCCC-GCTC-GCGGTTGGCC-GAAACAC--GAGT-TGTTGGCGGCCGAGA-GCGC

kermesina GGG--TAC-----GGGACGGGCGTAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 miersii GGG--TAC-----GGGACGGGCGGAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 amethystina G----TAC-----GGGGCGGGCGGAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGCTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 garkey G----TAC-----GGGACGGGCGGAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 urubiscensis GG---TAC-----GGGACGGGCGGAGAGTGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 edmundoi GG---TAC-----GGGAGGGGCGGAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGAGA-GCGC  
 actinia ----ATCC-----GGGACGGGCGGAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGATA-GCGC  
 elegans ----AT-C-----GGGACGGGCGGAGATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGATA-GCGC  
 sidaefolia ----AT-C-----GGGACGGGCGGAGAATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--NAGT-TGTTGGCGGCCGATA-GCGC  
 eichleriana G----TAC-----GGGACGGGCGGAGACTGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGATA-GCGC  
 reflexiflora GGGTGTAC-----GGGACGGGCGGAGATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCAGCA-GCGC  
 foetida GGG---AC-----GGGGCGGGCGGAGATGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAC--GAGT-TGTTGGCGGCCGATA-GCGC  
 adenia -----CGGGGCGGACG----TTGGTCTCCCGTGCCTGTTTTCGTTGCGGTTGGCC-AAACAC--GAGTCTTTAT-GGCCAAGAG-CCA  
 haematostigma GGATA-----GGGGCGGAGA----TTGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAAT-CC-GAGTA-GTTGGCGGC-GA--A-CGC  
 mansoi GGAGA-----GGGGCGGAGA----TTGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAAT-CC-GAGTT-GTTGGCGGC-GAGT---GC  
 macrophylla CGAAA-----GGGGCGGAGA----TTGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAAT-CC-GAGTT-GTTGGCGGC-GA---GTGC  
 mitostemma GGAA-----CGGGGCGAAAA----TTGGCCTCCCGTGCCTGCCCGCGC-GCGGTTGGCC-AAATACC-GAGT-CGTTGGCGGC-GA---GGGC  
 tetrastilys GG-A-----CGGGGAGGGCGNAGAATGGTCTCCCGTGCCT-CCCGCTC-GCGGTTGGCC-GAAATAC--GAGT-CGTCGGCGGC-GA---GTGC  
 paropsia GAGG-AATT---GCGGGGCGTAC-AA---TGGCCTCCCGTGCCT-CCCGCTC-GCGGTTGGCC-TAAAT-CC-GAGTT-GTTGGCGGC-GA---GTGC  
 citrifolia GAGACACGAGAGGAAGGGGCGGAG-A---TTGGTCTCCCGTGCCTCCCCGCTC-GCGGTTGACC-GAAAT-CC-GAGT-CGTCGGCGGC-CA--GGTGC  
 truncata AATA-----GGGGCGT-AAAA---TGGTCTCCCGTGCCTCTC-GCTC-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAC-G----GTGC  
 rufa AATA-----GGGACGT-AAAA---TGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-AAAATCT--GAGT-CGTTGGTGAC-A----GTGC  
 morifolia AGTA-----GGGGCGG-AAAA---TGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATAT--GAGT-CGTTGGTGAC-A----GTGC  
 misera ACTA-----GGGGCGG-AAA---TTGGTCTCCCGTGTGCTCCC-GCTC-GCGGTTGGCCGAAAATC--GAGT-CGTTGGTGAT-A----GTGC  
 tricuspis ACTA-----GGGGCGG-AAAA---TGGTCTCCCGTGTGCCCCCGCTC-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 pohlii ATTA-----GGGGCAG-AAAA---TGGTCTCCCGTGTGCCCCC-GCTC-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 organensis ACTA-----GGGGCGG-AAAA---TGGTCTCCCGTGTGCCCCC-GCTT-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 punctata ACTA-----GGGGCAG-AAAA---TGGTCTCCCGTGTGCCCCC-GCTC-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 tulae ACGA-----GGGGCGG-AAAA---TGGTCTCCCGTGCACCCCT-GCTC-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAC-A----GTGC  
 cuprea ACGA-----GGGGCGG-AAAA---TGGTCTCCCGTGCGCCCCC-GCTC-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAC-A----GTGC  
 helleri ACTA-----GGGGCGG-AAAA---TGGTCTCCCGTGCGCCCCC-GCTC-ACGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAC-G----GTGC  
 rubra GATAA-----GGGGCGG-AAAA---TGGTCTCCCGTGTGCTCCC-GCTT-GCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 capsularis GATAA-----GGGGCGG-AAAA---TGGTCTCCCGTGTGCTCCC-GCTTGTGCGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 sexflora ACCA-----GGGGCGG-AAAA---TGGTCTCCCATGTGCCCCCT-ACTC-GTGGTTGGCC-AAAATTT--GAGT-CGTTGGTGAT-A----GTGC  
 coriacea AATA-----GGGGCGG-AAAA---TGGTCTCCCGTGCCTCCC-GCTA-GCGGTTGGCC-AAAATTC--TAGT-TGTTGGTGAT-A----GTGC  
 xiikzodz ACTA-----GGGGCGG-AAAA---TGGTCTCCCGTGCCTCCC-GCTC-GCGGTTGGCC-GAAATTA--TAGT-TGTTGGTGAT-A----GTGC  
 suberosa ACTA-----GGGGCGG-AAAA---TGGTCTCCCGTGCCTCTC-GCTC-ACGGCTGGCC-AAAATTC--TAGTACGTTGGTGAT-G----GTGC  
 lancetilensis ATGA-----GGTGCAG-AGA---TTGGTCTCCCGTGCCTCCCCGCTC-GCGGTTGGCC--AAATCT--GAGT-TGTTGGAAGC-G---TGTGC

alata	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCT-GGCGACGCC-GTCACGAGG-----CT-CCGG--GACCC
quadrangularis	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCT-GGCGAGGCC-GTAACGAGG-----CT-CCGG--GACCC
incarnata	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTT-GGCGAGGCC-GTCACGAGG-----CT-CCGG--GACCC
edulis	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-ACGGT-GGCGAGGCC-GGCACGAGG-----CT-CCGG--GACCC
maliformis	C-ACG-CAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCT-GGCGAGCAC-GTCACGAG-----CT-CCGGNNNNNNN
serratodigitata	C-ACGGCAAGCGGTGGT-G-TCAA-ACCTTCGG-AGATTG-CCGAT-G-CGAGC-C-GTCACGAGG-----CT-CCGG---A-CC
serratifolia	C-ACG-CAAGCGGTGGTTG-TCAAG-ACCTTCGG-AGATTG-CCGCT-G-CGAGC-C-GTCACGAG-----CT-CCGG--GACCC
setacea	C-ACGGNAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCTGN-GGCNAGGCC-GTNACGAGG-----CT-CCCG--GACCC
mendocaeii	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCC-GGCGAGGCC-GTCACGGGG-----CTACCNG--GACCC
gabrielliana	C-ACGGCAAGCGGTGGT-G-TCAAAGACCTTCGG-AGATTG-CCGCT-G-CGAG-CC-GTCACGAG-----CT--CCG--GACCT
speciosa	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGGGAGATTG-CCGTC-GGCGAGGCC-GTCACGAGG-----CT-CCGG--GACCC
cinninata	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTC-GGCGGGGCC-GTCACGAGG-----CT-CCGG--GACCC
recurva	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCC-GGCGAGGCC-GTCACGAGG-----CT-CCGG--GACCC
villosa	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTC-GGCGAGGCC-GTCACGAGG-----CT-CCGG--GACCC
setulosa	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCC-GGCCAGGCC-GTCACGGGG-----CTCC-GG--GACCC
campanulata	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGCC-GGCCAGGCC-GTCACGAGG-----CTCC-GG--GACCC
jilekii	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTC-GGCGAGGCC-GTCACGGGG-----CTCC-GG--GACCC
tenuifila	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTC-GGCGAGGCC-GTACTAAAA-----TCTC-GG--GACCC
caerulea	C-ACGGCAAGCGGTGGTTG-TAAAAACCTTCGA-AAATTG-CCGTC-GGCAAGGCC-GTANTAAAA-----TTTC-GG--AACCC
galbana	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-GGATTG-CCGTC-GGCGAGGCC-GTCACGAGG-----CTCC-GG--AACCC
mucronata	C-ACGGCAAGCGGTGGTTG-TCAA-ACCTTCGG-GGAT-G-CCGTC-GGCGAG-CC-GTCACA--G-----CTCC-GACCAGTCT
kermesina	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTC-GGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
miersii	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCGTC-GGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
amethystina	C-ACGGNAAGCGGTGGTTG-TCAAAGACCTTCGG-ATATTG-CCGTCGGCGAGGCC-GTCGCGAGG-----CTCC-GC--GGCC
garkey	C-ACGGCAA-CGGTGGT-G-TCCAAGACCTTCGG-AAAT-G-CCGTC--GCGAG-CC-GTCGCGAG-----CTCC-----GGACC
urubiscensis	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-ATGTTG-CCGTC-GGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
edmundoi	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-ATATTG-CCGTC-GGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
actinia	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCG-CGGGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
elegans	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCG-CGGGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
sidaefolia	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCG-TCGGCGAGGCC-GTCGCGAGG-----CTCC-GG---ACCC
eichleriana	C-ACGGCAAGCGGTGGTTG-TCAAAGACCTTCGG-AGATTG-CCG-CGGGCGAGGCC-GTCGCGAGG-----CTCC-GG--GACCC
reflexiflora	C-ACGGCAAGCGGTGGTTGGTCAAAGACCTTCGG-AGATTGGCCGGGACGAAGCCGTCGCGATG-----CTCTTGG--GACCC
foetida	C-ACGGCAAGCGGTGGTTG-TC-AAGACCTTCGG-AGGATG-CCGTC-GGCTAGGCC-GTCACAAGG-----CTTC-GG--GACCC
adenia	CGACGAGCGGTGGTTTT-G--AAAAG-CCTTC-G-AGGATCGTCGT-GCGCT-GG---TCGATTAAAA---GGCTC--ACAGGCC
haematostigma	C-ACGGCAAGCGGTGGTTG-AAGA-GACCTTCGGAC-GGTG-CCG-CGGGCCGAGCCG-GCACAACGTAACCTCTCC---GTGACCC
mansoi	C-ACGGCAAGCGGTGGTTG-ACGA-GACCTTCGGAC-GATG-CCG-CGGGCCTAGCCG-GCACAACGAAACTCTAC---GAGACCC
macrophylla	C-ACGGCAAGCGGTGGTTG-ATAA-GACCTTCGAAC-GATG-CCG-CTGGCCAAGCCG-GCAGAG---AACTCTCC---GAGACCC
mitostemma	C-GCGCATGCGGTGGTTG-AATC-GACCTTCGGAG-AATG-CCG-CGGGCCAGGCCGAGCACAA-----GGCTCC---GAGACCC
tetrastilys	C-ACGGCAAGCGGTGGTTG-ACAA-GACCTTCTGAGGAATG-CCG-CGGGCCAAGCCTCCGACAAC-----GGCTCC---GAGACCC

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paropsia      C-ACGGCAAGCGGTGGTTG-GAAA-GACCCTCGGAC-AGTG-CCG-TGCGCCGGCCC--GCATAA-----GGCTCC---GGGACCC
citrifolia   CCACGGCAAGCGGTGGTTG-ATAAAGACCTTCGGAC-GATG-CCG-CGGGCCAAGCCG-GCACAG---AACTCTAC---GAGACCC
truncata     C-ACGGCGAGCGGNGGTTGAAAAAA--CCTTCGG-AAAATG-CCGC--GGCCAAGCC-AACAGAAGG-----CTCCG---AGACCC
rufa         C-ACGGCGAGCGGTGGTTGATACAA--CCTTCGA-AAGATG-CCGT--GGCCATGCC-AACAAAAGG-----CTCCG---AGACCC
morifolia    C-ACGGCAAGCGGTGGTTGACAAGA--CCTTCGG-AAATTG-CCAA--GGCCAAGCC-AACAAAAGG-----CTTCG---AGACCC
misera       C-ACGACAATCGGTGGTTGATAAAA--CCTTCGT-AAAATG-TCGT--GGACGAGCC-AACAGAAGG-----CTCTG---AGACCC
tricuspis   C-ACGGCAATCGGTGGTTGACAAAA--CCTTCGT-AAAATG-TCGT--GGACGAGCC-AACAGAAGG-----CTCTG---AGACCC
pohlii       C-ACGGCAATCGGTGGTTGATAAAA--CCTTCGT-AAAATG-TCGT--GGACGAGCC-AACAGAAGG-----CTCTG---AGACCC
organensis   C-ACGGCAATCGGTGGTTGATAAAA--CCTTCGT-AAAATG-TCGT--GGACGAGCC-AACAGAAGG-----CTCTG---AGACCC
punctata    --ACG-CAATCGGTGGTTGATAAAA--CCTTCGT-CAAATG-TCGT--GGATGAGCC-AACAGAAGG-----CTCTG---AGACCC
tulae        C-ACGGCAATCGGTGGTTGATAAAA--CCTTCGC-AAAATG-TCGT--GGACGAGCC-AACAGAAGG-----CTTTG---AGACCC
cuprea       C-ACGACAATCGGTGGTTGATAAAA--CCTTCGC-AAAATG-TCGT--GGACGAGCC-AACAGAAGG-----CTTTG---AGACCC
helleri      C-ACGGCAATCGGTGGTTGATAAAA--CCTTCGCTAAAATG-TCGT--GGACGAGCC-AACATAAGGG-----CTCTG---AGACCC
rubra        C-ACGGTAATCGGTGGTTGA-AAAA--TCTTCGG-AAATTG-TTGT--GGCAAAACC-AACAAAAGG-----CTTTTC--ACACCC
capsularis  C-ACGATAATCGGTGGTTGA-AAAA--TCTTCGG-ATATTA-TTGT--GGCAAAACC-AACAATAGG-----CTTTTC--AGACCC
sexflora     C-ACGGCAATCGGTGGTTGA-AAAA--CCTTCGG-AAAATG-TCGT--GGCAAAACC-AATA-TAAG-----CTTTG---AGACCT
coriacea     C-ACGGCAAGCGGTGGTTGATAAAA--CCTTCGG-AAAATG-TCGT--GACCAAGCC-AACAAAAGA-----CTATT---TGACCC
xiikzodz    C-ACGGCAAGCGGTGGTTGATAAAA--CCTTCGG-AAAATG-TCGT--GACCGAGCC-AACAAAATA-----CTATT---TGACCC
suberosa     C-ACGGCAAGCGGTGGTTGATAAAA--CCTTCGA-AAAATG-TCGT--GACCAAGCC-AACAAAAGA-----CTATT---TGACCC
lancetilensis C-ACAAC-AGCGGTGGTTGATAAAA--CCTTCGG-AAAATG-TTGT--G-CCAATCC-AGCACAAG-----CTTCG---AGACCN
;
;end

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***trnL-trnF* Intergenic Spacer Alignment**

#NEXUS

begin data;

dimensions ntax=64 nchar=416;

format interleave datatype=DNA missing=N gap=-;

matrix

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coriacea      NNNNNNNNNNAACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
suberosa     TATTT----GAACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
xiikzod     TATTTT----GACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
capsularis  TATTT----GAACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
talamancensis NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
tulae       NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNCCCTGCTCTA-CCAGCTGAGCTA-TCTCGACCA-----TTTCCGAACCA-TTTC
multiflora  TATTT----GGACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
rufa       TATTT----GGACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
morifolia   TATTT----GAACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
truncata    TATTT----GAACTGGTGACAC-GAGGATTTTCA--GTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
helleri     NNNNNNNNNNTCTC-GGTGACAC-GAGGATTTTCA-CAGTCCCTCTGCTCTA-TTAAACCAGCTGAGCTAATCCCGACCAC-----TTTCCGAACCATTTC
trifasciata NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNCTCTGCTCTA-CCAGCTGAGCTATCCCGACCA-----TTTCCGAACCA-TTTC
tricuspis  NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNCCCGACCA-----TTTCCGAACCA-TTTC
punctata   TATTTT---GGACTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTTTA-CCAGCTGAGCTA-TCCCGACCA-----TATCCGAACCA-TTTC
ornithoura  TATTTT---GAACTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TATCCGAACCA-TTTC
organensis  TATTT----GAACTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
misera     TATTT----GAACTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
pohlii     TATTT----GAACTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
sexflora   NNNNNNNNTGAACTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCA-TTTC
citrifolia NNNNNNNNNNNNNNTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGAC-A-----TTTCCGAACCATTTC
macrophylla TATTTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
haematostigma TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
mansoi     TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
jilekii    TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
mendoncaei TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
amethystina NNTTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
edmundoi   TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
miersii    TATTT---GAA-C-GGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
campanulata TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCT-----TTACCGAACCATTTC
setulosa   TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
villosa    TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC

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kermesina	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
garkey	TATTT---GGA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
urubicencis	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
caerulea	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
serratifolia	TATTT---GTGACTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
quadrangularis	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
incarnata	TATTT---GAAGCTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
edulis	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCGAGCTTCCCGACCTTTCCGAACC-TTTC
alata	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
reflexiflora	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
tenuifila	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
foetida	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
galbana	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
mucronata	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
maliformis	TATTTTTGGAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
serratodigitata	TAATTTTTGGAA-CTGGTGACACCGAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
gabrielliana	NNNNNNNTTGAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
recurva	NNCCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
setacea	NNNCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
vitifolia	NNNNNNNGGAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
cinnamomata	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
speciosa	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
tetrastilys	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
elegans	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
actinia	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
sidaefolia	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
eichleriana	NNNNNNNNNNNNNCTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
lancetensis	NATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
microstipula	TATTTTTGGAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
mitostema	NNCCCTCTGCTC-A-CCAGCTGAGCTA-TCCCGACCA-----TTT-----CC
paropsia	NNNTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCCCTGAGCTA-TCCCGACCA-----TTT-----CC
rubra	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCCGAACCATTTC
adenia	TATTT---GAA-CTGGTGACAC-GAGGATTTT--CAGTCCTCTGCTCTA-CCAGCTGAGCTA-TCCCGACCA-----TTTCC-----
coriacea	-----GGATACGCCATCTTCATTATTTTACTACTGATTATTTTGTAAAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
suberosa	CGAACCATTTCCGATACGCCATCTTCATTATTTTACTACTGATTATTTTGTAAAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
xiikzodz	C-----GATACACCATCTTCATTATTTTACTACTGATTATTTTGTAAAGGACTTAGGTCTAT-GTCAATTTAAAAATGACGATTTTCGTACGTT
capsularis	-----GGATACGCCATCTTCATCATTTTACTA-----AAGGACTTAGGTCTAT-GTCAATTTAAAAAGGACGATTTTCGTACGTT
talamancensis	-----GGATACGCCATCTTCATCATTTTACTA-----AAGGACATAGGTCTAT-GTCCATTTAAAAACGACGATTTTCGTACGTT

tulae	-----GGATACGCC-----	-----TTAAAAACGACGATTTTCGTAGGTT
multiflora	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
rufa	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
morifolia	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACTTAGGTCTAT-GTCAATTTAGAAACGATGATTTTCGTACGTT
truncata	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
helleri	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACATAGGTCTAT-GTCA-TTTAAAAACGACGATTTTCGTACGTT
trifasciata	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACATAGGTCTATCGTCAATTTAAAAACGACGATTTTCGTACGTT
tricuspis	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACATAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
punctata	-----GGATACGCCATTTTCATCATTCTTACTA-----	-----AAGGACATAGGTTTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
ornithoura	-----GGATACGGCATCTTCATCATTCTTACTA-----	-----A-GGACATAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
organensis	-----GGATACGCCATCTTCATCCTTTTACTA-----	-----AAGGACATAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTGCGTT
misera	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACATAGGTCTATCGTCAATTTAAAAACGACGATTTTCGTATGTT
pohlii	-----GGATACGGCATCTTCATCATTCTTACTA-----	-----AAGGACATAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
sexflora	-----GGATACGCCATCTTCATCATTCTTACTA-----	-----AAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
citrifolia	-----GATACGCCATCTTCATCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
macrophylla	-----GATACGCCATCTTCATCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
haematostigma	-----GATACGCCATCTTTATCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
mansoi	-----GATACGCCATCTTTATCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
jilekii	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
mendoncaei	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
amethystina	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
edmundoi	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
miersii	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
campanulata	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
setulosa	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
villosa	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
kermesina	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGCCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
garkey	-----GATACAC-ATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCA-TTTAAAAACGAGGATTTTCGTACGTT
urubicencis	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
caerulea	-----GATACGCCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
serratifolia	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTTAATTTAAAAACGAGGATTTTCGTACGTT
quadrangularis	-----GATACACCATCTTCGTTATTTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
incarnata	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
edulis	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GGCAATTTAAAAACGAGGATTTTCGTACGTT
alata	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
reflexiflora	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
tenuifila	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
foetida	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
galbana	-----GATACACCATCTTCGTCATTCTTACTA-----	-----AACGACGAAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT

mucronata	-----GATACACCATCTTCGTCATTTTACTA-----AACGACGAAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
maliformis	-----GATACACCATCTTCGTCATTT-ACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
serratodigitata	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACAAGGATTTTCGTACGTT
gabrielliana	-----GATACACCATCTTCGTCATTT-ACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
recurva	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
setacea	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
vitifolia	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
cincinnata	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
speciosa	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
tetrastilys	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
elegans	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
actinia	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
sidaefolia	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
eichleriana	-----GATACACCATCTTCGTCATTTTACTA-----AACGACTTAGGTCTAT-GTCAATTTAAAAACGAGGATTTTCGTACGTT
lancetensis	-----GATACGCCATCTTCATCATTTTACTA-----AAGGACTTAGGTCTAT-GTCA-TTTAAAAACGACGATTTTCGTACGTT
microstipula	-----GATACGCCATCTTCATCATTTTACTA-----AAGGACTTAGGTCTAT-GTCAATTTAAAAACGACGATTTTCGTACGTT
mitostema	-----GATACGCCATCTTCATCATTTTACTA-----AATGACTTAGGTCTAT-GTCAATTTTAAAAAGACGATTTTCGTACGTT
paropsia	-----GATACGCCATTTTCATCATTTTACTA-----AATGACTTAGGTCTAT-GTCAATTTAAAAAAGACGATTTTCGTACGTT
rubra	-----GATACGCC-TCTTCATCATTTTACTA-----AAGGACTTAGGTCTAT-GTCAATTTAAAAAGGACGATTTTCGTACGTT
adenia	-----GATACGCCATCTTCATCATTTTACGA-----AATGACTTAGGTCTAT-GTCAATTTCAAAAAGACGATTT-GTGCGTT
coriacea	TC----TAATGTACAT-GTATCATATCTATT-ACAACACT-GTGAA-----AA-T--AAAA-----A
suberosa	TC----TAATGTACGT-GTATCATATCTATT-ACAACACTTGTGAA-----AAGC--AAAA-----A
xiikzodz	TC----TAATGTACGT-GTATCATATCTATT-ACAACACTTGTGAA-----AAGC--AAAA-----A
capsularis	TC----TAATGTACGTGATCATATCTATC-ACAACACTTGTGAA-----AAGC--AAAA-----A
talamancensis	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGATCTATCACAACACTTGTGAA-----AAGCCAAAAA-----A
tulae	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGATCTATCACAACACTTGTGAA-----AAGCAAAAAA-----A
multiflora	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGATCTATCATAATACTTGTGATCTATCACAACACTTGTGAAAAGCAAAA-----A
rufa	TC----TAATGTATGT-GTATCATATATATC-ACAACACTTGTGATCTATCACAACACT-GTGAA-----AAGC--AAAA-----A
morifolia	TC----TAATGTATGT-GTATCATATCTATC-ACAAGTGTGTGATCTATCACAACACTTGTGAA-----AAG--AAAA-----A
truncata	TC----TAATGTATGT-GTATCATATTTATC-ACAACACTTGTAACTATCACAACACTTGTGAA-----AAGC--AAAA-----A
helleri	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGCCAAAAA-----A
trifasciata	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC-AAAAA-----A
tricuspis	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC-AAAAA-----A
punctata	TT----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC-CAAAA-----A
ornithoura	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC--AAAA-----A
organensis	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC-AAAAA-----A
misera	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC-AAAAA-----A
pohlii	TC----TAATGTATGT-GTATCATATCTATC-ACAACACTTGTGAA-----AAGC-AAAAA-----A



sexflora	TC----TAATGTATGC-GTATCATATCTATC-ACAACACTTGTGAA-----A
citrifolia	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA-----TCA
macrophylla	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA-----TCA
haematostigma	TC----TAATGTAT-GCGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA-----TCA
mansoi	TC----TAATGTAT-GCGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA-----TCA
jilekii	TC----GAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
mendoncaei	TC----GAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
amethystina	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----GAA
edmundoi	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
miersii	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
campanulata	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
setulosa	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
villosa	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
kermesina	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
garkey	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
urubicencis	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----TCA
caerulea	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTTAAA-----AGCAAAAAAAAA-----GCA
serratifolia	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAG-----TCA
quadrangularis	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AACAAAAAAG-----TCA
incarnata	TC----TAATGTAT-GTGTATCATATCTATCCACAACACTTGTGAAA-----AGCAAAAAAG-----TCA
edulis	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAG-----TCA
alata	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AACAAAAAAG-----GCA
reflexiflora	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAG-----CCA
tenuifila	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAA-----CCA
foetida	TC----TAATGGAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAA-----TCA
galbana	TC----TAATGTATCGTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAA-----TCA
mucronata	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAA-----TCA
maliformis	TC----TAATGTAT-GTGTATCATATCTATC-ATAACACTTGTGAAA-----AGCAAAAAA-----GTCA
serratodigitata	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAA-----GTCA
gabrielliana	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAA-----GTCA
recurva	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAAAAAAAGTCA
setacea	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAAAAAAAGTCA
vitifolia	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAA-----GTCA
cincinnata	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAAATGTGAAA-----AGCAAAAAA-----GTCA
speciosa	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAA-----GTCA
tetrastilys	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAA-----GTCA
elegans	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGC-AAAAA-----GTAA
actinia	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGC-AAAAA-----GTCA
sidaefolia	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCTAAAAA-----GTCA

eichleriana	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGTAAAAAAA-----CCA
lancetensis	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAACAAAA-----TCA
microstipula	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAACAAA-----TCA
mitostema	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA-----TCA
paropsia	TCAGTCTAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA--AAAGAA
rubra	TC----TAATGTAC-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGCAAAAAAAAA-----A
adenia	TC----TAATGTAT-GTGTATCATATCTATC-ACAACACTTGTGAAA-----AGAAAAAAAA-----CCA
coriacea	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCGTTTTTTTTTC-----TAAGATAGATAATTA--GGG-AGTCT
suberosa	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACA-AAA-----AAGCATTTTTTTTTTC-----TAAGATAGATAATTA--GGG-AGTCT
xiikzodz	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTC-----TAAGATAGAAAATTA--GGG-AGTCT
capsularis	AACCGG-ATACATTT----GTAAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTT-----TAAGATAGATAATTA--GGG-AGTCT
talamancensis	AACCGG-ATACATTT----GTGAAAGAATCAAATGACGA-AAA-----AAGCATTTTTTTTTTTTT-----CTAAGATAGATA-TTA--GGG-AGCCT
tulae	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTTT-----CTAAGATAGATAATTA--GGG-AGTCT
multiflora	AACCGG-ATACATTT----GTGAAAGAATCAAATGA-CG-AAA-----AAGCATTTTTTTTTT-----CTAAGATAGATA-TTA--GGG-AGTCT
rufa	ACCCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTCG-----TAAGATAGATAATTA--GGG-AGTCT
morifolia	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACGCAAA-----AAGCATTTTTTTTTTC-----TAAGATAGAAAATTA--GGG-AGTCT
truncata	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTC-----TAAGATAGATAATTA--GGG-AGTCT
helleri	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTTTTC-----CTAAGATAGATAATTA--GGG-AGTCT
trifasciata	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTTTTTTTCTAAGATAGATAATTA--GGG-AGTCT
tricuspis	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTTTTTTTCTAAGATAGATATATA--GGG-AGTCT
punctata	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTTTTT-----CTAAGATAGAAAATTA--GGG-AGTCT
ornithoura	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AACGATTTTTTTTTT-----CTAAGATAGATA-TTA--GGG-AGTCT
organensis	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTT-----CTAAGATAGACAATTA--GGG-AGTCT
misera	A-CCGG-ATACATTTATTTGTGAAATAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTAT-----CTAAAATAGATAATTA--GGG-AGTCT
pohlii	AACCGG-ATACATTT----GTGAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTTTAT-----CTAAGATAAAATAATTA--GGG-AGTCT
sexflora	AGCCAG-ATACATTT----GTAAAAGAATCAAATGAACG-AAA-----AAGCATTTTTTTTTT-----TTAAGTAATTA--GGG-AGTCT
citrifolia	ACCCGG-ATACATTT----GTGAAAGAATCAAATGAATGAAAA-----AG-ATAA-GAATTTTTTTT-----CTAAGATATATA-TTA--GTG-AGTCC
macrophylla	--CCCG-ATACATTT----GTGAAAGAATCAAATGAATGAAAA-----AG-ATAA-AGATTTTTTTT-----CTAAGATATATAATTA--GGG-AGTCC
haematostigma	ACCTGG-ATACATTT----GGGAAAGAATCAAATGAATGAAAA-----AG-ATAAAGAATTTTTTTG-----CTAAGATATATAATTA--GGG-AGTCC
mansoi	ACCTGG-ATACATTT----GTGAAAGAATCAAATGAATGAAAA-----AG-ATAAAGAATTTTTTTG-----CTAAGATATATAATTA--GGG-AGTCC
jilekii	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCC
mendoncaei	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCC
amethystina	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATACAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCC
edmundoi	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTATTTT-----CTAAGATATATA-----G-AGTCC
miersii	ACCCAG-ATACGTTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCC
campanulata	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCT
setulosa	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCT
villosa	ACCCAG-ATACATTT----GTGAAAGAATCAAATGCACGAAAA-----AG-ATAAAGAATTTTTTTT-----CTAAGATATATA-----G-AGTCT



tulae	A-ACGG-AT-CTTTTT
multiflora	A-ACGG-AT-CTTTTT
rufa	A-ACGG-AT-CTTTTT
morifolia	A-ACGG-AT-CTTTTT
truncata	A-ACGG-AN-CTTTNN
helleri	A-ACGG-AT-CTTTTN
trifasciata	A-AGG--A--CTTTTN
tricuspis	A-AGGG-AT-CTTTTN
punctata	A-ACGG-ATCCTTTTN
ornithoura	A-ACGG-AT-CTTTTT
organensis	A-ACGG-AT-CTTTTT
misera	A-ACGG-AT-CTTTTT
pohlii	A-ACGG-AT-CTTTTT
sexflora	A-ACGG-AT-CTTTTT
citrifolia	CCACGGGATCCTTTTN
macrophylla	C-ACGG-AT-CTTTTT
haematostigma	C-ACGG-AT-CTTTTT
mansoi	C-ACGG-AT-CTTTTT
jilekii	C-ACGG-AT-CTTTTT
mendoncaei	C-ACGG-AT-CTTTTT
amethystina	C-ACGG-AT-CTTTTT
edmundoi	C-ACGG-AT-CTTTTT
miersii	C-ACGG-AT-CTTTTT
campanulata	C-ACGG-AT-CTTTTT
setulosa	C-ACGG-AT-CTTTTT
villosa	C-ACGG-AT-CTTTTT
kermesina	C-ACGG-AT-CTTTTT
garkey	C-ACGG-AT-CTTTTN
urubicencis	C-GCGG-AT-CTTTTT
caerulea	C-ACGG-AT-CTTTTT
serratifolia	C-ACGG-ACTCTTTTN
quadrangularis	C-ACGG-AT-CTTTTT
incarnata	C-ACGG-AT-CTTTTT
edulis	C-ACGG-AT-CTTTTT
alata	C-ACGG-AT-CTTTTT
reflexiflora	C-ACGG-AT-CTTTNN
tenuifila	C-ACGG-AT-CTTTTT
foetida	C-ACGG-AT-CTTTTT
galbana	C-ACGG-AT-CTTTTT

mucronata	C-ACGG-AT-CTTTTT
maliformis	C-ACGG-AT-CTTTTT
serratodigitata	C-ACGG-AT-TTTTTT
gabrielliana	C-ACGG-AT-CTTTTT
recurva	C-ACGG-AT-CTTTTT
setacea	C-ACNNNNNNNNNNNN
vitifolia	C-ACGG-AT-CTTTTT
cincinnata	C-ACGG-AT-CTTTTT
speciosa	C-ACGG-AT-CTTTTT
tetrasilys	C-ACGG-AT-CTTTTT
elegans	C-ACGG-AT-CTTTTT
actinia	C-ACGG-AT-CTTTTT
sidaefolia	C-ACGG-AT-CTTTTT
eichleriana	C-ACGG-AT-CTTTTT
lancetensis	TGACGG-AT-CTTTTT
microstipula	TGACGG-AT-CTTTTT
mitostema	T-ACGG-AT-CTTTTT
paropsia	T-ACGG-AT-TTTTTN
rubra	NNNNNNNNNNNNNNNN
adenia	AACCANNNNNNNNNN
;	
; end	

**rps4 gene Alignment**

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#NEXUS
begin data;
dimensions ntax=36 nchar=576;
format interleave datatype=DNA missing=N gap=-;
matrix

haematostigma      GGGGGCTTTACCAGGATTAAGTAGG-AAAAGTCCTATAGCCGGGAGTGCTTTTT-----CGCGCCCTGGTAGAAAAATCTCAATATTGTA-TTCGTT
mansoi              GGGGGCTT-AC-AGGAT--ACTAGG-AAAAGTCCTATAGCCGGGAGTGCTTTTT-----CGCGCCCTGGTAGAAAAATCTCAATAT-GTA-TTCGTT
citrifolia          NNNNNNNNTAC-AGGAT--ACTAGG-AAAAGTC-TATAGCCGGGAGTGCTTTTT-----CGCGCCCTGGTAGAAAAATCTCAATATTGTA-TTCGTT
macrophylla         NNGGGCTTTAC-AGGAT--ACTAGG-AAA-GTC-TATAGCCGGGAGTGCTTTTT-----CGCGCCCTGGTAGAAAAATCTCAATATTGTAGTTTCGTT
mitostemma          NNNNNNNNNNNNNG-ATT-CTAG-TAAAAGTCCTATAGCCGGGAGTGCTTTTCAAATCAATCGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
foetida              GGGGGCTTTACCAGGATTAAGTAG-TAAAAGTCCTATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
maliformis          GGGGGCTT-ACCGGGATTA-CTAG-TAAAAGTC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
actinia              GGGGGCTT-ACCGGGATT-CTAG-TAAA-GTCC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
elegans              NGGGGCTT-AC-GGGAT--ACTAG-TAAA-GTCC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
speciosa             GGGGGCTTTACCAGGATTAAGTAG-TAAAAGTCCTATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
cincinnata           GGGGGCTT-AC-GGGAT--ACTAG-TAAA-GTCC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
gabrielliana        NNGGGCTT-AC-GGGAT--ACTAG-TAAA-GTC-TATAGCCAGGAGTACTTTTT-----CGCGCTCTGGTAAAAAATCTCA-TAT-GTA-TTCGTT
incarnata            GGGGGCTT-AC-GGGAT--ACTAG-TAAA-GTCC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
quadrangularis      NNNNNCT--AC-GGGAT--ACTAG-TAAA-GTC-TATAGCCAG-AGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
setulosa             NNNNNNNNNNNNNGGGATT-CTAG-TAAA-GTC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
garkey               NNNNNNNNNNNNNGGGATT-CTAG-TAAAAGTC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
eichleriana          NNNNNCT--AC-GGGATT-CTAG-TAAAAGTC-TAAAGCCAGGAGTGTTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
alata                 NNNNNNNNNNNNNGGGAT--ACTAG-TAAA-GTC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
urubicensis          NNNNNCT--AC-GGGAT--ACTAG-TAAA-GTCC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
amethystina          GGGGGCTT-AC-GGGATT-CTAG-TAAA-GTCC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
setacea              NGGGGCTTTACC-GGAT-AACTAGGTAAA-GTCC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
recurva              NNNNNNNNNNNNNNGATT-CTAG-TAAA-GTCC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
pohlii               NNNNNNNNNNNNNGGATT-CTAG-TAAAAGTCCTATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
sidaefolia           GGGGGCTT-AC-GGGATT-CTAG-TAAAAGTC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
villosa              GGGGGCTT-ACCGGGATT-CTAG-TAAAAGTC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
edulis               GGGGGCTT-AC-GGGATT-CTAG-TAAAAGTC-TATAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
campanulata          GGGGGCTT-ACCGGGATT-CTAG-TAAAAGTC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
caerulea             NGGGGCTT-ACC-GGAT-AACTAG-TAAA-GTCC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
tenuifila            GGGGGCTT-AC-GGGATT-CTAG-TAAAAGTC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
jilekii              GGGGGCTT-AC-GGGAT--ACTAG-TAAA-GTCC-TAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT

```

edmundoi	GGGGGCTT-ACCGGGATT-ACTAG-TAAAAGTCCTAAAGCCAGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATAT-GTA-TTCGTT
tetrastilyx	NNNNNNNNNNNNNGGATT-ACTAG-TAAAAGTCCTATAGTCGAGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
morifolia	GGGGACT--ACA-GGATT-ACTAG-TAAA-GTC-TAGAGTCAGGATTGCTGTTT-----CGCGCTCTGGTAGAAAAATCTCAATAT-GTA-TACGTT
rufa	GGGGACTT-ACA-GGATT-ACTAG-TAAA-GTCTTAGAGTCGGGAGTGCC-TTT-----CGCGCTCTGGTAGAAAAATCTCAATATTGTA-TGCGTT
lancetillensis	GGGGGCTT-ACA-GGATT-ACTAG-TAAAAGGCCATAGTCGGGAGTGCTTTTT-----CGCGCTCTGGTAAAAAATCTCAATATTGTA-TTCGTT
paropsia	GGGGGCTTTACCGGGATTCACTAG-TAAAAAGCCTAGAGACGAGAGTGCTGAAT-----CGCGCTCTGGTAAAAAATCTCAATATCGTA-TTCGTT
haematostigma	TA-CAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGAACGGACGGGTC
mansoi	TA-CAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGAACGGACGGGTC
citrifolia	TC-CAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGAACGGACGGGTA
macrophylla	TAACAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGAACGGACGGGTC
mitostemma	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGACGGGTC
foetida	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
maliformis	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
actinia	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
elegans	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
speciosa	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
cincinnata	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
gabrielliana	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
incarnata	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
quadrangularis	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
setulosa	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
garkey	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
eichleriana	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
alata	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
urubicensis	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
amethystina	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
setacea	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
recurva	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
pohlii	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
sidaefolia	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
villosa	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
edulis	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
campanulata	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
caerulea	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
tenuifila	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
jilekii	TA-GAAGAAAAACAAAAATTACGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
edmundoi	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGAAGGGTC
tetrastilyx	TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTATCGCCGCAAAGCCAAAGGACCGACGGGTC

morifolia TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTGTACAGAACGACAATTACTGAAATACGCGCGTATTGCCGCAAAGCCAAAGGACCGACGGGTG  
 rufa TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTCGCGTATTGCCGCAAAGCCAAAGGACCGACGGGTG  
 lancetillensis TA-CAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTTATTGCCGCAAAGCCAAAGGACCGACGGGTG  
 paropsia TA-GAAGAAAAACAAAAATTGCGCTTTCATTATGGTCTTACAGAACGACAATTACTGAAATACGTTTCGTTATTGCCGCAAAGCCAAAGGACCGATAGGTG  
  
 haematostigma AGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 mansoi AGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 citrifolia AGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 macrophylla AGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 mitostemma AGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCGCGA-GCCCGCCAATTAGTTAATCATA  
 foetida GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAACGCCCGCCAATTAGTTAATCATA  
 maliformis GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 actinia GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 elegans GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCATCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 speciosa GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 cincinnata GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 gabrielliana GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 incarnata GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 quadrangularis GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 setulosa GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 garkey GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 eichleriana GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 alata GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 urubicensis GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 amethystina GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 setacea GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 recurva GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 pohlii GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 sidaefolia GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCATCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 villosa GGGTTTTACTACAATTACTTGAAATGCGTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 edulis GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 campanulata GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 caerulea GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 tenuifila GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 jilekii GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 edmundoi GGGTTTTACTACAATTACTTGAAATGCGTTTGGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 tetrastilys CGGTTTTACTACAATTACTTGAAATGCGTTTAGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA  
 morifolia AGGTTTTACTACAATTACTTGAAATGCGTTTAGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTGCTCAA-GCCCGCCAATTAGTTAATCATA  
 rufa CGGTTTTACTACAATTACTTGAAATGCGTTTAGATAANTATCCTTTTTTCGATTAGGTATGGCGTCAACTATTCCCTCAA-GCCCGCCAATTAGTTAATCATA



lancetillensis AGGTTTTACTACAATTACTTGAAATGCGTTTTAGATAATATCCTTTTTCGATTAGGTATGGCGTCAACTATTCCTCAA-GCCCCCCAATTAGTTAATCATA  
paropsia TGGTTTTACTACAATTACTTGAAATGCGTTTTGGATAATATCCTTTTTCGATTAGGTATGGCGTCAACTATTCCTCGA-GCCCCCCAATTAGTTAATCATA

haematostigma GACATATTTTAGTTAATGGTCGTATAGTGGATATACCAAGTTATCGCTGCAAACCCCGAGATCTTATTACAGTGAAGGATGAACAAAAATCTAAAGATAT  
mansoi GACATATTTTAGTTAATGGTCGTATAGTGGATATACCAAGTTATCGCTGCAAACCCCGAGATCTTATTACAGTGAAGGATGAACAAAAATCTAAAGATAT  
citrifolia GACATATTTTAGTTAATGGTCGTATAGTGGATATACCAAGTTATCGCTGCAAACCCCGAGATCTTATTACAGTGAAGGATGAACAAAAATCTAAAGATAT  
macrophylla GACATATTTTAGTTAATGGTCGTATAGTGGATATACCAAGTTATCGCTGCAAACCCCGAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
mitostemma GACATATTTTAGTTAATGGTCGTATAGTGGATATACCAAGTTATCGCTGCAAACCCCGAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
foetida GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
maliformis GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
actinia GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
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speciosa GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
cinninata GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
gabrielliana GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
incarnata GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
quadrangularis GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
setulosa GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
garkey GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
eichleriana GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
alata GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
urubicensis GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
amethystina GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
setacea GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
recurva GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
pohlii GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
sidaefolia GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
villosa GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
edulis GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
campanulata GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
caerulea GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
tenuifila GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
jilekii GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
edmundoi GACATATTTTAGTTAATGGTCGTATAGTCGATATACCAAGTTATCGCTGCAAACCCCAAGATCTTATTACAGTGAAGGATGAACAAAAATCGAAAGATAT  
tetrastilys GACATATTTTAGTTAATGGTCGTATAGTGGATATACCAAGTTATCGCTGCAAACCCCGGATCTTATTACAGTGAAGGATGAACAAAAATCTAAAGATAT  
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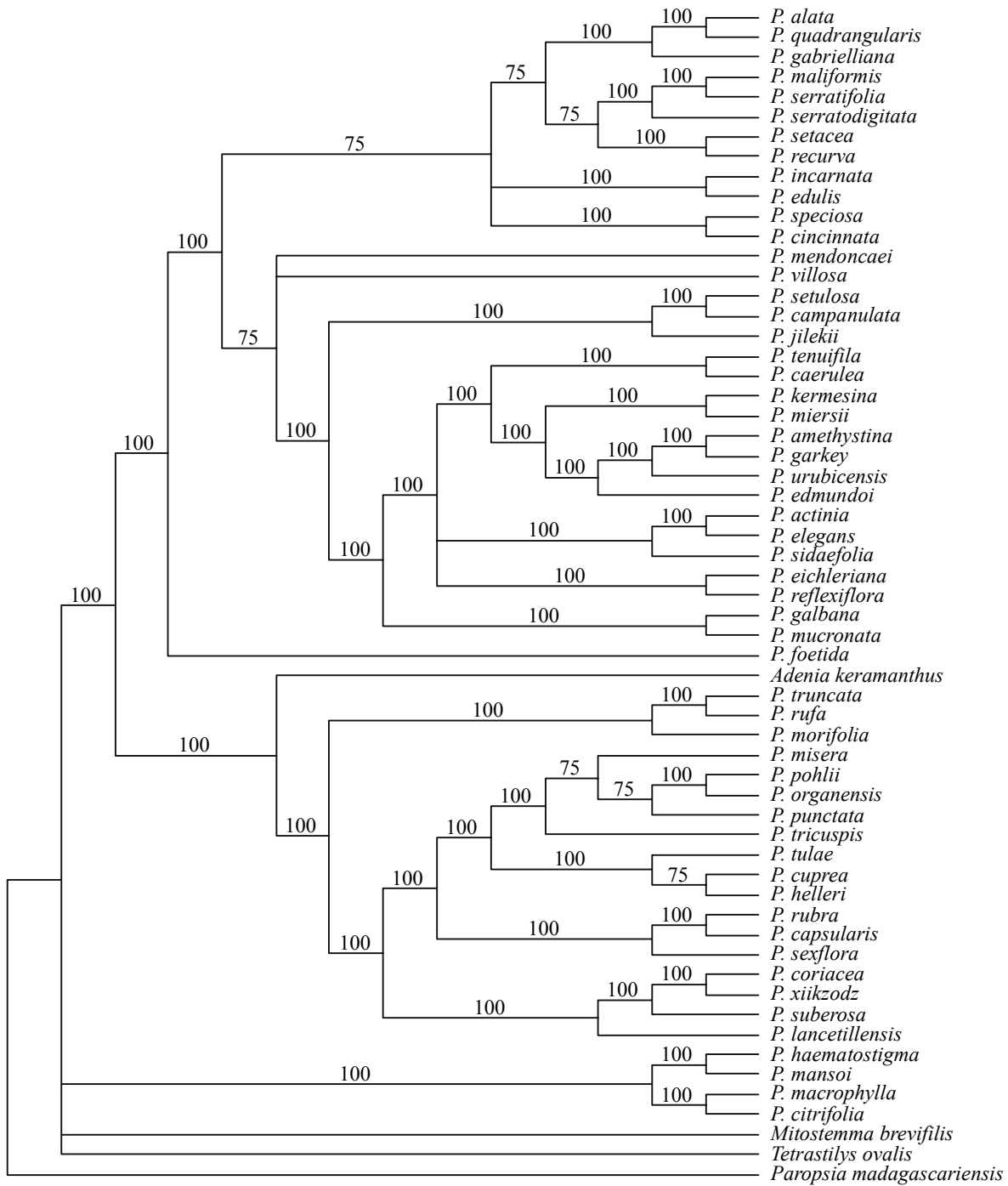
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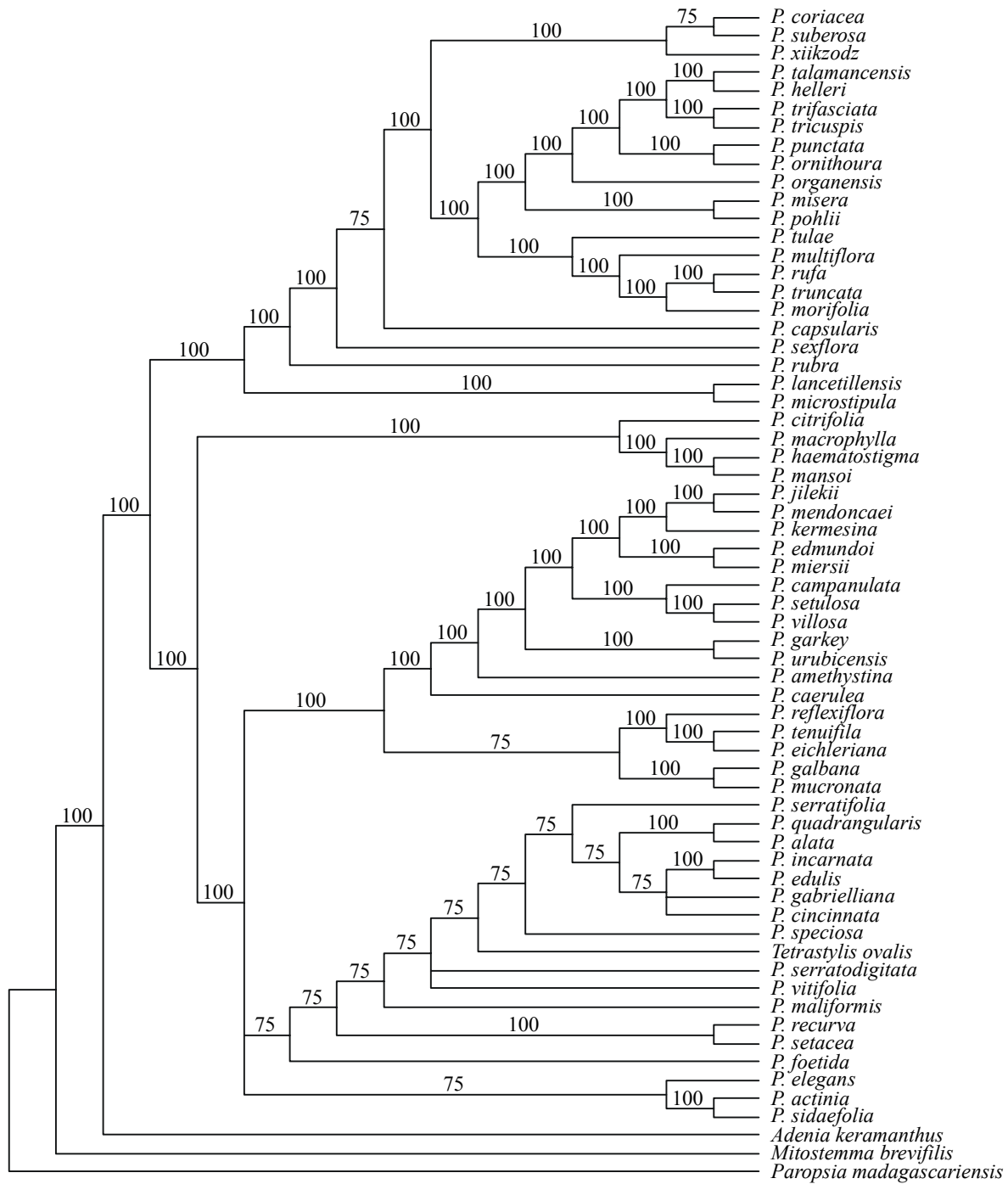
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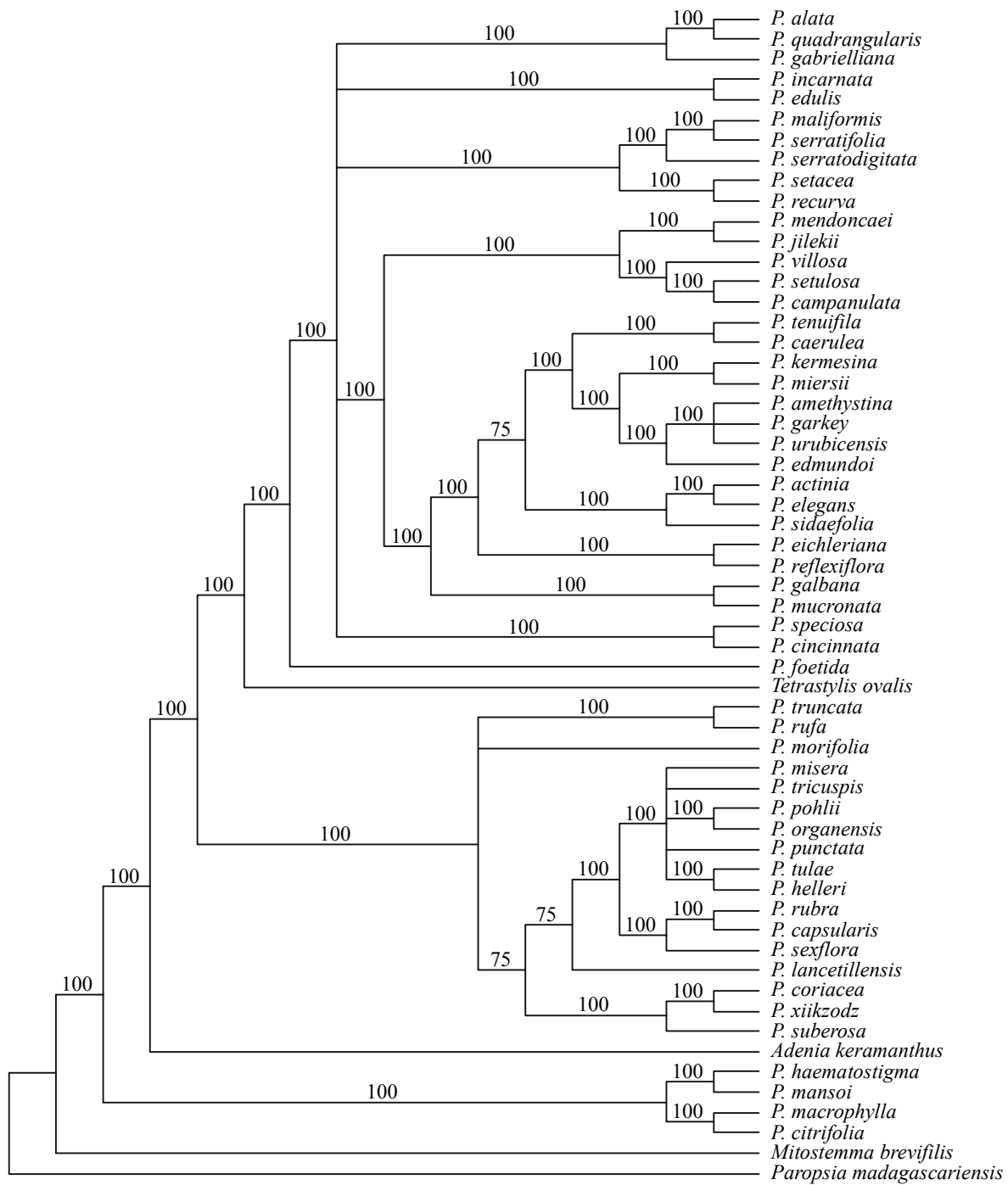
MetaPIGA majority rule 50% tree for the ITS spacer.



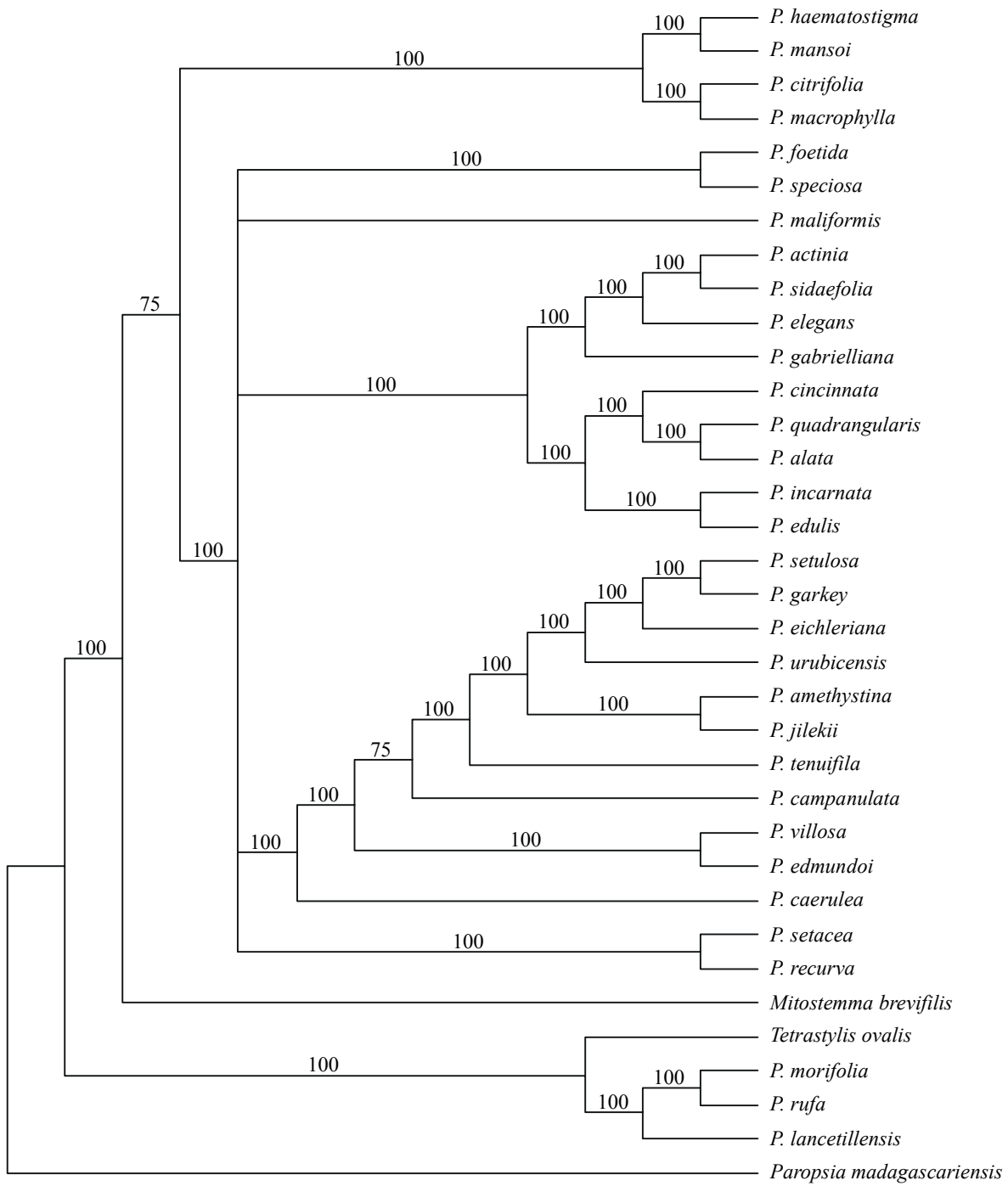
MetaPIGA majority rule 50% tree for the intergenic spacer *trnL-trnF*.



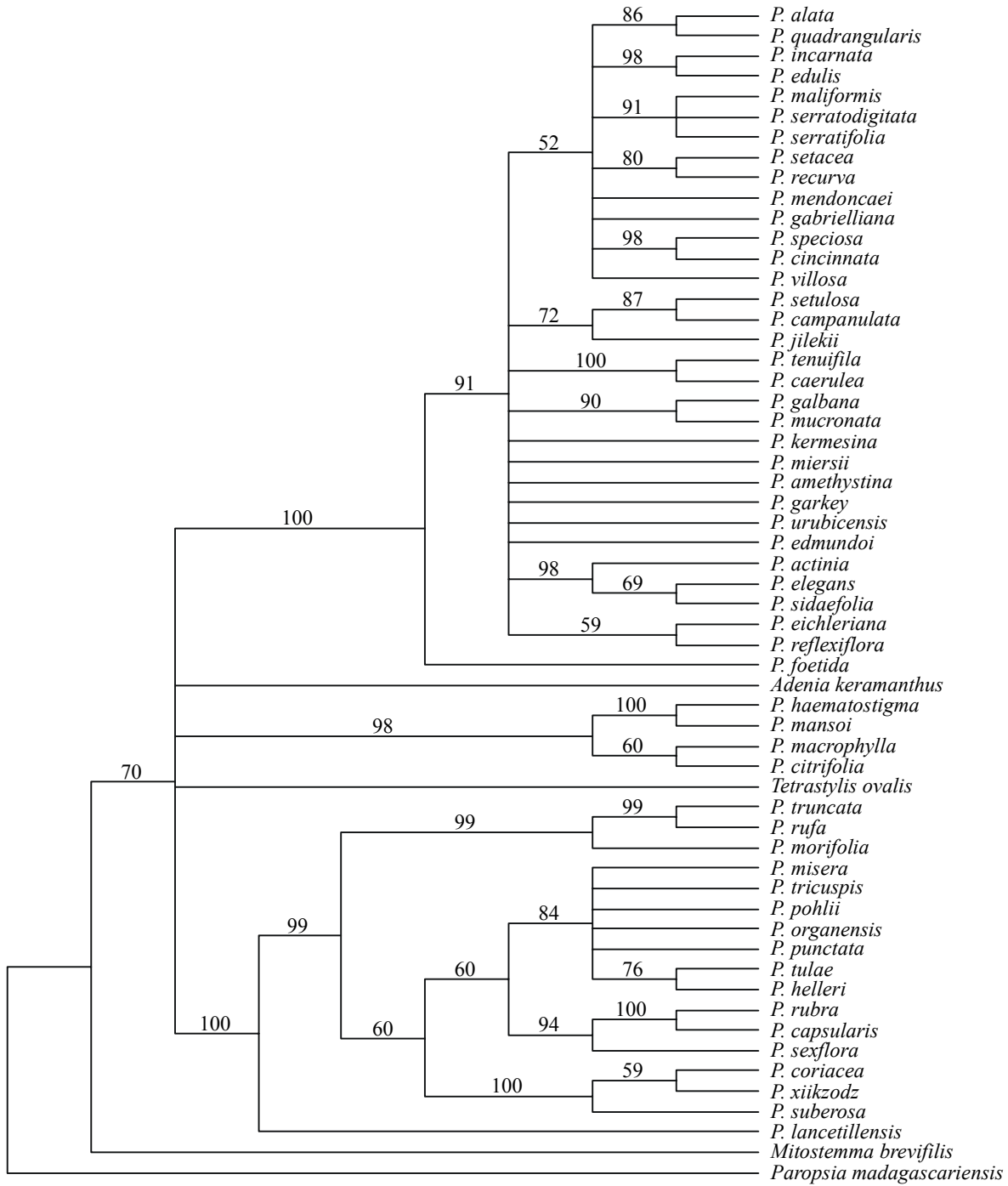
MetaPIGA majority rule 50% tree for the two spacer regions combined.



MetaPIGA majority rule 50% tree for the *rps4* gene.

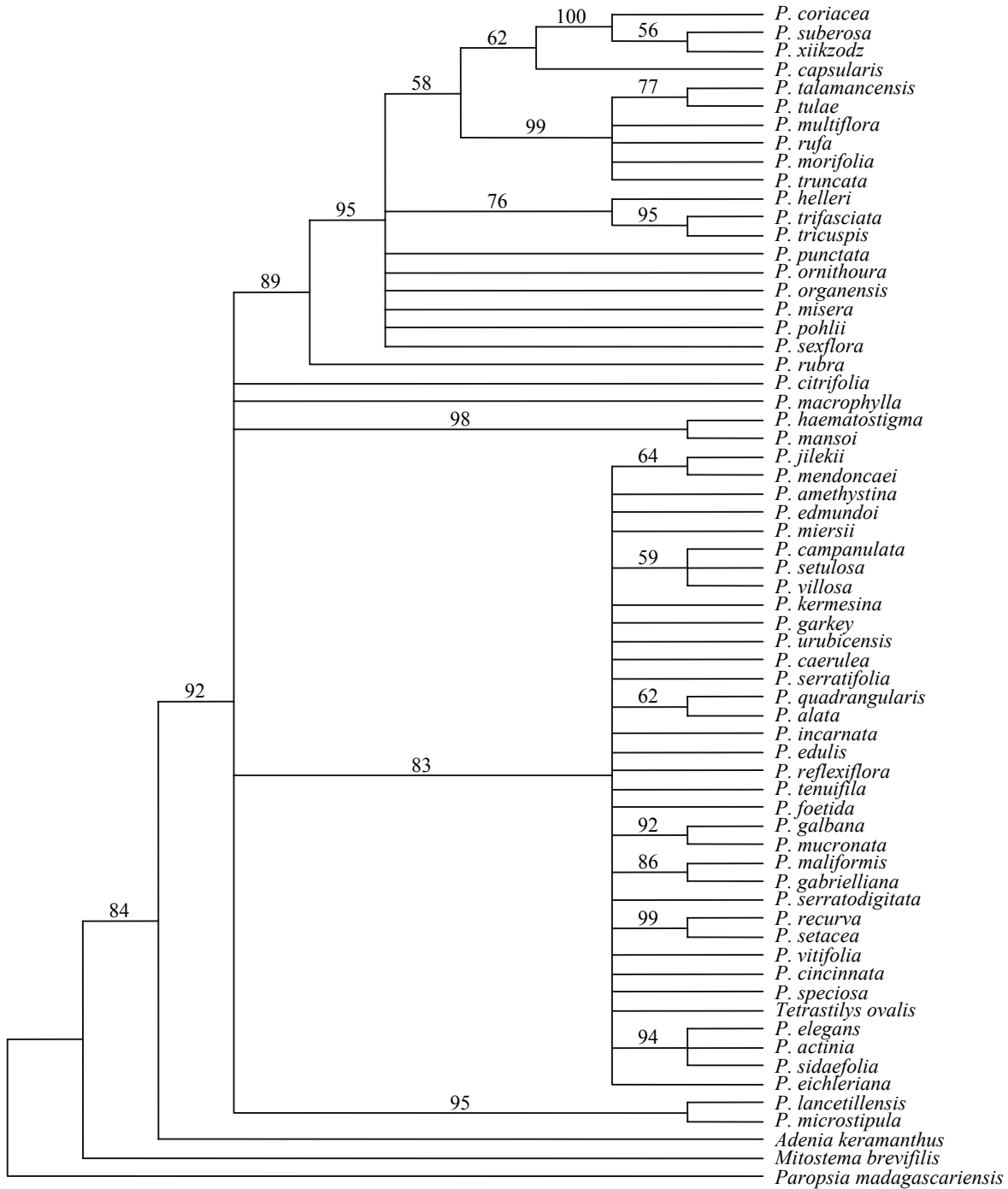


Strict consensus of the 73 most parsimonious trees for the ITS spacer region..

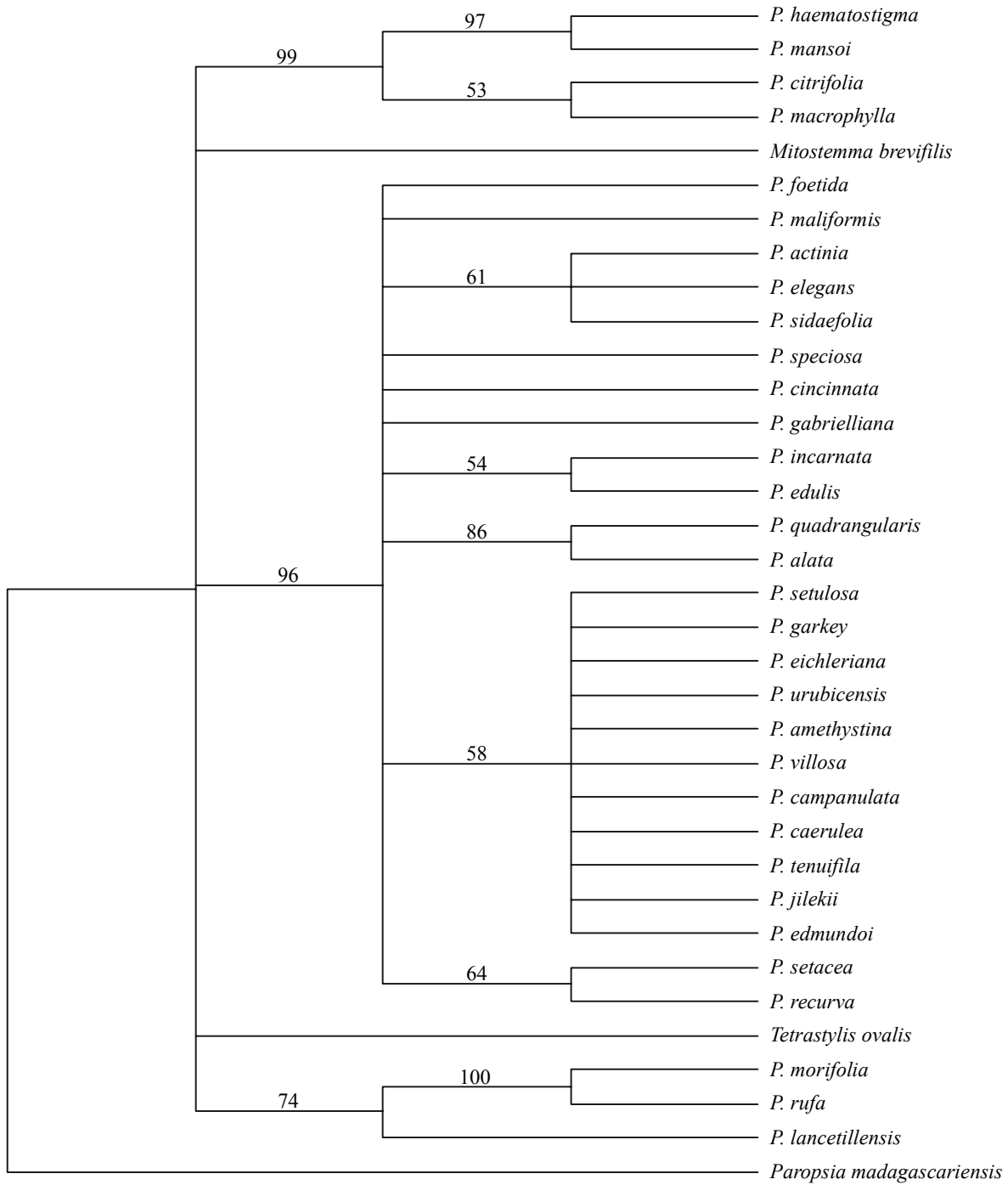




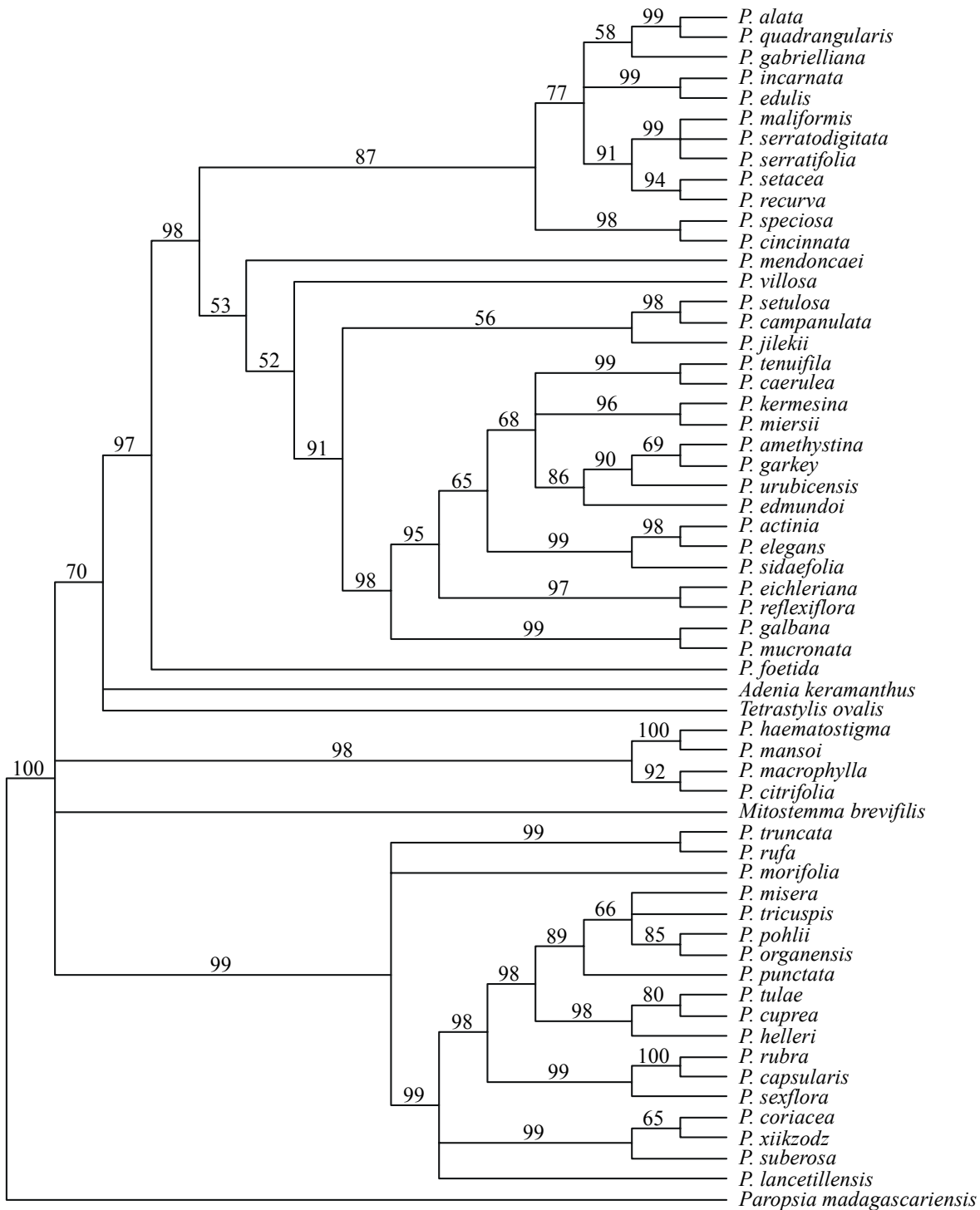
Strict consensus of the 196,400 most parsimonious trees for intergenic spacer *trnL-trnF*.



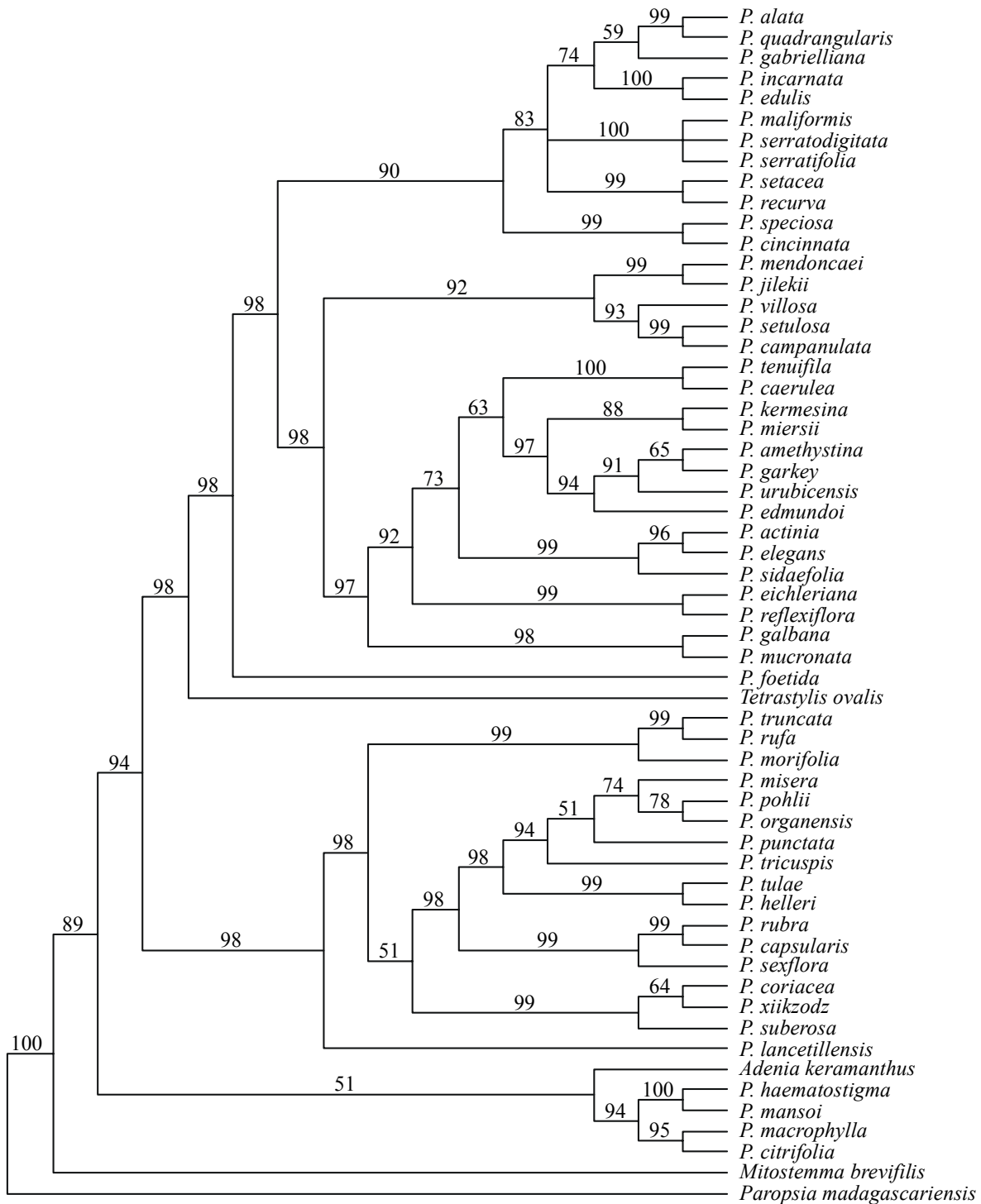
Strict consensus of the 14 most parsimonious trees for the *rps4* gene.



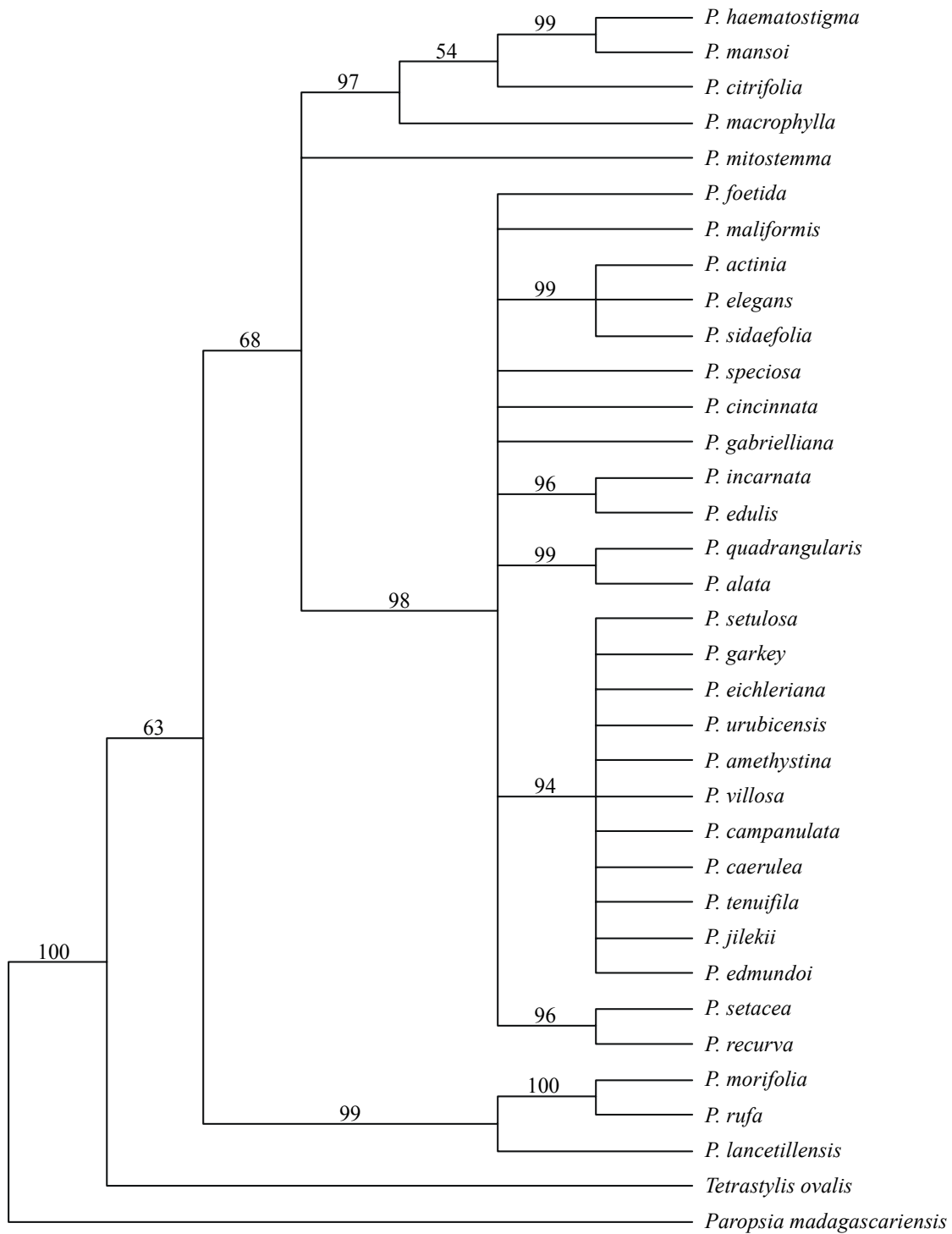
Bayesian majority rule 50% tree for the ITS spacer.



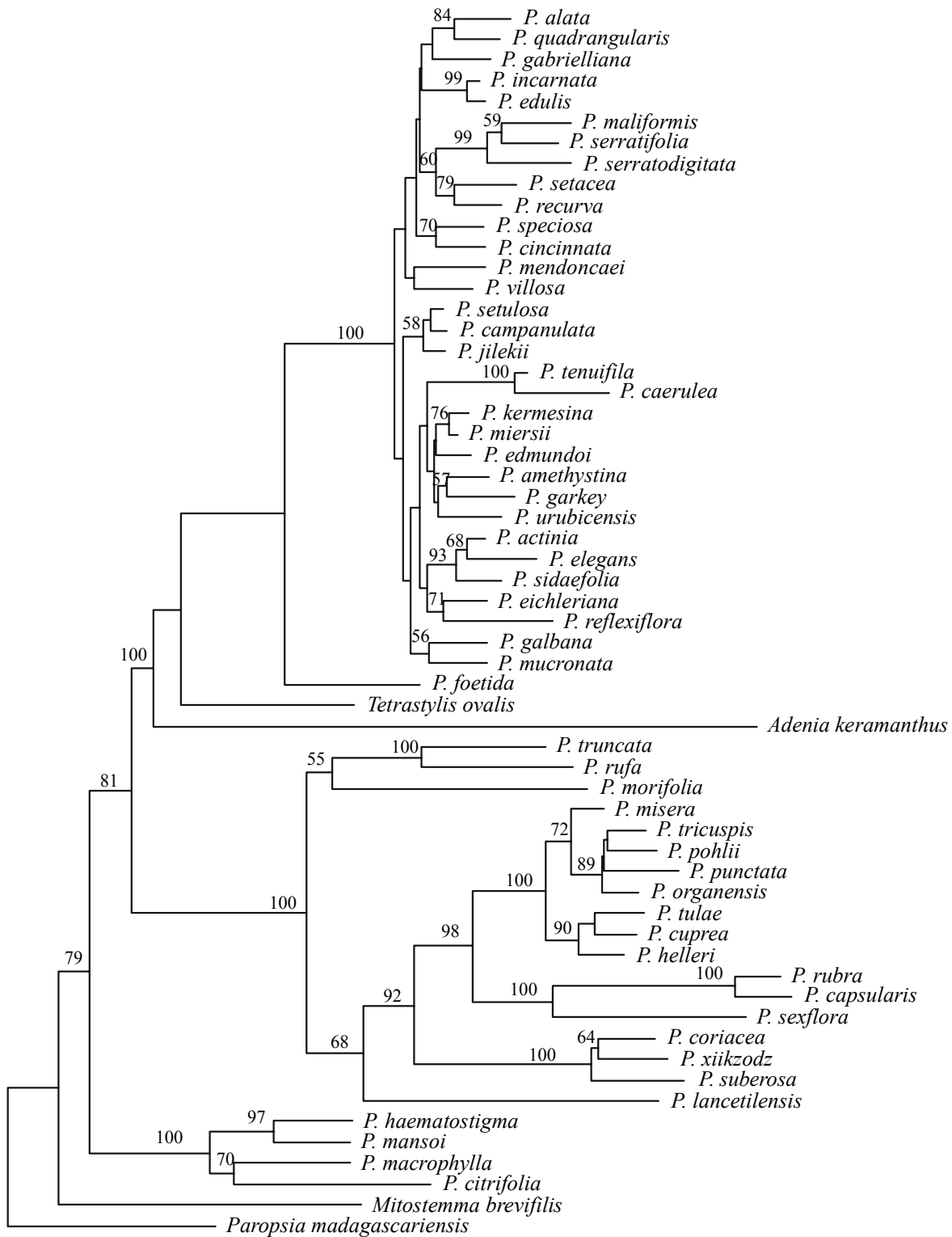
Bayesian majority rule 50% tree for the two spacer regions.



Bayesian majority rule 50% tree for the *rps4* gene.

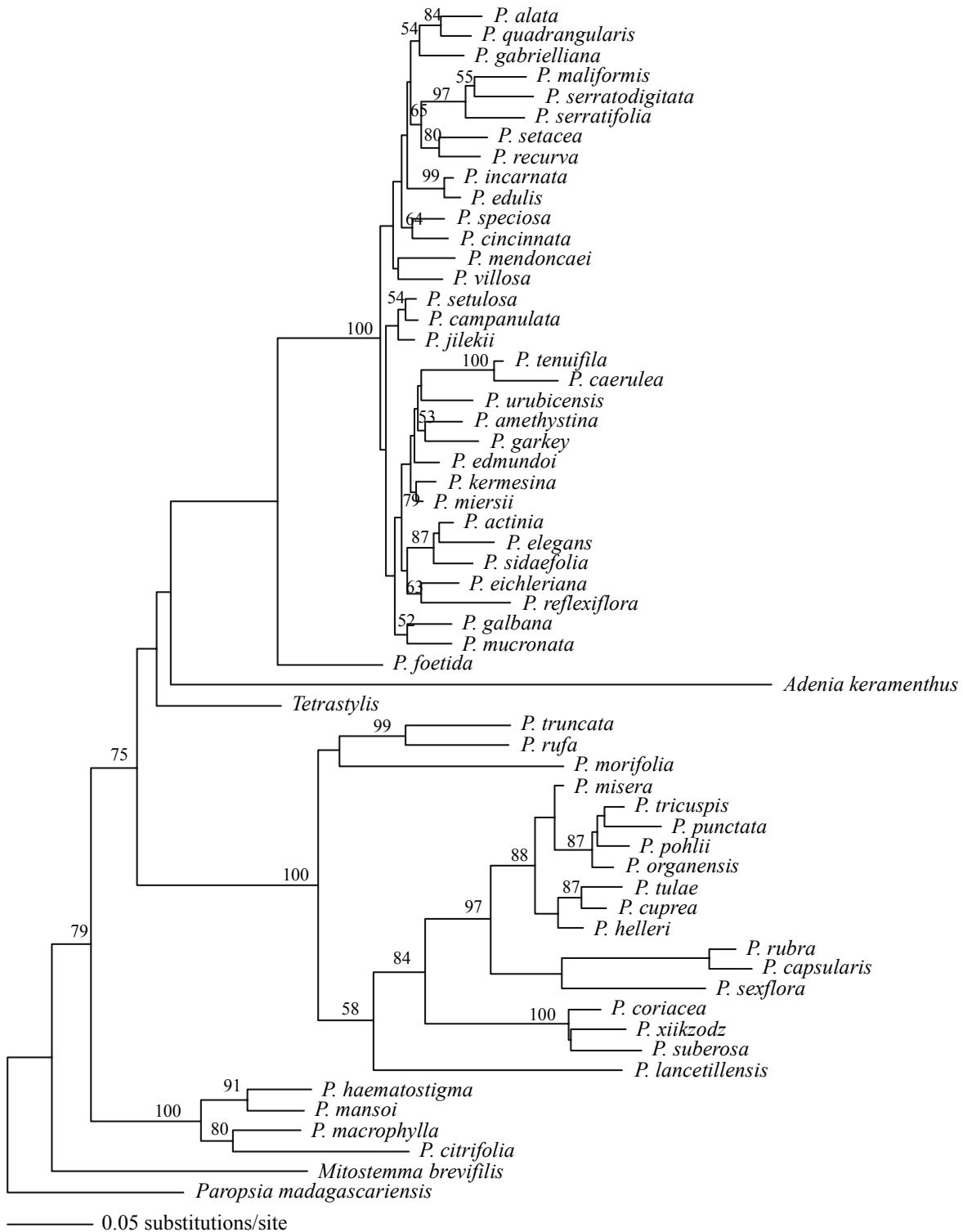


Neighbor-Joining tree with p-distance for ITS spacer.

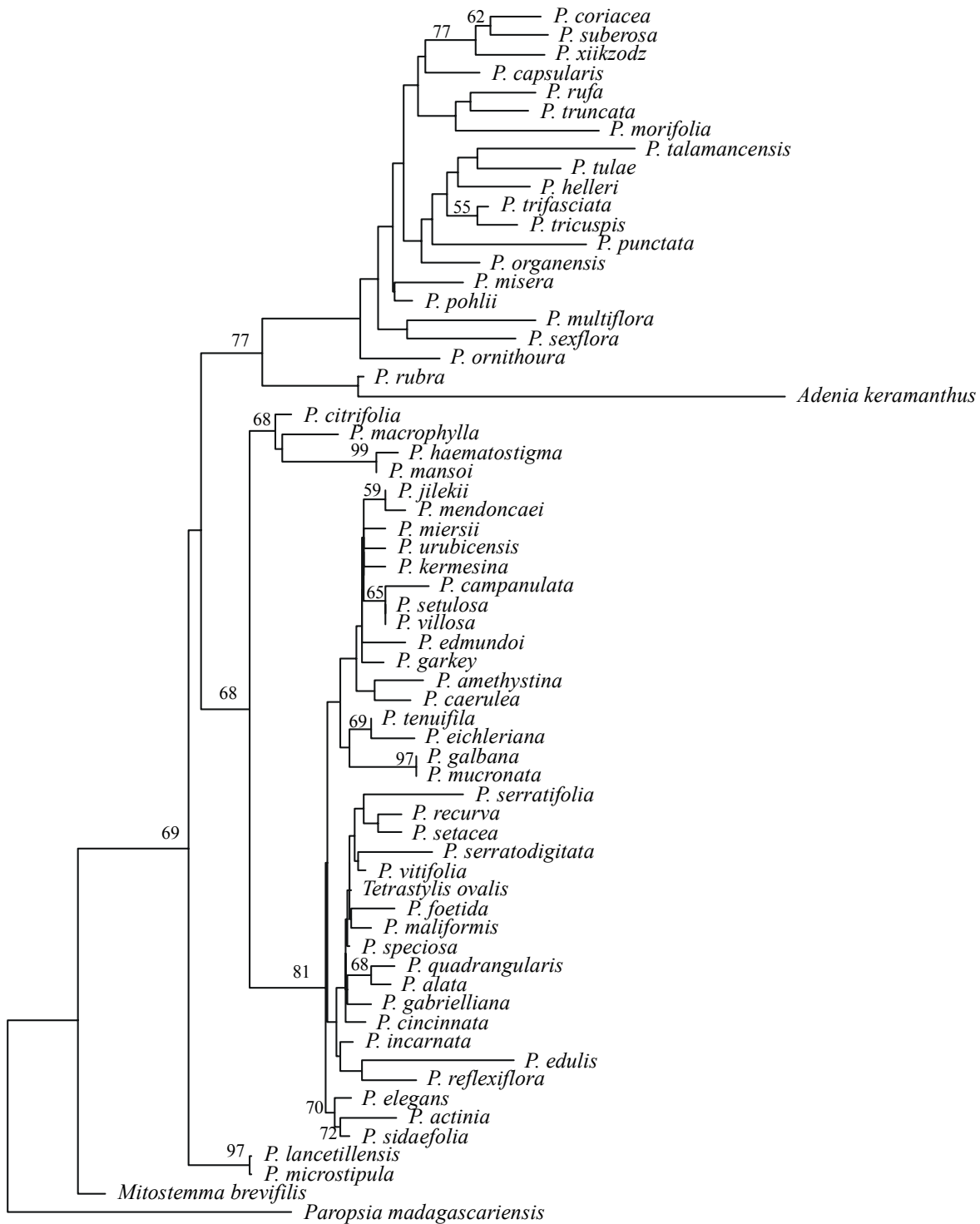


— 0.01 substitutions/site

Neighbor-Joining tree with LogDet for ITS spacer.

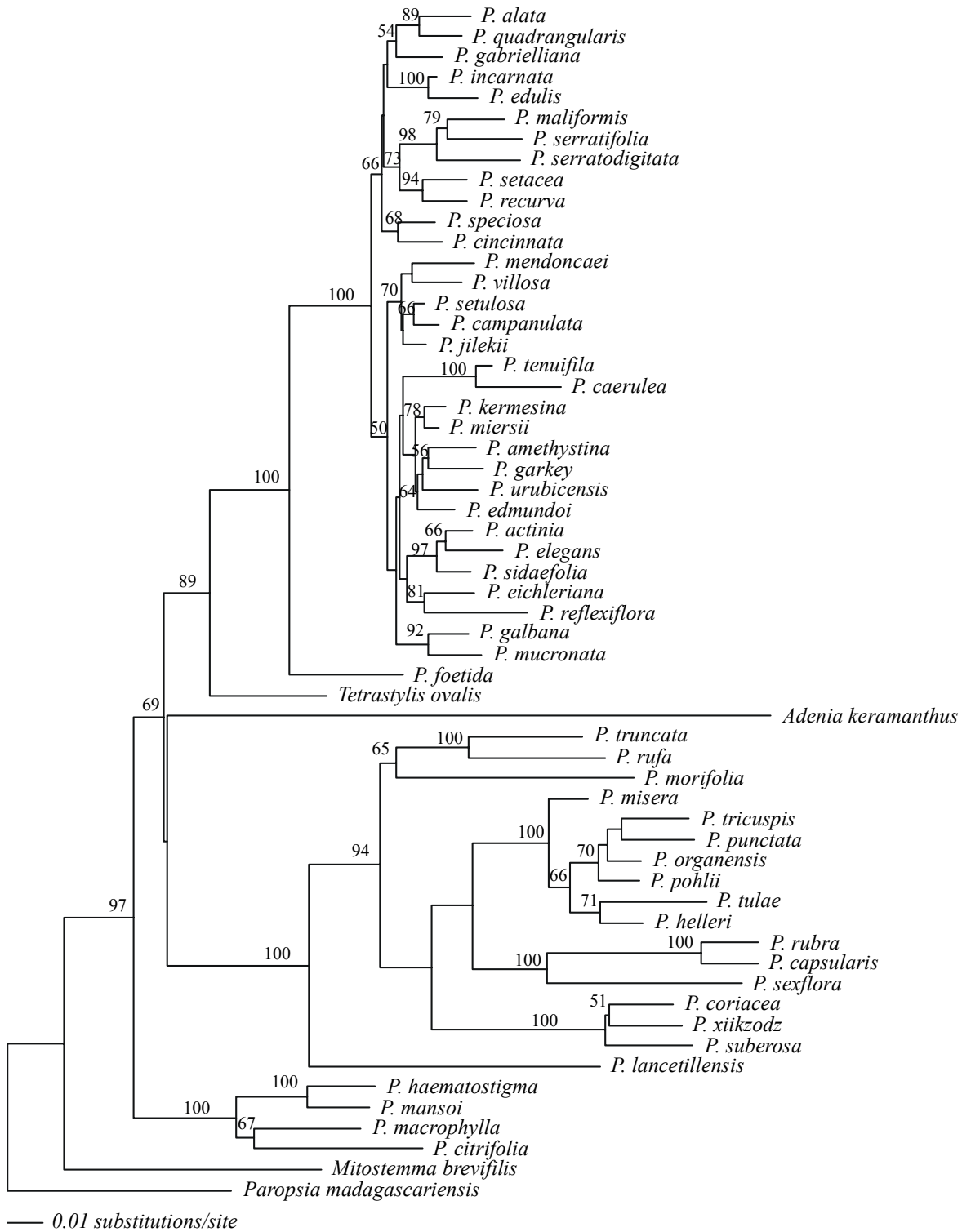


Neighbor-Joining tree with p-distance for the intergenic spacer *trnL-trnF*.

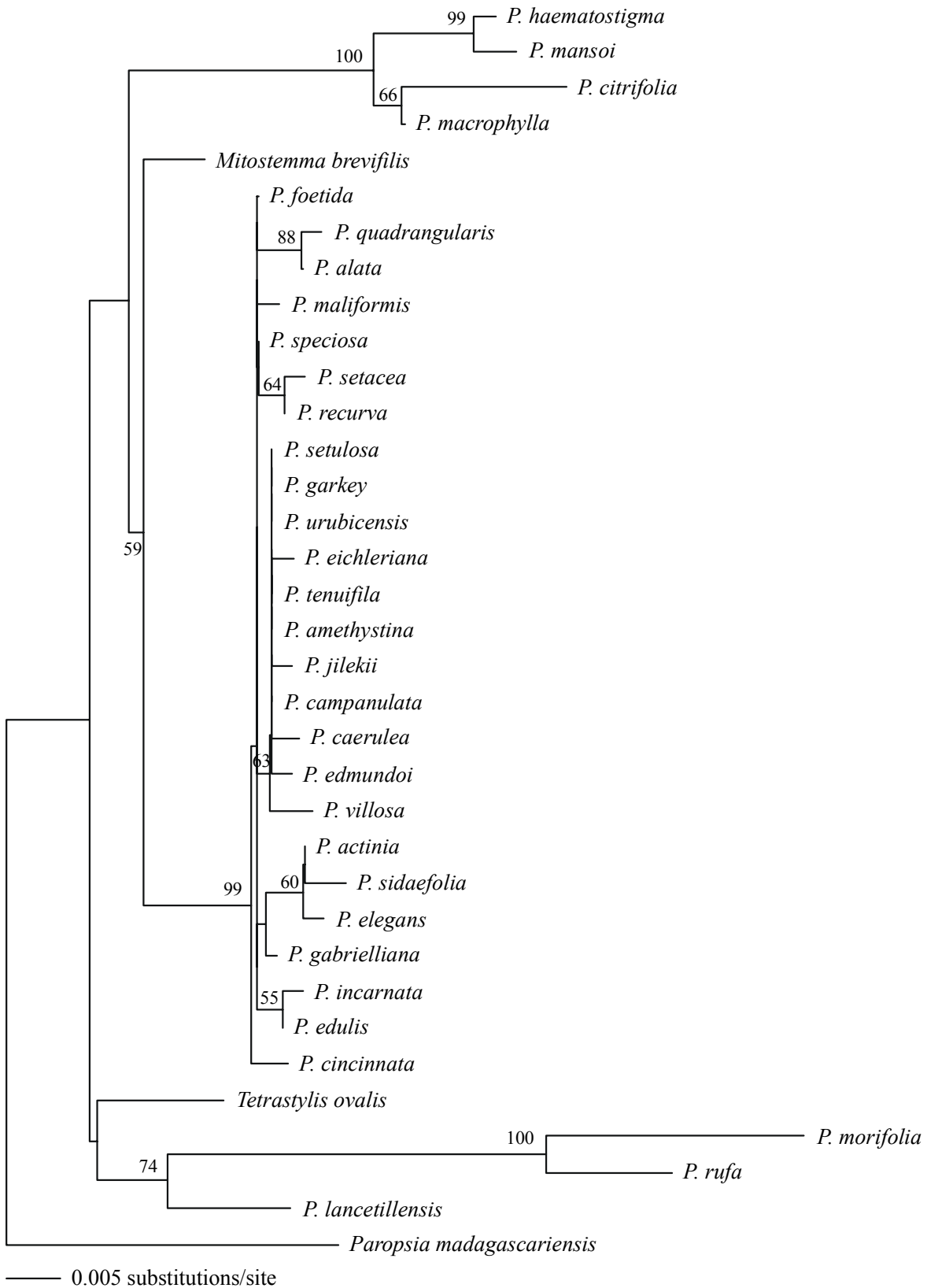




Neighbor-Joining tree with p-distance for the two spacer regions combined.



Neighbor-Joining tree with p-distance for the *rps4* gene .



**Neighbor Joining sub sample trees (1-10) of ITS and *trnL-trnF* combined.**

