

ELECTRONIC APPENDIX

This is the Electronic Appendix to the article

60 million years of co-divergence in the fig-wasp symbiosis

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.

Table 1. Voucher information and GenBank accession numbers of material included in the study.

TAXA	VOUCHER INFORMATION	ORIGIN	ITS	ETS
<i>Ficus</i> L.				
Subgenus <i>Pharmacosycea</i> (Miq.)				
Miq.				
Section <i>Pharmacosycea</i> .				
<i>F. insipida</i> Willd. ssp. <i>insipida</i>			Jousselin et al. 2003.	Jousselin et al. 2003.
(= <i>F. glabrata</i> Kunth.).				
<i>F. insipida</i> Willd.			Weiblen 2000.	Jousselin et al. 2003.
<i>F. tonduzii</i> Standl. (= <i>F. macrocyce</i>	FB/S3752 (BR).	Liv. col. (BR).	AY730140	AY730230
Pittier).				
<i>F. maxima</i> Mill.			Weiblen 2000.	Jousselin et al. 2003.
<i>F. yoponensis</i> Desvaux.			Jousselin et al. 2003.	Jousselin et al. 2003.
Section <i>Oreosycea</i> (Miq.) Corner				

<i>F. callosa</i> Willd.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. edelfeltii</i> King	GW821 (MIN).	New Guinea	Weiblen 2000.	AY730209
<i>F. hombroniana</i> Corner			Weiblen 2000.	-
<i>F. subtrinervia</i> Laut. et K. Schum. (= <i>F. pachystemon</i> Warb).	Takeuchi et al. 15210 (K).	New Guinea	AY730119	-
<i>F. racemigera</i> Bur.				Jousselin et al. 2003.
Subgenus <i>Urostigma</i> (Gasp.) Miq.				
Section <i>Urostigma</i>				
<i>F. concinna</i> (Miq.) Miq.	Rønsted 178 (AU).	Songkhla, Thailand.	AY730059	AY730145
<i>F. cordata</i> Thunb. subsp. <i>salicifolia</i> (Vahl). C.C. Berg.	Forest 329 (NBG).	Liv. col. (NBG). 167/46	AY730060	AY730146
<i>F. cordata</i> Thunb. subsp. <i>salicifolia</i> (Vahl). C.C. Berg.				Jousselin et al. 2003.
<i>F. ingens</i> (Miq.) Miq.	Rønsted 106 (K).	Liv. col. (BG). Berg 91.839.	AY730061	AY730147

<i>F. lacor</i> Buch. Ham.	Rønsted 64 (C).	Liv. col. (C). E1859-0012.	AY730062	AY730148
<i>F. prolixa</i> Forst. f.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. religiosa</i> L.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. superba</i> Miq.	Rønsted 63 (C).	Liv. col. (C). S1864-0160.	Weiblen 2000.	AY730149
<i>F. virens</i> Ait.	Rønsted 137 (K).	Liv. col. (BG). Berg 89.536.	Weiblen 2000.	AY730150
Section <i>Conosycea</i> (Miq.) Corner.				
<i>F. altissima</i> Bl.	Rønsted 69 (C).	Liv. col. (C). S1897-0083.	AY730064	AY730152
<i>F. benghalensis</i> L.	HTS 1490 (TBGT/C).	Rajastahn, India.	AY730065	AY730153
<i>F. benjamina</i> L.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. binnendykii</i> Miq.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. consociata</i> Bl.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. drupacea</i> Thunb.	Rønsted 114 (K).	Liv. col. (BG). Berg 92.755.	AY730066	AY730154
<i>F. menabeensis</i> H. Per.	Miller & Radrinasolo 6266 (K).	Ambalavao, Madagascar.	AY730067	AY730155
<i>F. microcarpa</i> L.			Weiblen 2000.	Jousselin et al. 2003.

<i>F. subgelderi</i> Corner.				Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. sundaica</i> Bl.	GW906 (MIN).	Liv. col. (MIN).	AY730068	AY730156	
<i>F. xylophylla</i> Wall. ex. Miq.			Jousselin et al. 2003.	Jousselin et al. 2003.	
Section <i>Leucogyne</i> Corner.					
<i>F. rumphii</i> Bl.	Rønsted 74 (C).	Liv. Col. (C).	AY730063	AY730151	
Section <i>Malvanthera</i> Corner.					
<i>F. atricha</i> D.J. Dixon (= <i>F. platypoda</i> Miq.)	Rønsted 142 (K).	Liv. col. (BG). Berg 93.220.	AY730116	AY730206	
<i>F. crassipes</i> F. M. Bailey.	JMC2	Queensland, Australia.	AY730112	AY730201	
<i>F. glandifera</i> Summerh.	Wheatley 297 (K).	Vanuatu.	AY730113	AY730202	
<i>F. hesperidiformis</i> King.	Henty & Foreman NGF42554 (K).	New Guinea.	Weiblen 2000.	AY730203	
<i>F. macrophylla</i> Desf. ex. Pers. subsp. <i>macrophylla</i>			Jousselin et al. 2003.	Jousselin et al. 2003.	

<i>F. macrophylla</i> Desf. ex. Pers.	Savolainen and Baker.	Lord Howii Island.	AY730115	AY730205
subsp. <i>columnaris</i> (C. Morre)				
P.S.Green.				
<i>F. platypoda</i> (Miq.) A. Cunn. ex. Miq. (= <i>F. leuchostricha</i> Miq.).	Jacobs & Wilson 5665 (K).	Australia.	AY730114	AY730204
<i>F. pleurocarpa</i> F. v. M.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. rubiginosa</i> Desf. ex. Ventenat.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. triradiata</i> Corner.	Hind & Herscovitch 6409 (K).	QLD, Australia.	AY730117	AY730207
<i>F. watkinsiana</i> F. M. Bailey.	Rønsted 83 (C).	Liv. col. (C). S1959-1912.	AY730118	AY730208
Section <i>Americana</i>				
<i>F. albert-smithii</i> Standl.	Rønsted 105 (K).	Liv. col. (BG). Berg 89.519.	AY730069	AY730157
<i>F. americana</i> Aubl.	Rønsted 154 (K).	Liv. col. (BG). Berg 1994.0678.	AY730070	AY730158
<i>F. americana</i> Aubl.	Oyama.	Oaxaca, Mexico.	AY730087	AY730175

(= <i>F. perforata</i> L.)				
<i>F. americana</i> Aubl.	Oyama	Veracruz, Mexico.	AY730078	AY730166
(= <i>F. eugeniifolia</i> (Liebm.) Hemsl.).				
<i>F. andicola</i> Standl.	Rønsted 145 (K).	Liv. col. (BG). Berg 1993.1675.	AY730071	AY730159
<i>F. broadwayi</i> Urb.	Rønsted 121 (K).	Liv. col. (BG). Berg 89.522.	AY730072	AY730160
<i>F. caballina</i> Standl.	Rønsted 101 (K).	Liv. col. (BG). Berg 92.9222.	AY730073	AY730161
<i>F. calimana</i> Dugand.	Rønsted 108 (K).	Liv. col. (BG). Berg 89.540.	AY730074	AY730162
<i>F. quichuana</i> C. C. Berg (provisional name)	Rønsted 149 (K).	Liv. col. (BG). Berg 1998.0266.	AY730075	AY730163
<i>F. cestrifolia</i> Schott.	Rønsted 139 (K).	Liv. col. (BG). Berg.	AY730076	AY730164
<i>F. citrifolia</i> Miller	Rønsted 112 (K).	Liv. col. (BG). Berg 89.537.	AY730077	AY730165
<i>F. crocata</i> (Miq.) Miq. (= <i>F. goldmanii</i> Standl.).	Rønsted 92 (C).	Liv. col. (C). P1985-5199.	AY730080	AY730168

<i>F. eximia</i> Schott.	Rønsted 146 (K).	Liv. col. (BG). Berg 2000.1295.	AY730079	AY730167
<i>F. gomelleira</i> Kunth & Bouché.	Rønsted 153 (K).	Liv. col. (BG). Berg 2000.0831.	AY730081	AY730169
<i>F. luschnatiana</i> (Miq.) Miq.	Rønsted 151 (K).	Liv. col. (BG). Berg 1999.1019.	AY730082	AY730170
<i>F. luschnatiana</i> (Miq.) Miq. (= <i>F. monckii</i> Hassl).	Rønsted 78 (C).	Liv. col. (C). S1947-0243.	AY730083	AY730171
<i>F. nymphaeifolia</i> Mill.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. obtusifolia</i> Kunth.	Rønsted 147 (K).	Liv. col. (BG). Berg 1999.0067.	AY730084	AY730172
<i>F. palmeri</i> S. Watson.	Rønsted 93 (C).	Liv. col. (C). P1975-5743.	AY730085	AY730173
<i>F. paraensis</i> Miq.	Rønsted 107 (K).	Liv. col. (BG). Berg 89.527.	AY730086	AY730174
<i>F. pertusa</i> L.	Rønsted 135 (K).	Liv. col. (BG). Berg 89.529.	Weiblen 2000.	AY730176
<i>F. petiolaris</i> Kunth.	Rønsted 94 (C).	Liv. col. (C). P1994-5326.	AY730088	AY730177

<i>F. schippii</i> Standl.	Neill et al. 6509 (K).	Napo prov., Ecuador.	AY730089	AY730178
<i>F. schumacheri</i> (Liebm.) Griseb.			Jousselin et al. 2003.	Jousselin et al. 2003.
Section <i>Galglychia</i> (Gasp.) Endl.				
<i>F. abutilifolia</i> (Miq.) Miq.	Forest 326 (NBG).	Liv. col. (NBG). 508-77.	AY730091	AY730180
<i>F. burkei</i> (Miq.) Miq.	Forest 345 (NBG).	Liv. col. (NBG). 509-77.	AY730095	AY730184
(= <i>F. thonningii</i> Bl.).				
<i>F. craterostoma</i> Mildbr. & Burret.	Forest 340 (NBG).	Liv. col. (NBG). 46-79.	AY730097	AY730186
<i>F. cyathistipuloides</i> De Wild.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. elasticoides</i> De Wild.	Rønsted 128 (K).	Liv. col. (BG). Berg 94.426.	AY730103	AY730192
<i>F. fischeri</i> Mildbr. & Burret	Forest 327 (NBG).	Liv. col. (NBG).	AY730098	AY730187
(= <i>F. kiloneura</i> Hornby).				
<i>F. glumosa</i> Delile.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. lingua</i> De Wild. & T. Durand.	Forest 325 (NBG).	Liv. col. (NBG).	AY730099	AY730188
<i>F. lingua</i> Warb. ex De Wild. &	Rønsted 67 (C).	Liv. col. (C). P1967-5449.	AY730096	AY730185

Durand ssp. <i>lingua</i> (= <i>F. buxifolia</i> De Wild.).					
<i>F. lutea</i> Vahl.			Jousselin et al. 2003.	Jousselin et al. 2003.	
<i>F. lyrata</i> Warb.	Rønsted 85 (C).	Living col. (C). P1909-5032.	AY730104	AY730193	
<i>F. natalensis</i> Hochst. ssp. <i>lepreurii</i> (Miq.) C.C. Berg.	Rønsted 75 (C).	Living col. (C). P1958-5167.	AY730100	AY730189	
<i>F. ottonifolia</i> (Miq.) Miq. ssp. <i>macrocyce</i> C.C. Berg.	Rønsted 117 (K).	Liv. col. (BG). Berg 88.263.	AY730109	AY730198	
<i>F. petersii</i> Warb. (= <i>F. thonningii</i> Bl.).	Forest 352 (NBG).	Liv. col. (NBG).	AY730101	AY730190	
<i>F. platyphylla</i> Delile.	Chase 19854 (K).	Living col. (K). 1995-106.	AY730092	AY730181	
<i>F. populifolia</i> Vahl.	Thulin & Warfa 5542 (K).	Somalia.	AY730093	AY730182	
<i>F. preussi</i> Warb.	Rønsted 138 (K).	Liv. col. (BG). Berg 92.1123.	AY730105	AY730194	
<i>F. sagittifolia</i> Mildbr. & Burret.	Chase 19852 (K).	Liv. col. (K). K1986-3423.	AY730106	AY730195	

<i>F. sansibarica</i> Warb.	Rønsted 127 (K).	Liv. col. (BG). Berg 88.271.	AY730110	AY730199
<i>F. saussureana</i> DC.	Chase 19853 (K).	Liv. col. (K). K1986-3421	AY730090	AY730179
<i>F. scasselatii</i> Pamp.	Rønsted 110 (K).	Liv. col. (BG). Berg 88.293.	AY730107	AY730196
<i>F. stuhlmannii</i> Warb.	Forest 342 (NBG).	Liv. col. (NBG). 770-77.	AY730094	AY730183
<i>F. thonningii</i> Bl.	Forest 341 (NBG).	Liv. col. (NBG). 534/77.	AY730102	AY730191
<i>F. tremula</i> Warb.	Forest 331 (NBG).	Liv. col. (NBG). 544-87.	AY730111	AY730200
<i>F. wildemaniana</i> Warb.	Rønsted 66 (C).	Liv. col. (C). P1950-5675.	AY730108	AY730197
Sect. <i>Stilpnophyllum</i> Endl.				
<i>F. elastica</i> Roxb. ex. Hornem.			Jousselin et al. 2003.	Jousselin et al. 2003.
Subgenus <i>Ficus</i>				
Section <i>Ficus</i>				
<i>F. deltoidea</i> Jack.			Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. erecta</i> Thunb.	Rønsted 134 (K).	Liv. col. (BG). Berg 92.239.	AY730121	AY730211
<i>F. ischnopoda</i> Miq.	Rønsted 175 (AU)	Phang Nga, Thailand.	AY730122	AY730212

<i>F. johannis</i> Boiss. (= <i>F. carica</i> L.).	Rønsted 96 (C).	Liv. col. (C). S1966-0166.	AY730123	AY730213
<i>F. oleifolia</i> King.	Erwin & Paul S27470 (K).	Sarawak, Indonesia.	AY730124	-
<i>F. palmata</i> Forssk.	FB/S2786 (BR)	Liv. col. (BR).	AY730125	AY730214
Section <i>Eriosyceae</i> Miq.				
<i>F. aurata</i> Miq.			Jousselin et al. 2003.	-
<i>F. chartacea</i> King.	Rønsted 177 (AU).	Phang Nga, Thailand	AY730126	-
<i>F. grossularioides</i> Burm.			Weiblen 2000.	Jousselin et al. 2003.
<i>F. hirta</i> Vahl.	Rønsted 168 (AU).	Phuket, Thailand.	AY730127	-
<i>F. padana</i> Burm.			Weiblen 2000.	-
Subgenus <i>Synoecia</i> (Miq.) Miq.				
Section <i>Kissosyceae</i> Miq.				
<i>F. punctata</i> Thunb.			Weiblen 2000.	Jousselin et al. 2003.
<i>F. ruginervia</i> Corner			Weiblen 2000.	-
Section <i>Rhizocladus</i> Endl.				

<i>F. baeuerlenii</i> King.	Weiblen 2000.	-	
<i>F. diversiformis</i> Miq.	Samuel 3100 (K).	Kitugala, Sri Lanka.	AY730215
<i>F. jimnensis</i> C. C. Berg (= <i>F. nasuta</i> Summerh.)	Weiblen 792 (A/LAE)	New Guinea	AY730216
<i>F. odoardi</i> King.	Weiblen 2000.	-	-
<i>F. pumila</i> L.	Jousselin et al. 2003.	Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. villosa</i> Bl.	Chase 19851 (K).	Liv. col. K1984-2930.	AY730130 AY730217
Subgenus <i>Sycidium</i> (Miq.) Mildbr. & Burret			
Section <i>Sycidium</i> Miq.			
<i>F. asperifolia</i> Miq.	Jousselin et al. 2003.	Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. conocephalifolia</i> Ridley.	Weiblen 2000.	-	-
<i>F. copiosa</i> Steud.	Weiblen 2000.	-	-
<i>F. coronata</i> Spin.	Rønsted 71 (C).	Liv. col. (C). S1953-2381	AY730131 AY730218

<i>F. gul</i> Laut et K. Schum.	Takeuchi et al. 15019 (K).	New Guinea.	AY730132	AY730219
<i>F. lateriflora</i> Vahl.			Jousselein et al. 2003.	Jousselein et al. 2003.
<i>F. parietalis</i> Bl.			Jousselein et al. 2003.	Jousselein et al. 2003.
<i>F. phaeosyce</i> Laut et K. Schum.			Weiblen 2000.	-
<i>F. pygmaea</i> Hiern.	Forest 332 (NBG).	Liv. col. (NBG).	AY730134	AY730221
<i>F. wassa</i> Roxb.			Weiblen 2000.	-
Section <i>Paleomorphe</i> King.				
<i>F. heteropleura</i> Bl.	Rønsted 165 (AU).	Phang Nga, Thailand.	AY730133	AY730220
<i>F. parietalis</i> Bl.			Jousselein et al. 2003.	Jousselein et al. 2003.
<i>F. sinuata</i> Thunb.	Rønsted 70 (C).	Liv. col. (C). P1972-5164.	AY730135	AY730222
<i>F. tinctoria</i> Forst. f.	Rønsted 99 (K).	Liv. col. (BG). Berg 89.551.	Weiblen 2000.	AY730223
<i>F. virgata</i> Reinw. ex. Bl.	Rønsted 65 (C).	Liv. col. (C). P1986-5148.	Weiblen 2000.	AY730224
Subgenus <i>Sycomorvus</i> (Gasp.) Miq.				
Section <i>Adenosperma</i> Corner.				

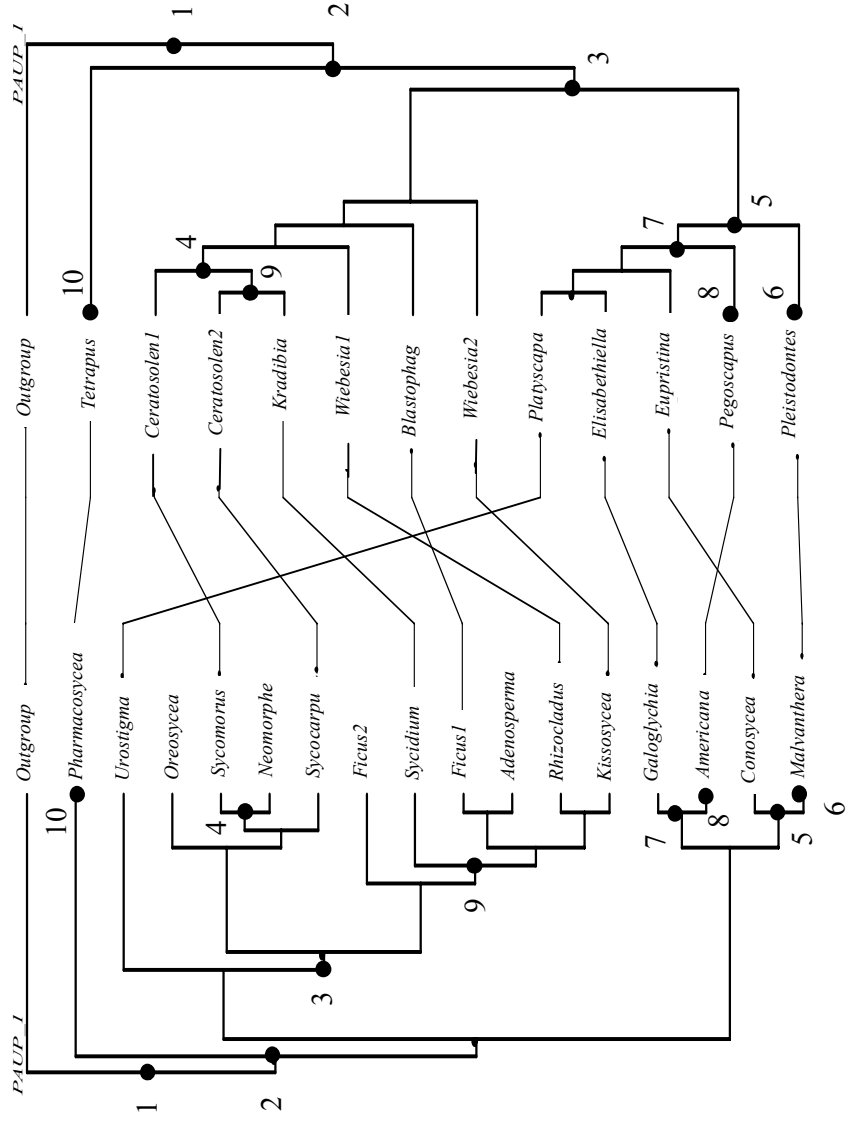
<i>F. adenosperma</i> Miq.	Weiblen 2000.	-
<i>F. ochrochlora</i> Ridley.	Weiblen 2000.	-
Section <i>Dammaropsis</i> (Warb.) C. C. Berg		
<i>F. dammaropsis</i> Diels.	Weiblen 2000.	-
Section <i>Sycomorus</i> subsect. <i>Sycomorus</i> .		
<i>F. mauritiana</i> Lam.	Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. mucoso</i> Ficalho.	Rønsted 129 (K).	Liv. col. (BG). Berg 93.96.
<i>F. sur</i> Forssk.	Weiblen 2000.	AY730210
<i>F. sycomorus</i> L.	Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. vallis-chaudae</i> Delille.	Jousselin et al. 2003.	Jousselin et al. 2003.
Section <i>Sycomorus</i> subsect. <i>Neomorphe</i> (King) C. C. Berg.		
	Jousselin et al. 2003.	Jousselin et al. 2003.

<i>F. auriculata</i> Lour.	Weiblen 2000.	-
<i>F. nodosa</i> Teysm. et. Binn.	Weiblen 2000.	-
<i>F. robusta</i> Corner.	Weiblen 2000.	-
<i>F. variegata</i> Bl.	Weiblen 2000.	Jousselin et al. 2003.
Section <i>Sycocarpus</i> Miq.		
<i>F. bernaysii</i> King.	Weiblen 2000.	-
<i>F. condensata</i> King.	Jousselin et al. 2003.	Jousselin et al. 2003.
<i>F. congesta</i> Roxb.	Weiblen BO1 (A/MIN).	New Guinea. AY730136 AY730225
<i>F. fistulosa</i> Reinw. ex. Bl.	Rønsted 111 (K).	Liv. col. (BG). Berg 88.286. AY730137 AY730226
<i>F. hispidioides</i> S. Moore.	Weiblen B2 (MIN).	New Guinea. Weiblen 2000. AY730227
<i>F. lepigarpa</i> Bl.	Rønsted 162 (AU).	Ranong, Thailand. AY730138 -
<i>F. scortechinii</i> King	Rønsted 167 (AU).	Phuket, Thailand. AY730139 AY730228
<i>F. septica</i> Burm. f.	Weiblen 836 (HON).	New Guinea. Weiblen 2000. AY730229
<i>F. uncinata</i> King.	Jousselin et al. 2003.	Jousselin et al. 2003.

Outgroups				
<i>Antiaropsis decipiens</i> K. Schum.	Weiblen 1233 (MIN).	New Guinea.	AY730142	-
<i>Castilla elastica</i> Sess.	Chase 19850 (K).	Liv. col. (K). K1986-3013.	AY730143	AY730232
<i>Poulsenia armata</i> (Miq.) Standl.	Pennington et al. 1460 (K).	Ecuador.	AY730144	AY730233
<i>Sparattosyce dioica</i> Bur.	Weiblen 1223 (MIN).	New Caledonia	AY730141	AY730231

Classification of *Ficus* according to Berg (1989, *Experientia* 45) and (2003-2004, *Blumea* 48-49). For voucher information on previously published sequences, see reference cited with sequence (Weiblen, G. D., 2000, *Am. J. Bot.* 87; Jousselein, E., et al. 2003, *Evolution* 57).

Fig sections Wasp genera



Tanglegram drawn with the program TreeMap (Page, R. D. M. 1995. TREEMAP program. Availability: <http://taxonomy.zoology.gla.ac.uk/rod/treemap.html>) of the association of figs (*Ficus spp.*) and their pollinating wasps (Agaoninae). Phylogenetic trees are summaries of the chronograms presented in figures 2 and 3. Fine lines connect fig sections with their specific genus of pollinating wasps. Ten interacting lineages of figs and pollinators are shown and numbered 1-10; these represent co-cladogenetic events across the phylogenetic tree of figs at the taxonomic level of sections and above: 1. *Ficus/Agaoninae* root nodes, 2. *Ficus/Agaoninae* crown groups, 3. Dioecious *Ficus*/associated pollinator stem lineages, 4. *Sycomorus s.s./associated Ceratosolen* stem lineages, 5. *Malvanthera/Pleistodontes* stem lineages, 6. *Malvanthera/Pleistodontes* crown groups, 7. *Americana/Pegoscapus* stem lineages, 8. *Americana/Pegoscapus* crown groups, 9. *Sycidium/Kradibia* plus *Lipporhopalum* stem lineages, 10. *Pharmacosycea/Tetrapus* crown lineages.