Ecography

E7181
Whitfeld, T. J. S., Kress, W. J., Erickson, D. L. and Weiblen, G. D. 2011. Change in community phylogenetic structure during tropical forest succession: evidence from New Guinea. – Ecography 34: xxx–xxx.

Supplementary material

Appendix 1

Figures A1-A6. A community phylogeny of 349 woody plant species ≥5 cm dbh encountered in nineteen 0.25 ha New Guinea lowland rain forest sample plots. Clades represented by triangles in Figure A1 are expanded in Figures A2-A6. The maximum-likelihood tree among a Bayesian posterior distribution of 9,000 phylogenetic trees is displayed with branch lengths proportional to time in millions of years. Nodes are labeled with either Bayesian posterior probabilities or circles where topological constraints were enforced (see *Methods*). Asterisks indicate 31 nodes where prior information on the minimum ages of major angiosperm clades served to calibrate *rbcL* divergence under the assumptions of GTR+Γ+I and a relaxed molecular clock. Constraints included the monophyly of Angiosperm Phylogeny Group (Wikström et al. 2001, APG 2009) orders and families as well as ordinal and familial relationships based on consensus among three broad-scale analyses: a three-gene analysis (18S rDNA, *rbcL,* and *atpB)* of 567 taxa (Soltis et al. 2000), an 83 (plastid) gene analysis of 86 species (Moore et al. 2010), and a 12 gene (10 plastid, two nuclear) analysis of >100 species (Wang et al. 2009). Only nodes supported by >95% posterior probability or 80% bootstrap in these studies were constrained with two exceptions (i.e., the relationship between Salicaceae and Passifloraceae, with 50-80% support, and the relationship between Polygalaceae and the rest of the Fabales, with 50-75% support). Familial relationships within orders were constrained according to the following treatments: Rosales (Wang et al. 2009), Fabales (Banks et al. 2008), Malpighiales (Davis et al. 2005), Sapindales (Gadek et al. 1996, Muellner et al. 2007), Malvales (Fay et al. 1998, Bayer et al. 1999), Myrtales (Conti et al. 1997, Bremer et al. 1999, Sytsma et al. 2004, Wilson et al. 2005), Gentianales (Bremer et al. 1999, Rova et al. 2002), Lamiales (Oxelman et al. 1999, Soltis et al. 2001), Ericales (Anderberg et al. 2002), Laurales (Doyle and Endress 2000, Soltis et al. 2000), and Magnoliales (Doyle and Endress 2000, Soltis et al. 2000). The monophyly of genera was also enforced except for *Dracontomelon, Chisocheton,* and *Aglaia*, which are considered paraphyletic (Muellner et al. 2003).

Supplementary References

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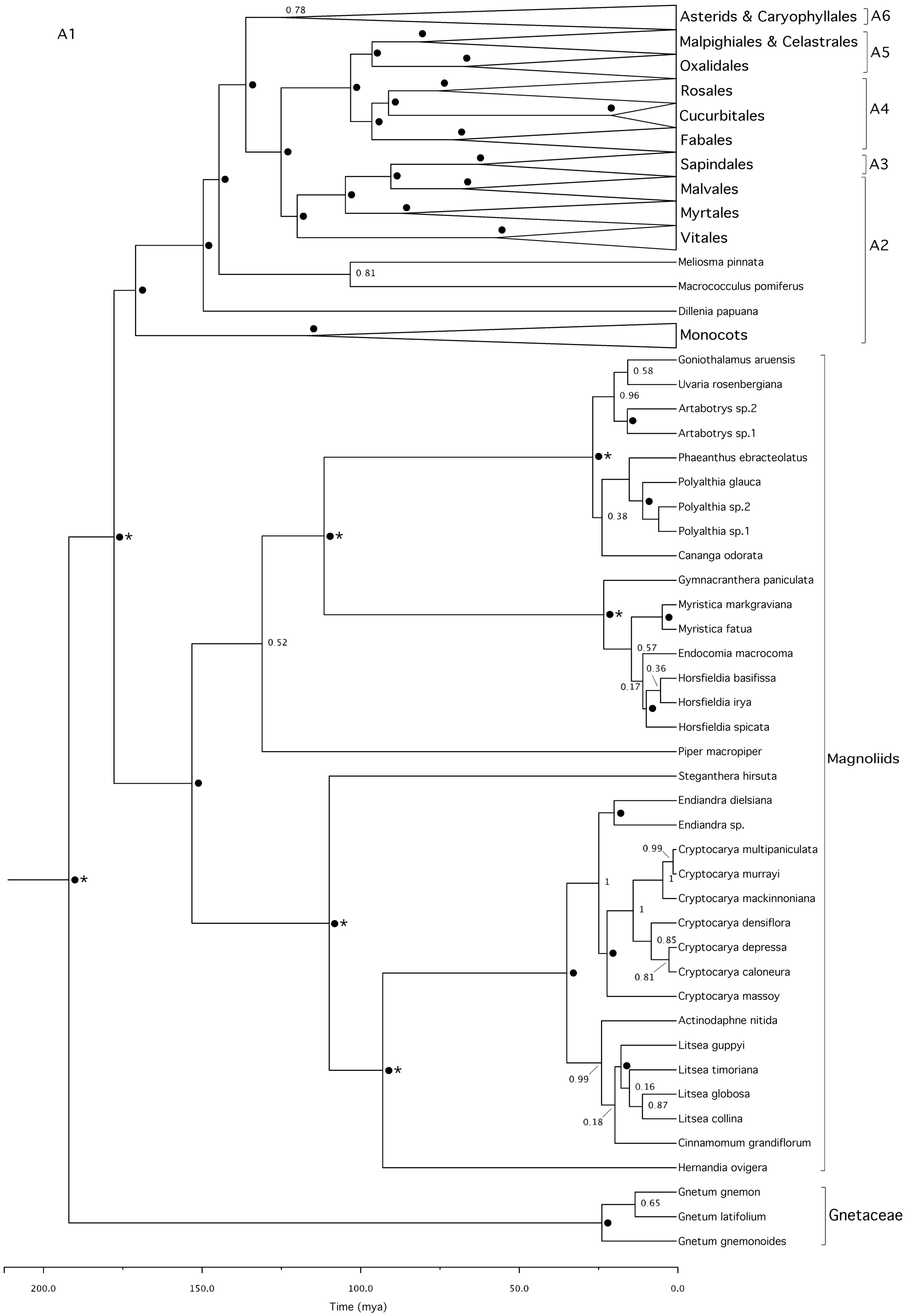
A1
0.78
Asterids & Caryophyllales
A6
Malpighiales & Celastrales
A5
Oxalidales
Rosales
A4
Cucurbitales
Fabales
Sapindales
A3
Malvales
Myrtales
Vitales
A2
0.81
Meliosma pinnata
Macrococculus pomiferus
Dillenia papuana
Monocots
Goniothalamus aruensis
0.58
Uvaria rosenbergiana
0.96
Artabotrys sp.2
Artabotrys sp.1
Phaeanthus ebracteolatus
Polyalthia glauca
Polyalthia sp.2
0.38
Polyalthia sp.1
Cananga odorata
Gymnacranthera paniculata
Myristica markgraviana
Myristica fatua
0.52
0.57
Endocomia macrocoma
0.36
Horsfieldia basifissa
0.17
Horsfieldia irya
Horsfieldia spicata
Piper macropiper
Magnoliids
Steganthera hirsuta
Endiandra dielsiana
Endiandra sp.
0.99
Cryptocarya multipaniculata
1
Cryptocarya murrayi
1
Cryptocarya mackinnoniana
1
Cryptocarya densiflora
0.85
Cryptocarya depressa
0.81
Cryptocarya caloneura
Cryptocarya massoy
Actinodaphne nitida
Litsea guppyi
Litsea timoriana
0.99
0.16
Litsea globosa
0.87
0.18
Litsea collina
Cinnamomum grandiflorum
Hernandia ovigera
Gnetum gnemon
0.65
Gnetum latifolium
Gnetaceae
Gnetum gnemonoides
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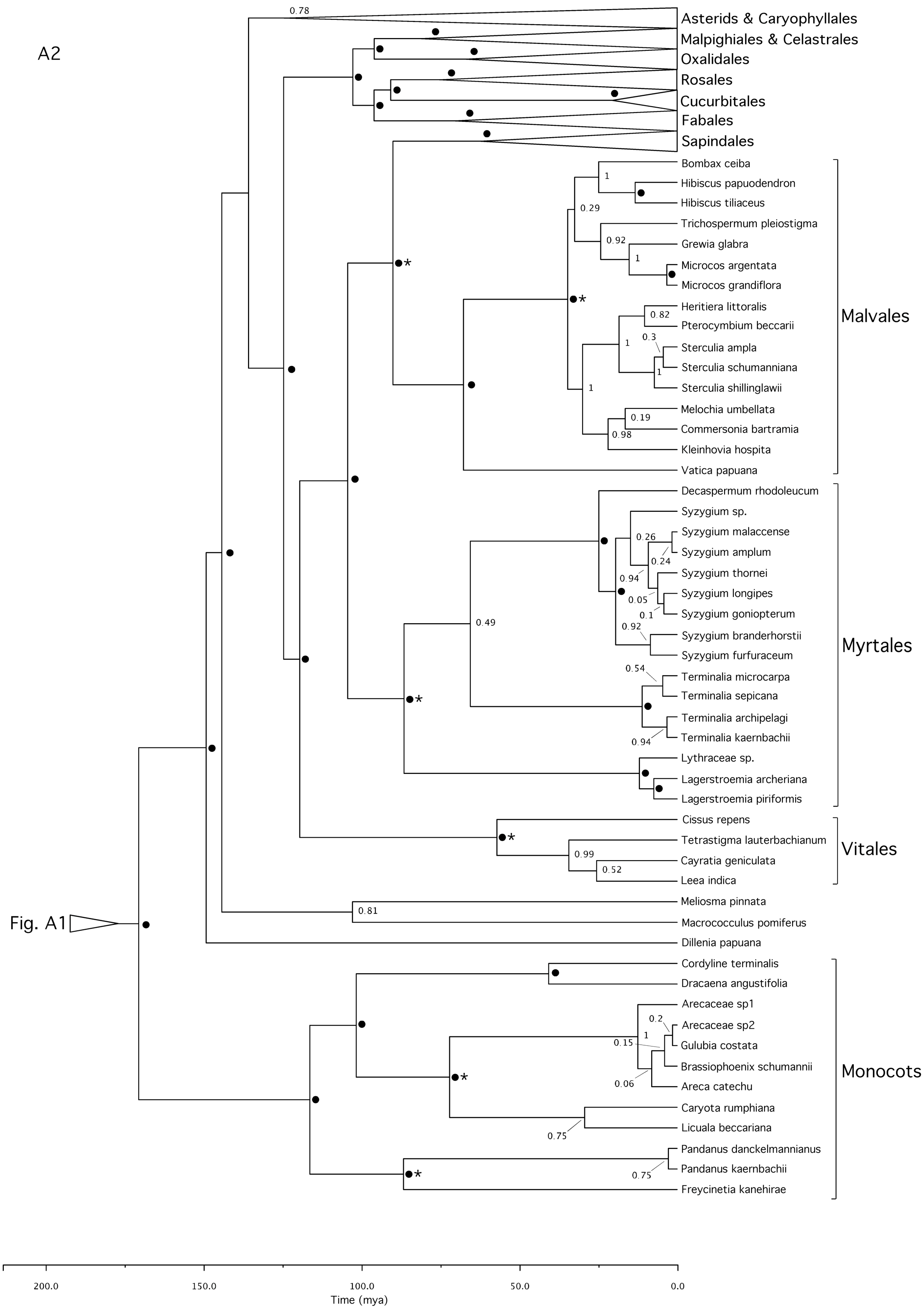
150.0
100.0
50.0
0.0
Time (mya)


A2
0.78
Asterids & Caryophyllales
Malpighiales & Celastrales
Oxalidales
Rosales
Cucurbitales
Fabales
Sapindales
Bombax ceiba
Hibiscus papuodendron
Hibiscus tiliaceus
Trichospermum pleiostigma
Grewia glabra
Microcos argentata
Microcos grandiflora
Heritiera littoralis
Pterocymbium beccarii
Sterculia ampla
Sterculia schumanniana
Sterculia shillinglawii
Melochia umbellata
Commersonia bartramia
Kleinhovia hospita
Vatica papuana
Malvales
1
0.29
0.92
1
0.82
0.3
1
1
1
0.19
0.98
Decaspermum rhodoleucum
Syzygium sp.
Syzygium malaccense
Syzygium amplum
Syzygium thornei
Syzygium longipes
Syzygium gonioptеrum
Syzygium branderhorstii
Syzygium furfuraceum
Terminalia microcarpa
Terminalia sepicana
Terminalia archipelagi
Terminalia kaernbachii
Lythraceae sp.
Lagerstroemia archeriana
Lagerstroemia piriformis
Myrtales
0.26
0.24
0.94
0.05
0.1
0.92
0.49
0.54
0.94
Cissus repens
Tetrastigma lauterbachianum
Cayratia geniculata
Leea indica
Vitales
0.99
0.52
Meliosma pinnata
Macrococculus pomiferus
Dillenia papuana
0.81
Fig. A1
Cordyline terminalis
Dracaena angustifolia
Arecaceae sp1
Arecaceae sp2
Gulubia costata
Brassiophoenix schumannii
Areca catechu
Caryota rumphiana
Licuala beccariana
Pandanus danckelmannianus
Pandanus kaernbachii
Freycinetia kanehirae
Monocots
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1
0.15
0.06
0.75
0.75
200.0
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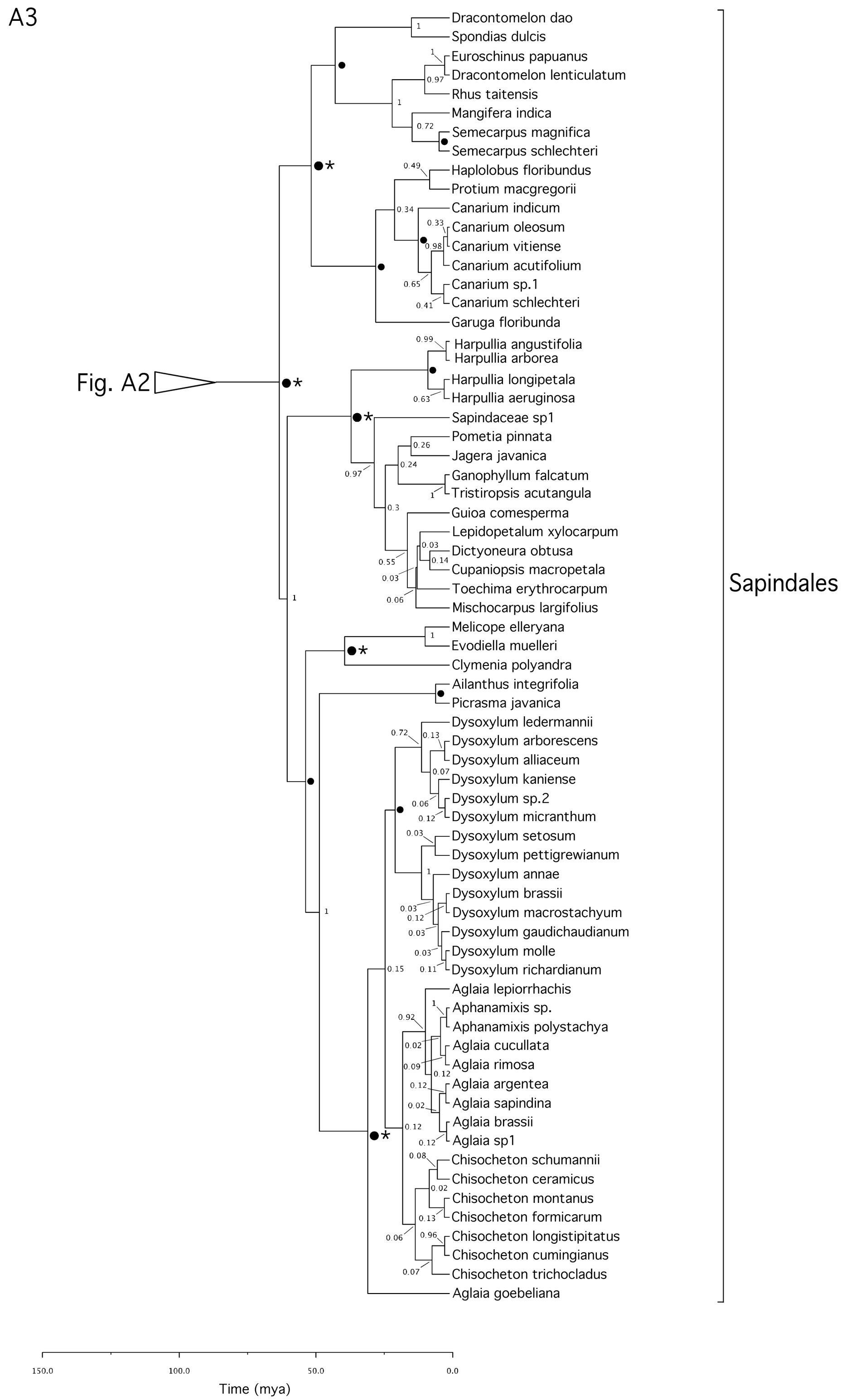
100.0
50.0
0.0
Time (mya)



A3
Dracontomelon dao
Spondias dulcis
Euroschinus papuanus
Dracontomelon lenticulatum
Rhus taitensis
Mangifera indica
Semecarpus magnifica
Semecarpus schlechteri
Haplolobus floribundus
Protium macgregorii
Canarium indicum
Canarium oleosum
Canarium vitiense
Canarium acutifolium
Canarium sp.1
Canarium schlechteri
Garuga floribunda
Fig. A2
Harpullia angustifolia
Harpullia arborea
Harpullia longipetala
Harpullia aeruginosa
Sapindaceae sp1
Pometia pinnata
Jagera javanica
Ganophyllum falcatum
Tristiropsis acutangula
Guioa comesperma
Lepidopetalum xylocarpum
Dictyoneura obtusa
Cupaniopsis macropetala
Toechima erythrocarpum
Mischocarpus largifolius
Melicope elleryana
Evodiella muelleri
Clymenia polyandra
Ailanthus integrifolia
Picrasma javanica
Dysoxylum ledermannii
Dysoxylum arborescens
Dysoxylum alliaceum
Dysoxylum kaniense
Dysoxylum sp.2
Dysoxylum micranthum
Dysoxylum setosum
Dysoxylum pettigrewianum
Dysoxylum annae
Dysoxylum brassii
Dysoxylum macrostachyum
Dysoxylum gaudichaudianum
Dysoxylum molle
Dysoxylum richardianum
Aglaia lepiorrhachis
Aphanamixis sp.
Aphanamixis polystachya
Aglaia cucullata
Aglaia rimosa
Aglaia argentea
Aglaia sapindina
Aglaia brassii
Aglaia sp1
Chisocheton schumannii
Chisocheton ceramicus
Chisocheton montanus
Chisocheton formicarum
Chisocheton longistipitatus
Chisocheton cumingianus
Chisocheton trichocladus
Aglaia goebeliana
Sapindales
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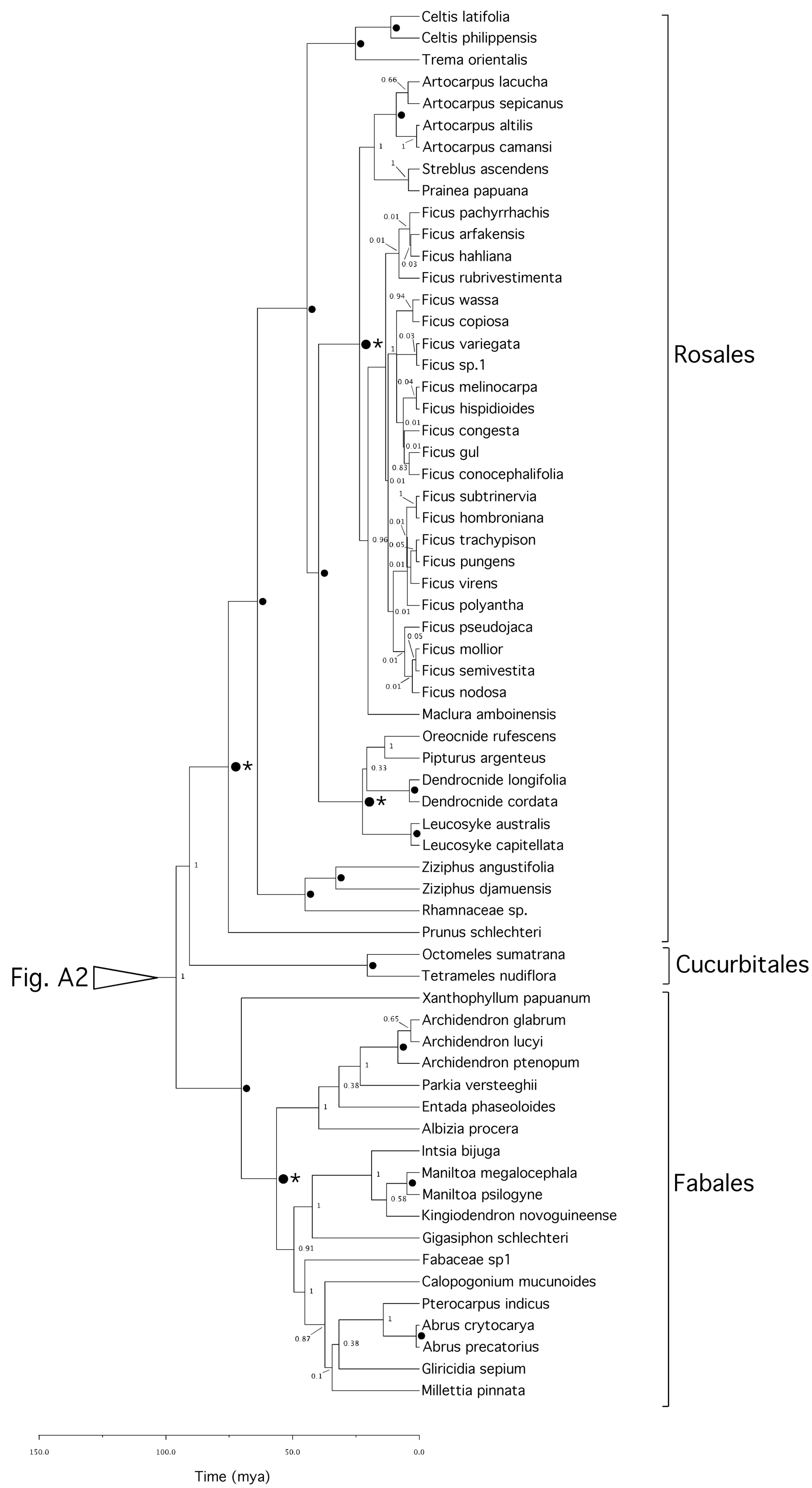
0.0
Time (mya)

A4


Celtis latifolia
Celtis philippensis
Trema orientalis
Artocarpus lacucha
Artocarpus sepicanus
Artocarpus altilis
Artocarpus camansi
Streblus ascendens
Prainea papuana
Ficus pachyrrhachis
Ficus arfakensis
Ficus hahliana
Ficus rubrivestimenta
Ficus wassa
Ficus copiosa
Ficus variegata
Ficus sp.1
Ficus melinocarpa
Ficus hispidioides
Ficus congesta
Ficus gul
Ficus conocephalifolia
Ficus subtrinervia
Ficus hombroniana
Ficus trachypison
Ficus pungens
Ficus virens
Ficus polyantha
Ficus pseudojaca
Ficus mollior
Ficus semivestita
Ficus nodosa
Maclura amboinensis
Oreocnide rufescens
Pipturus argenteus
Dendrocnide longifolia
Dendrocnide cordata
Leucosyke australis
Leucosyke capitellata
Ziziphus angustifolia
Ziziphus djamuensis
Rhamnaceae sp.
Prunus schlechteri
Octomeles sumatrana
Tetrameles nudiflora
Xanthophyllum papuanum
Archidendron glabrum
Archidendron lucyi
Archidendron ptenopum
Parkia versteeghii
Entada phaseoloides
Albizia procera
Intsia bijuga
Maniltoa megalocephala
Maniltoa psilogyne
Kingiodendron novoguineense
Gigasiphon schlechteri
Fabaceae sp1
Calopogonium mucunoides
Pterocarpus indicus
Abrus crytocarya
Abrus precatorius
Gliricidia sepium
Millettia pinnata
Rosales
Cucurbitales
Fabales
Fig. A2
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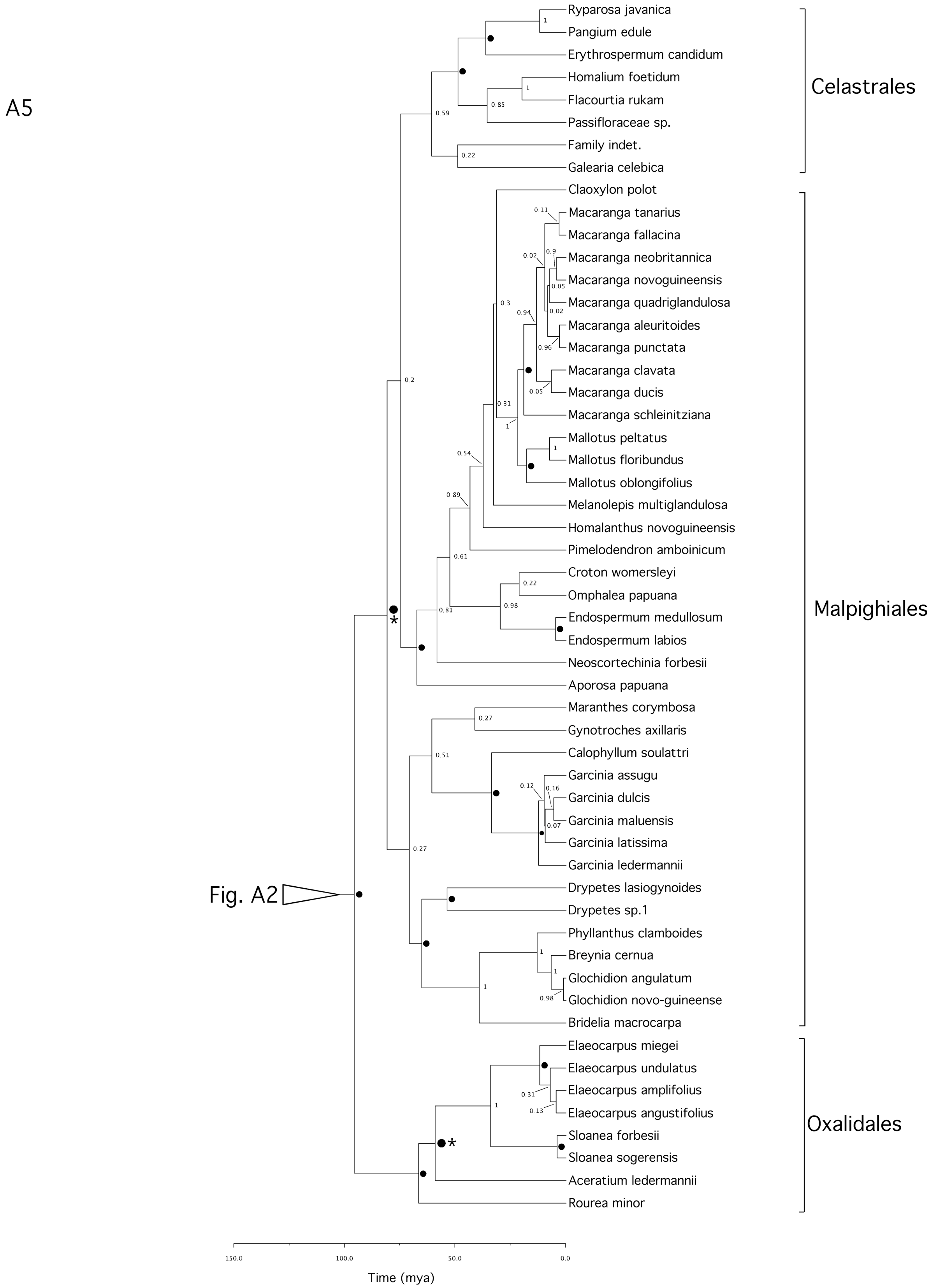
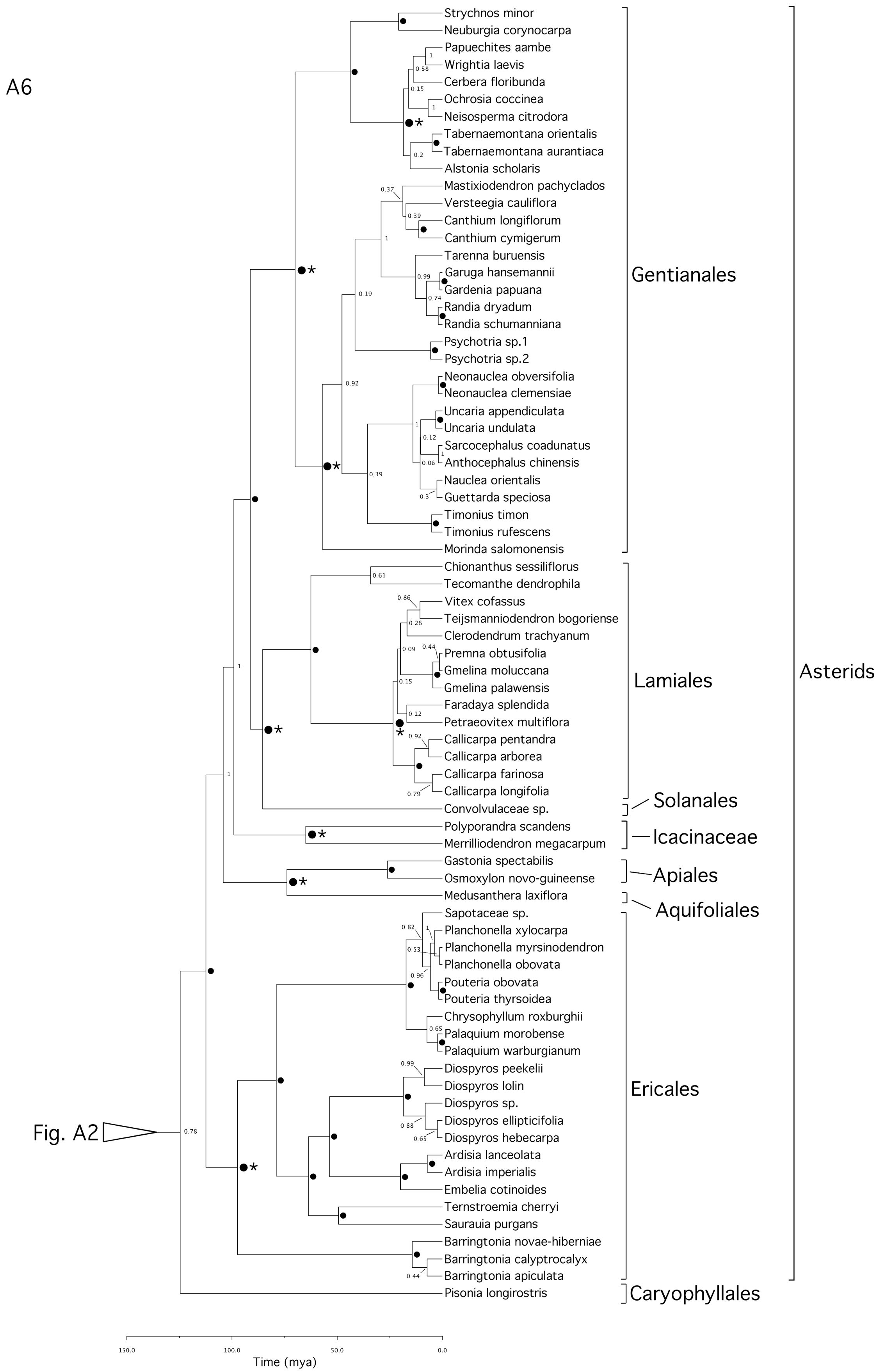
100.0
50.0
0.0
Time (mya)


A5
Ryparosa javanica
Pangium edule
Erythrospermum candidum
Homalium foetidum
Flacourtia rukam
Passifloraceae sp.
Family indet.
Galearia celebica
Claoxylon polot
Macaranga tanarius
Macaranga fallacina
Macaranga neobritannica
Macaranga novoguineensis
Macaranga quadriglandulosa
Macaranga aleuritoides
Macaranga punctata
Macaranga clavata
Macaranga ducis
Macaranga schleinitziana
Mallotus peltatus
Mallotus floribundus
Mallotus oblongifolius
Melanolepis multiglandulosa
Homalanthus novoguineensis
Pimelodendron amboinicum
Croton womersleyi
Omphalea papuana
Endospermum medullosum
Endospermum labios
Neoscortechinia forbesii
Aporosa papuana
Maranthes corymbosa
Gynotroches axillaris
Calophyllum soulattri
Garcinia assugu
Garcinia dulcis
Garcinia maluensis
Garcinia latissima
Garcinia ledermannii
Drypetes lasiogynoides
Drypetes sp.1
Phyllanthus clamboides
Breynia cernua
Glochidion angulatum
Glochidion novo-guineense
Bridelia macrocarpa
Elaeocarpus miegei
Elaeocarpus undulatus
Elaeocarpus amplifolius
Elaeocarpus angustifolius
Sloanea forbesii
Sloanea sogerensis
Aceratium ledermannii
Rourea minor
Celastrales
Malpighiales
Oxalidales
Fig. A2
150.0
100.0
50.0
0.0
Time (mya)



A6
Strychnos minor
Neuburgia corynocarpa
Papuechites aambe
Wrightia laevis
Cerbera floribunda
Ochrosia coccinea
Neisosperma citrodora
Tabernaemontana orientalis
Tabernaemontana aurantiaca
Alstonia scholaris
Mastixiodendron pachyclados
Versteegia cauliflora
Canthium longiflorum
Canthium cymigerum
Tarenna buruensis
Garuga hansemannii
Gardenia papuana
Randia dryadum
Randia schumanniana
Psychotria sp.1
Psychotria sp.2
Neonauclea obversifolia
Neonauclea clemensiae
Uncaria appendiculata
Uncaria undulata
Sarcocephalus coadunatus
Anthocephalus chinensis
Nauclea orientalis
Guettarda speciosa
Timonius timon
Timonius rufescens
Morinda salomonensis
Chionanthus sessiliflorus
Tecomanthe dendrophila
Vitex cofassus
Teijsmanniodendron bogoriense
Clerodendrum trachyanum
Premna obtusifolia
Gmelina moluccana
Gmelina palawensis
Faradaya splendida
Petraeovitex multiflora
Callicarpa pentandra
Callicarpa arborea
Callicarpa farinosa
Callicarpa longifolia
Convolvulaceae sp.
Polyporandra scandens
Merrilliodendron megacarpum
Gastonia spectabilis
Osmoxylon novo-guineense
Medusanthera laxiflora
Sapotaceae sp.
Planchonella xylocarpa
Planchonella myrsinodendron
Planchonella obovata
Pouteria obovata
Pouteria thyrsoidea
Chrysophyllum roxburghii
Palaquium morobense
Palaquium warburgianum
Diospyros peekelii
Diospyros lolin
Diospyros sp.
Diospyros ellipticifolia
Diospyros hebecarpa
Ardisia lanceolata
Ardisia imperialis
Embelia cotinoides
Ternstroemia cherryi
Saurauia purgans
Barringtonia novae-hiberniae
Barringtonia calyptrocalyx
Barringtonia apiculata
Pisonia longirostris
Gentianales
Lamiales
Solanales
Icacinaceae
Apiales
Aquifoliales
Ericales
Caryophyllales
Asterids
Fig. A2
150.0
100.0
50.0
0.0
Time (mya)