Toyama *et al*. 2015 Effects of logging and recruitment on community phylogenetic structure in 32 permanent forest plots of Kampong Thom, Cambodia. *Phil. Trans. R. Soc. B.* **370** doi: 10.1098/rstb.2014.0008

Supplementary figures

Figure S1. Comparison between the estimated Bayesian phylogeny and APGIII [54] at order level. Left side is estimated phylogeny using of *rbcL* and *matK* sequences and right side is phylogeny of APG III. Nodes are labeled with Bayesian posterior probabilities. The disconcordance of phylogenetic relationships was shown as bold letters. The species phylogeny was shown in Figure S2.

Figure S2. Phylogeny of 376 plants taxa in 32 permanent samples plots of Kampong Thom, Cambodia. Clades represented by triangles in Figure S2-A are expanded in Figures S2-B to G. Blanches are labeled with posterior probabilities. Asterisks show 14 nodes where prior information on the minimum age for calibration of *rbcL* and *matK* divergence under the GTR + I + Γ and an uncorrelated lognormal (UCLN) relaxed-clock model.

Figure S3. Temporal change of species richness (SR), phylogenetic diversity (PD) and abundance-weighted phylogenetic diversity (PDab). Gray lines represent the change of index in each plot and black line represents the mean value among plots. Asterisks show that statistically significant change of mean value per year between two consecutive investigated years (***$p<0.001$, **$p<0.01$, *$p<0.05$, permutation test).

Figure S4. Temporal change of a) standardized mean pairwise distance (stαMPD), b) standardized abundance-weighted MPD (stαMPDab), c) standardized mean nearest taxon distance (stαMNTD) and d) abundance-weighted MNTD (stαMNTDab). Gray lines represent the change of index in each plot and black line represents the mean value among plots. Asterisks show that phylogenetic evenness and clustering tested by 9,999 randomization of taxa labels (**$p<0.01$, *$p<0.05$).

Figure S5. Temporal change of a) standardized mean pairwise distance of an evergreen plot to deciduous plots ($stβMPD_{ED}$), b) standardized mean pairwise distance of an evergreen plot to evergreen plots ($stβMPD_{EE}$), c) abundance-weighted $stβMPD_{ED}$ ($stβMPDab_{ED}$) and d) abundance-weighted $stβMPD_{EE}$ ($stβMPDab_{EE}$). Gray lines

represent the change of index in each plot and black line represents the mean value among plots. Asterisks show that statistically significant change of mean value per year between two consecutive investigated years (***p<0.001, **p<0.01, *p<0.05, permutation test).

Figure S6. The relationship between change of species richness and a) αMPD, b) αMPDab, c) αMNTD, d) αMNTDab. Black circles represent the amount of change during 1998–2000. Blue circles represent the amount of change during 2001–2004. Red circles represent the amount of change during 2005–2010. Significant Pearson's product-moment correlation coefficients adjusted by Bonferroni's method were observed in b) 2005–2010 (red line, $y = 1.91x$, $p < 0.01$), c) 1998–2000 (black line, $y = -3.14x$, $p < 0.01$), c) 2005–2010 (red line, $y = -3.94x$, $p < 0.001$), d) 1998–2000 (black line, $y = -4.43x$, $p < 0.001$) and d) 2005–2010 (red line, $y = -3.16x$, $p < 0.001$).

Figure S7. The relationship between change of species richness and a) βMPD_{ED}, b) $\beta MPDab_{ED}$, c) βMPD_{EE} and d) $\beta MPDab_{EE}$. Black circles represent the amount of change during 1998–2000. Blue circles represent the amount of change during 2001–2004. Red circles represent the amount of change during 2005–2010. Significant Pearson's product-moment correlation coefficients adjusted by Bonferroni's method were observed in a) 2001–2004 (blue line, $y = 0.98x$, $p < 0.01$) and c) 2000–2004 (blue line, $y = 0.97x$, $p < 0.01$).

Figure S1

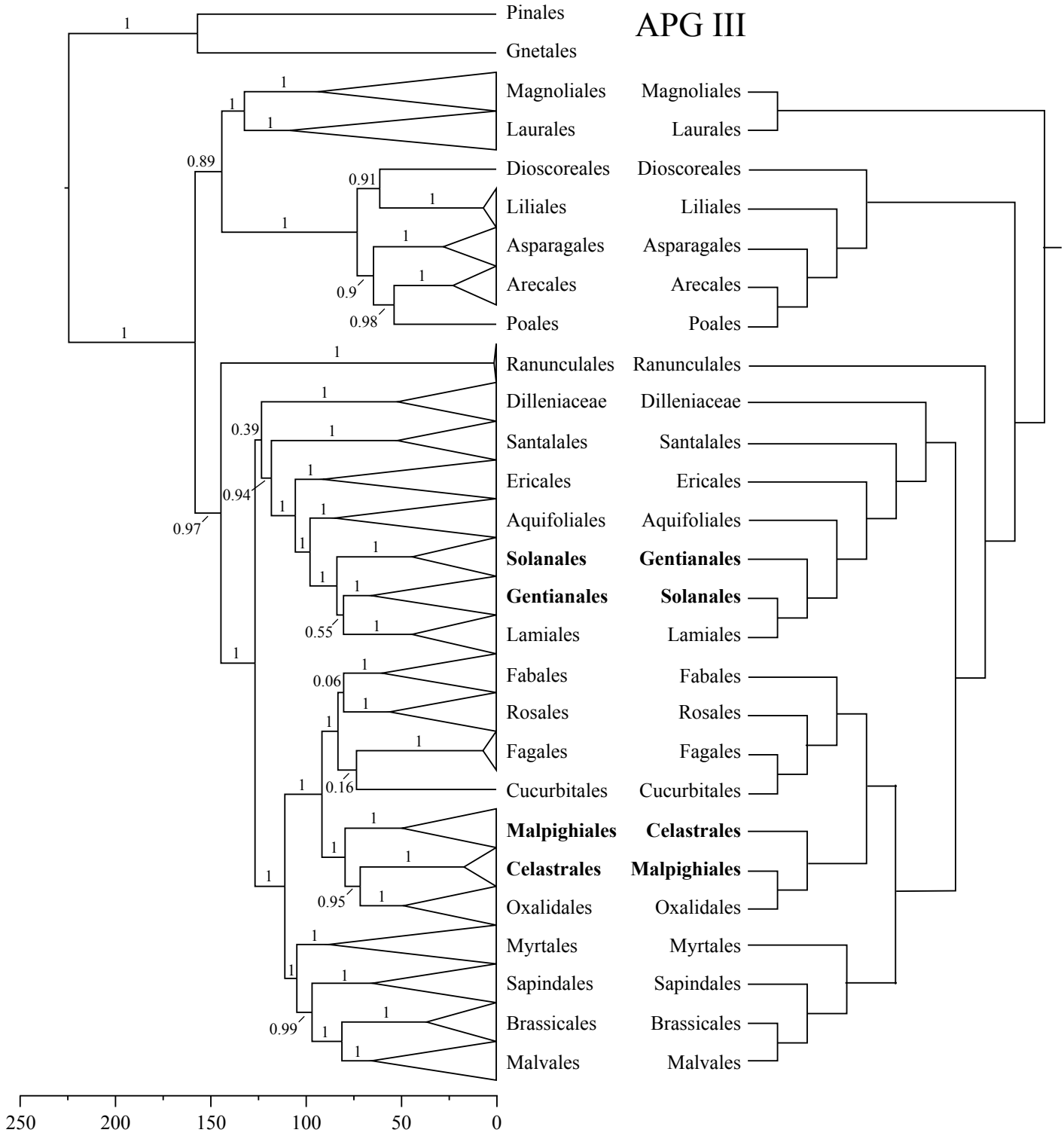
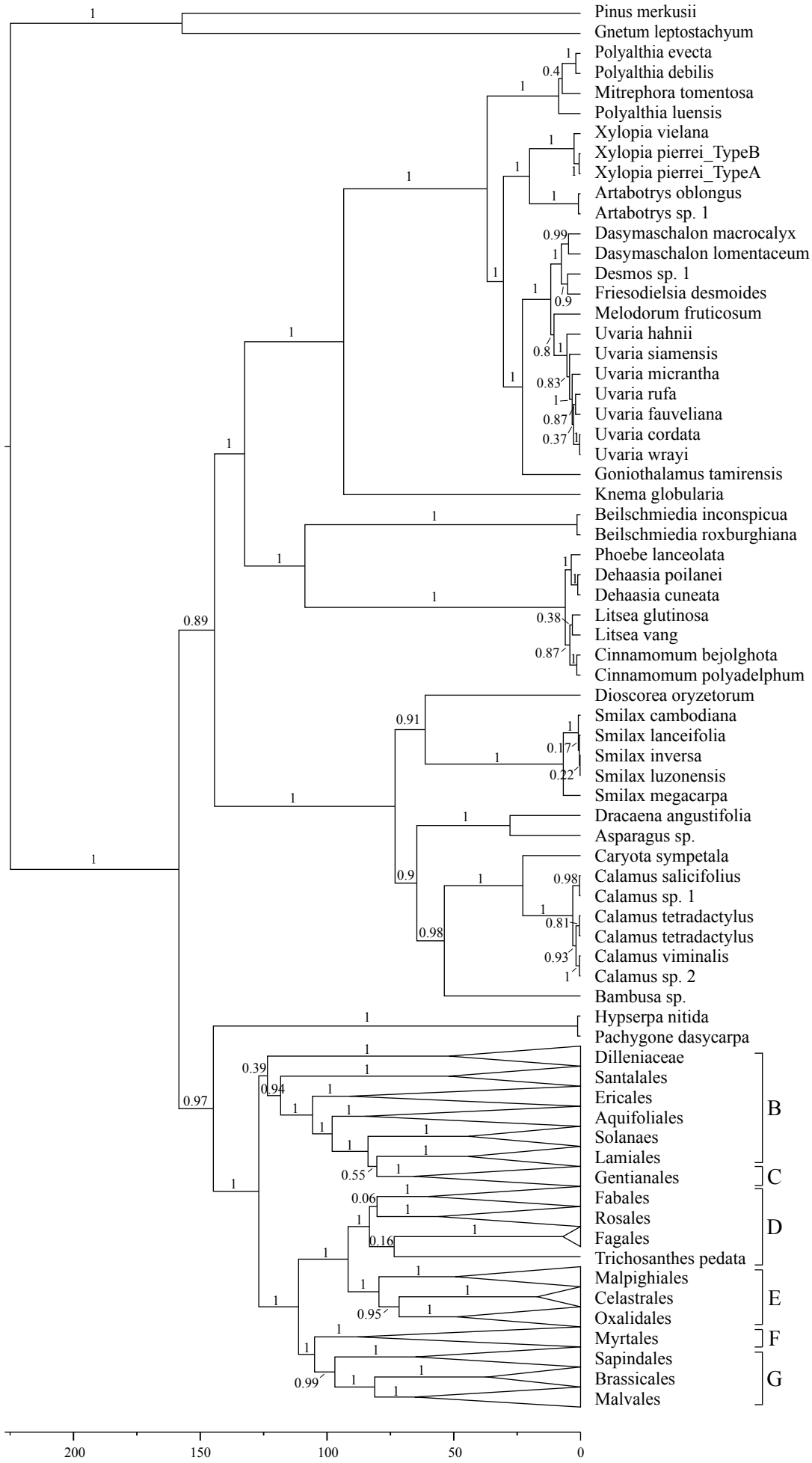

APG III
Pinales
Gnetales
Magnoliales
Laurales
Dioscoreales
Liliales
Asparagales
Arecales
Poales
Ranunculales
Dilleniaceae
Santalales
Ericales
Aquifoliales
Solanales
Gentianales
Lamiales
Fabales
Rosales
Fagales
Cucurbitales
Malpighiales
Celastrales
Oxalidales
Myrtales
Sapindales
Brassicales
Malvales
250
200
150
100
50
0

Figure S2-A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Polyalthia evecta
Polyalthia debilis
Mitrephora tomentosa
Polyalthia luensis
Xylopia vielana
Xylopia pierrei_TypeB
Xylopia pierrei_TypeA
Artabotrys oblongus
Artabotrys sp. 1
Dasymaschalon macrocalyx
Dasymaschalon lomentaceum
Desmos sp. 1
Friesodielsia desmoides
Melodorum fruticosum
Uvaria hahnii
Uvaria siamensis
Uvaria micrantha
Uvaria rufa
Uvaria fauveliana
Uvaria cordata
Uvaria wrayi
Goniothalamus tamirensis
Knema globularia
Beilschmiedia inconspicua
Beilschmiedia roxburghiana
Phoebe lanceolata
Dehaasia poilanei
Dehaasia cuneata
Litsea glutinosa
Litsea vang
Cinnamomum bejolghota
Cinnamomum polyadelphum
Dioscorea oryzetorum
Smilax cambodiana
Smilax lanceifolia
Smilax inversa
Smilax luzonensis
Smilax megacarpa
Dracaena angustifolia
Asparagus sp.
Caryota sympetala
Calamus salicifolius
Calamus sp. 1
Calamus tetradactylus
Calamus tetradactylus
Calamus viminalis
Calamus sp. 2
Bambusa sp.
Hypserpa nitida
Pachygone dasycarpa
Dilleniaceae
Santalales
Ericales
Aquifoliales
Solanaes
Lamiales
Gentianales
Fabales
Rosales
Fagales
Trichosanthes pedata
Malpighiales
Celastrales
Oxalidales
Myrtales
Sapindales
Brassicales
Malvales
B
C
D
E
F
G
200
150
100
50
0

Figure S2-B

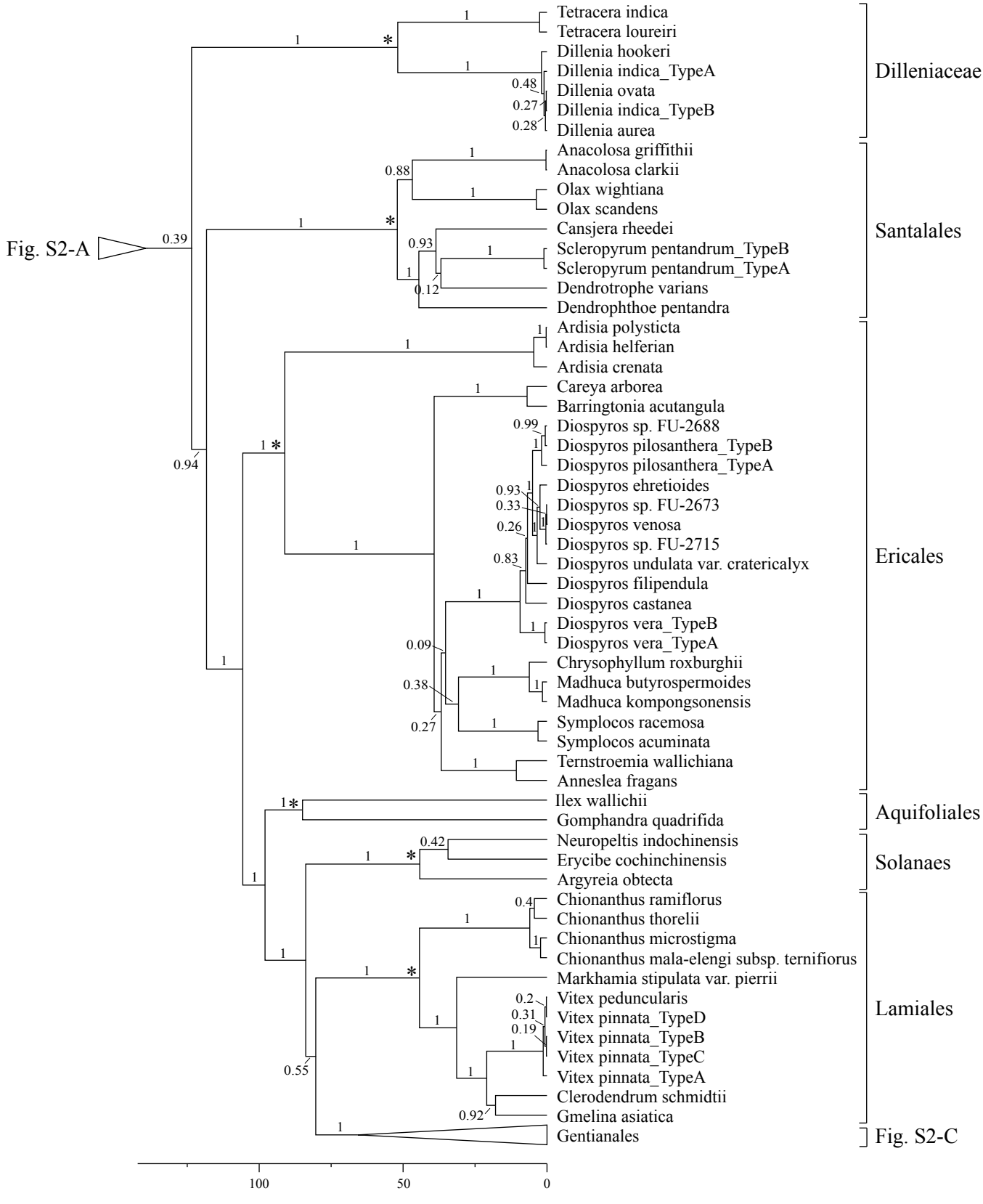
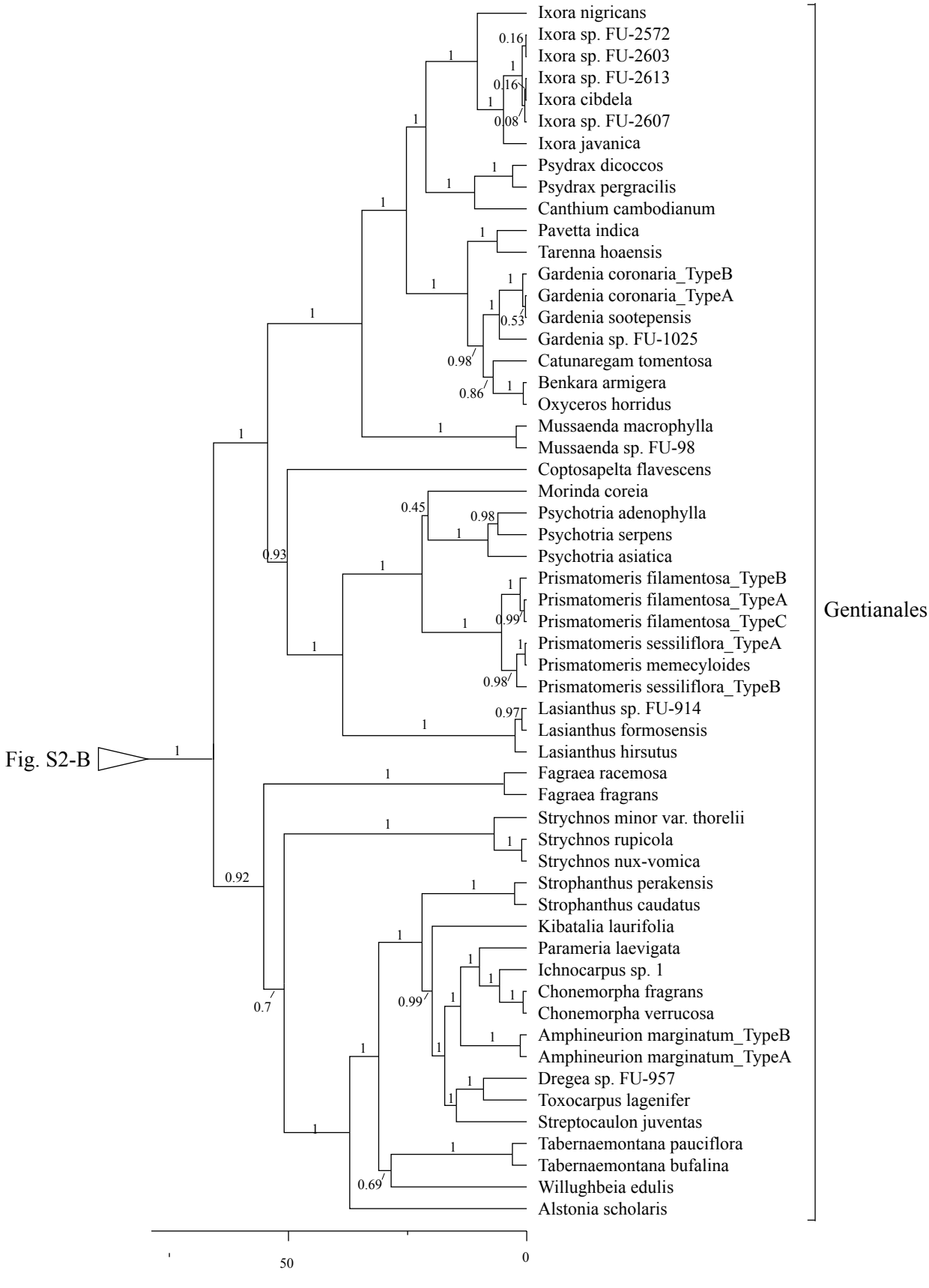


Fig. S2-A
Tetracera indica
Tetracera loureiri
Dillenia hookeri
Dillenia indica_TypeA
Dillenia ovata
Dillenia indica_TypeB
Dillenia aurea
Dilleniaceae
Anacolosa griffithii
Anacolosa clarkii
Olax wightiana
Olax scandens
Cansjera rheedei
Scleropyrum pentandrum_TypeB
Scleropyrum pentandrum_TypeA
Dendrotrophe varians
Dendrophthoe pentandra
Santalales
Ardisia polysticta
Ardisia helferian
Ardisia crenata
Careya arborea
Barringtonia acutangula
Diospyros sp. FU-2688
Diospyros pilosanthera_TypeB
Diospyros pilosanthera_TypeA
Diospyros ehretioides
Diospyros sp. FU-2673
Diospyros venosa
Diospyros sp. FU-2715
Diospyros undulata var. cratericalyx
Diospyros filipendula
Diospyros castanea
Diospyros vera_TypeB
Diospyros vera_TypeA
Chrysophyllum roxburghii
Madhuca butyrospermoides
Madhuca kompongsonensis
Symplocos racemosa
Symplocos acuminata
Ternstroemia wallichiana
Anneslea fragans
Ericales
Ilex wallichii
Gomphandra quadrifida
Aquifoliales
Neuropeltis indochinensis
Erycibe cochinchinensis
Argyreia obtecta
Solanaes
Chionanthus ramiflorus
Chionanthus thorelii
Chionanthus microstigma
Chionanthus mala-elengi subsp. ternifiorus
Markhamia stipulata var. pierrii
Vitex peduncularis
Vitex pinnata_TypeD
Vitex pinnata_TypeB
Vitex pinnata_TypeC
Vitex pinnata_TypeA
Clerodendrum schmidtii
Gmelina asiatica
Lamiales
Gentianales
Fig. S2-C
100
50
0

Figure S2-C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Ixora sp. FU-2603
Ixora sp. FU-2613
Ixora cibdela
Ixora sp. FU-2607
Ixora javanica
Psydrax dicoccos
Psydrax pergracilis
Canthium cambodianum
Pavetta indica
Tarenna hoaensis
Gardenia coronaria_TypeB
Gardenia coronaria_TypeA
Gardenia sootepensis
Gardenia sp. FU-1025
Catunaregam tomentosa
Benkara armigera
Oxyceros horridus
Mussaenda macrophylla
Mussaenda sp. FU-98
Coptosapelta flavescens
Morinda coreia
Psychotria adenophylla
Psychotria serpens
Psychotria asiatica
Prismatomeris filamentosa_TypeB
Prismatomeris filamentosa_TypeA
Prismatomeris filamentosa_TypeC
Prismatomeris sessiliflora_TypeA
Prismatomeris memecyloides
Prismatomeris sessiliflora_TypeB
Lasianthus sp. FU-914
Lasianthus formosensis
Lasianthus hirsutus
Fagraea racemosa
Fagraea fragrans
Strychnos minor var. thorelii
Strychnos rupicola
Strychnos nux-vomica
Strophanthus perakensis
Strophanthus caudatus
Kibatalia laurifolia
Parameria laevigata
Ichnocarpus sp. 1
Chonemorpha fragrans
Chonemorpha verrucosa
Amphineurion marginatum_TypeB
Amphineurion marginatum_TypeA
Dregea sp. FU-957
Toxocarpus lagenifer
Streptocaulon juventas
Tabernaemontana pauciflora
Tabernaemontana bufalina
Willughbeia edulis
Alstonia scholaris
Gentianales
Fig. S2-B
50
0

Figure S2-D

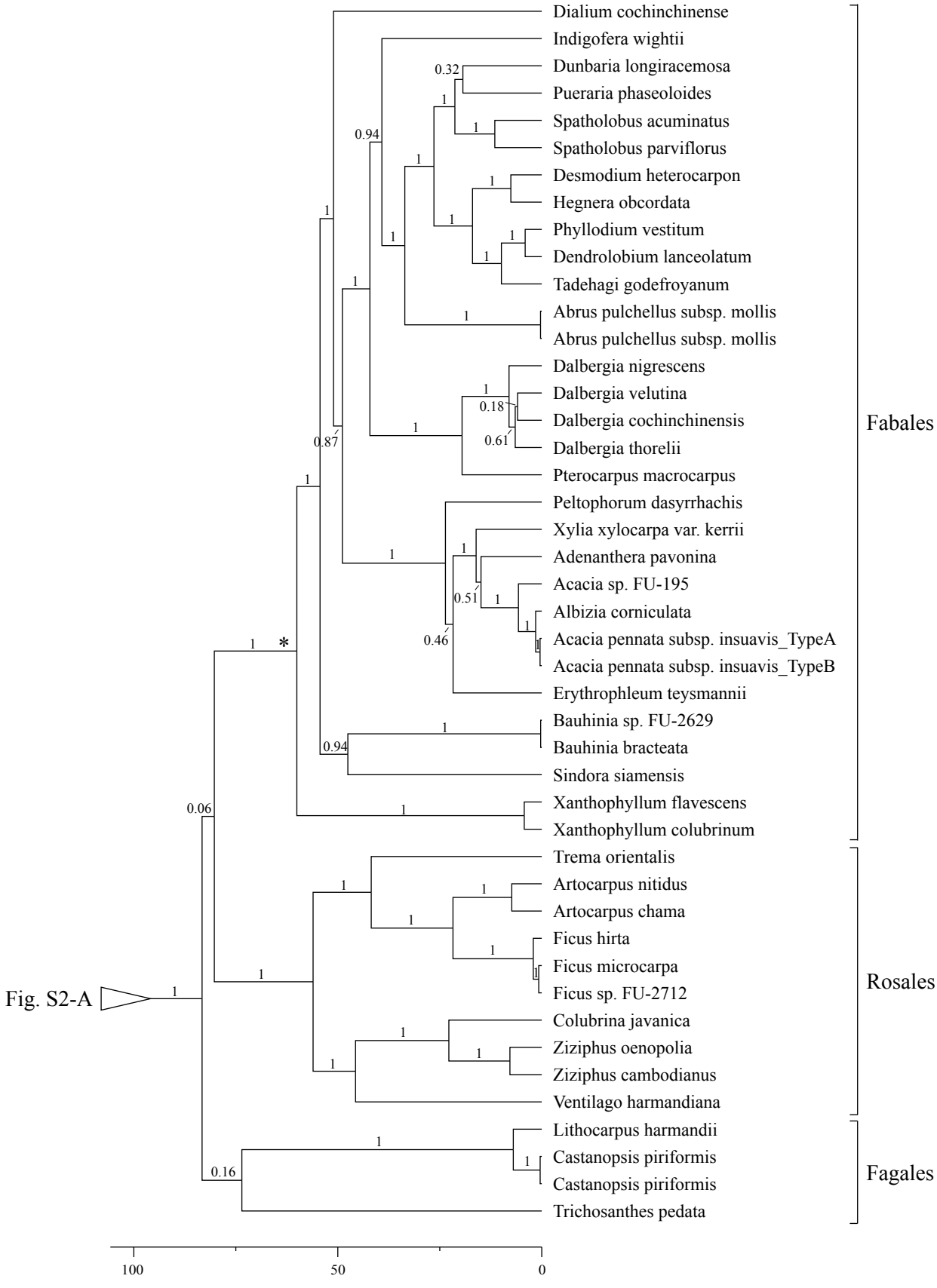
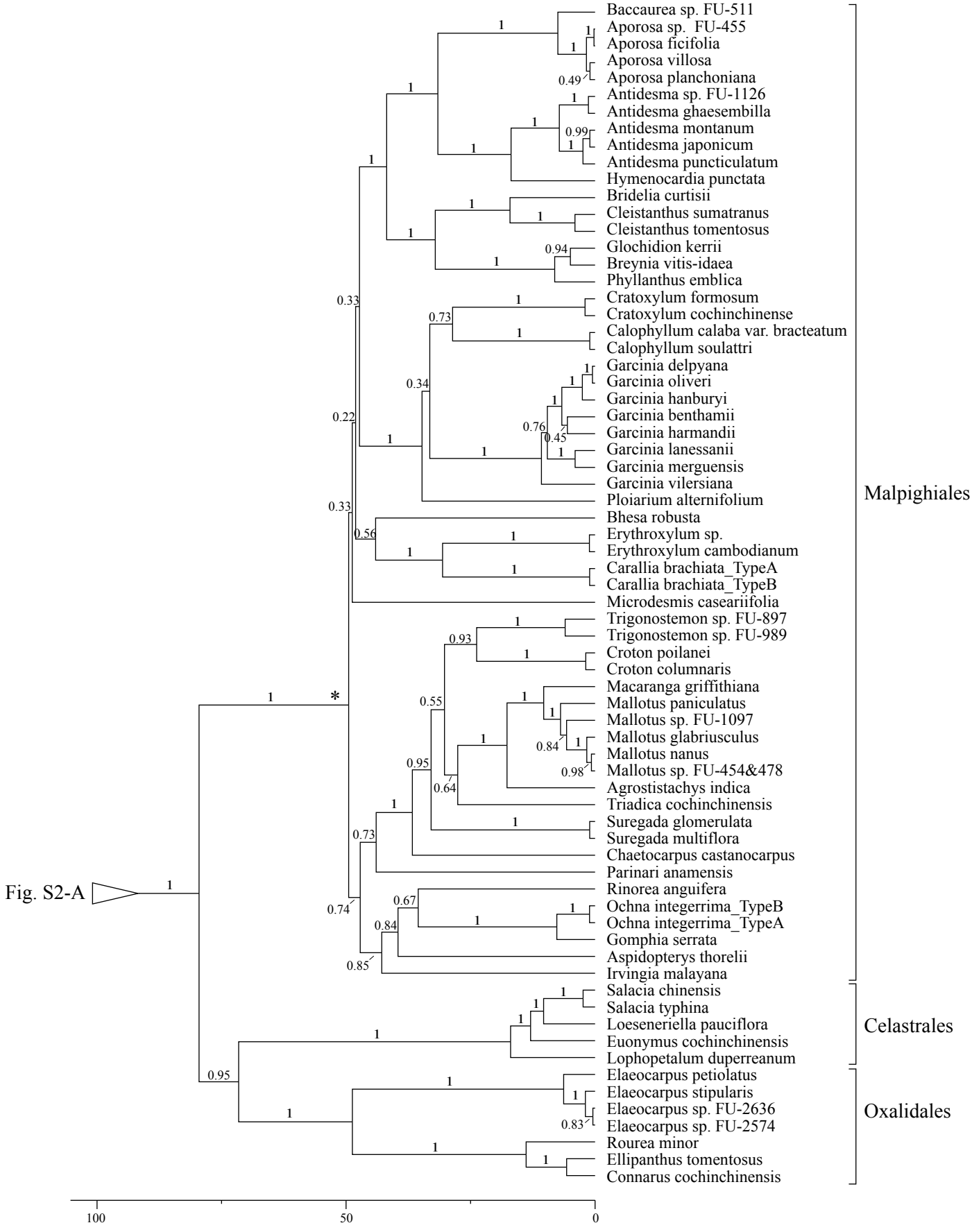


Fig. S2-A

Figure S2-E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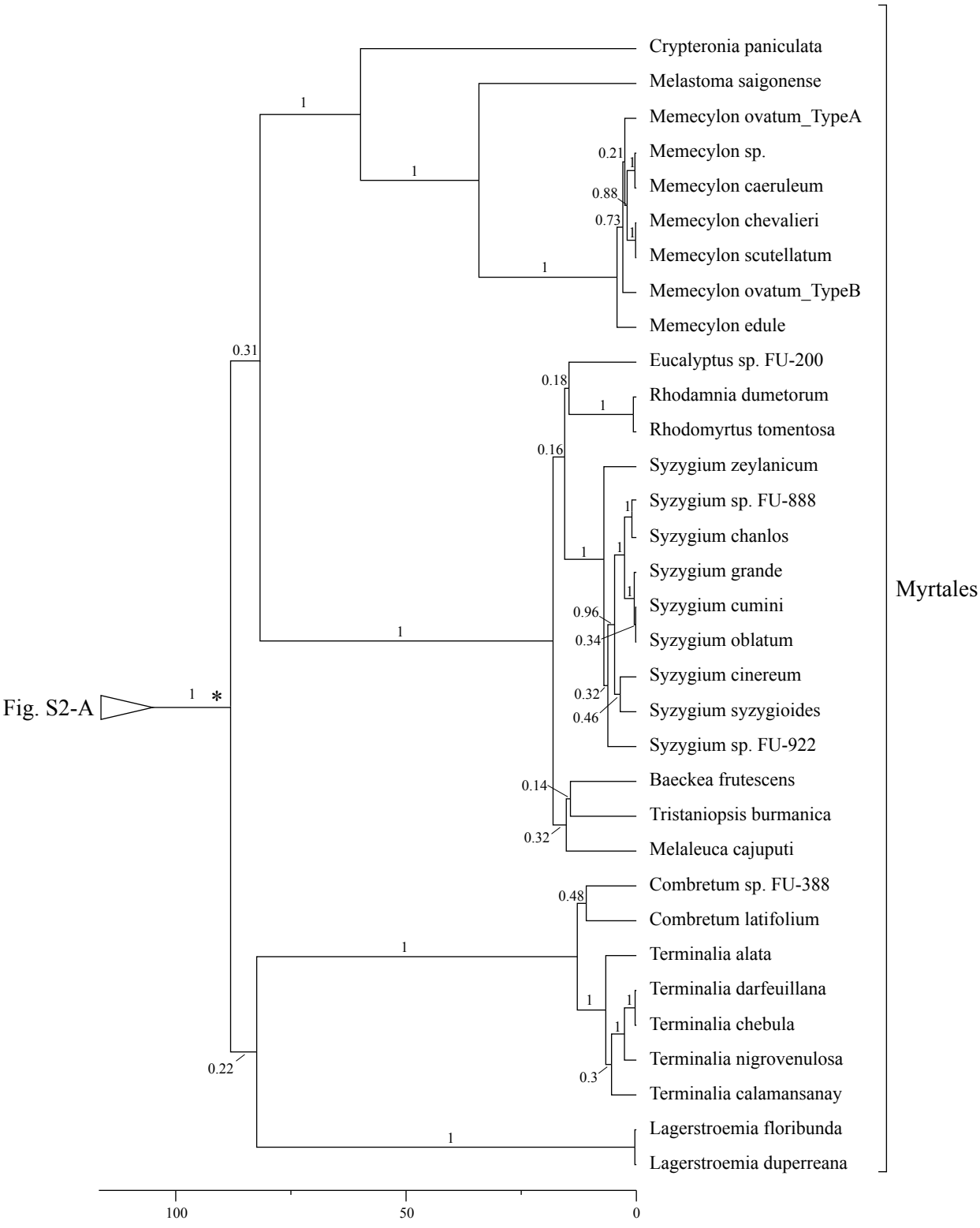
Aporosa sp. FU-455
Aporosa ficifolia
Aporosa villosa
Aporosa planchoniana
Antidesma sp. FU-1126
Antidesma ghaesembilla
Antidesma montanum
Antidesma japonicum
Antidesma puncticulatum
Hymenocardia punctata
Bridelia curtisii
Cleistanthus sumatranus
Cleistanthus tomentosus
Glochidion kerrii
Breynia vitis-idaea
Phyllanthus emblica
Cratoxylum formosum
Cratoxylum cochinchinense
Calophyllum calaba var. bracteatum
Calophyllum soulattri
Garcinia delpyana
Garcinia oliveri
Garcinia hanburyi
Garcinia benthamii
Garcinia harmandii
Garcinia lanessanii
Garcinia merguensis
Garcinia vilersiana
Ploiarium alternifolium
Bhesa robusta
Erythroxylum sp.
Erythroxylum cambodianum
Carallia brachiata_TypeA
Carallia brachiata_TypeB
Microdesmis casearifolia
Trigonostemon sp. FU-897
Trigonostemon sp. FU-989
Croton poilanei
Croton columnaris
Macaranga griffithiana
Mallotus paniculatus
Mallotus sp. FU-1097
Mallotus glabriusculus
Mallotus nanus
Mallotus sp. FU-454&478
Agrostistachys indica
Triadica cochinchinensis
Suregada glomerulata
Suregada multiflora
Chaetocarpus castanocarpus
Parinari anamensis
Rinorea anguifera
Ochna integerrima_TypeB
Ochna integerrima_TypeA
Gomphia serrata
Aspidopterys thorelii
Irvingia malayana
Salacia chinensis
Salacia typhina
Loeseneriella pauciflora
Euonymus cochinchinensis
Lophopetalum duperreanum
Elaeocarpus petiolatus
Elaeocarpus stipularis
Elaeocarpus sp. FU-2636
Elaeocarpus sp. FU-2574
Rourea minor
Ellipanthus tomentosus
Connarus cochinchinensis
Malpighiales
Celastrales
Oxalidales
Fig. S2-A
100
50
0

Figure S2-F


Crypteronia paniculata
Melastoma saigonense
Memecylon ovatum_TypeA
Memecylon sp.
Memecylon caeruleum
Memecylon chevalieri
Memecylon scutellatum
Memecylon ovatum_TypeB
Memecylon edule
Eucalyptus sp. FU-200
Rhodamnia dumetorum
Rhodomyrtus tomentosa
Syzygium zeylanicum
Syzygium sp. FU-888
Syzygium chanlos
Syzygium grande
Syzygium cumini
Syzygium oblatum
Syzygium cinereum
Syzygium syzygioides
Syzygium sp. FU-922
Baeckea frutescens
Tristaniopsis burmanica
Melaleuca cajuputi
Combretum sp. FU-388
Combretum latifolium
Terminalia alata
Terminalia darfeuillana
Terminalia chebula
Terminalia nigrovenulosa
Terminalia calamansanay
Lagerstroemia floribunda
Lagerstroemia duperreana
Myrtales
Fig. S2-A
100
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0

Figure S2-G

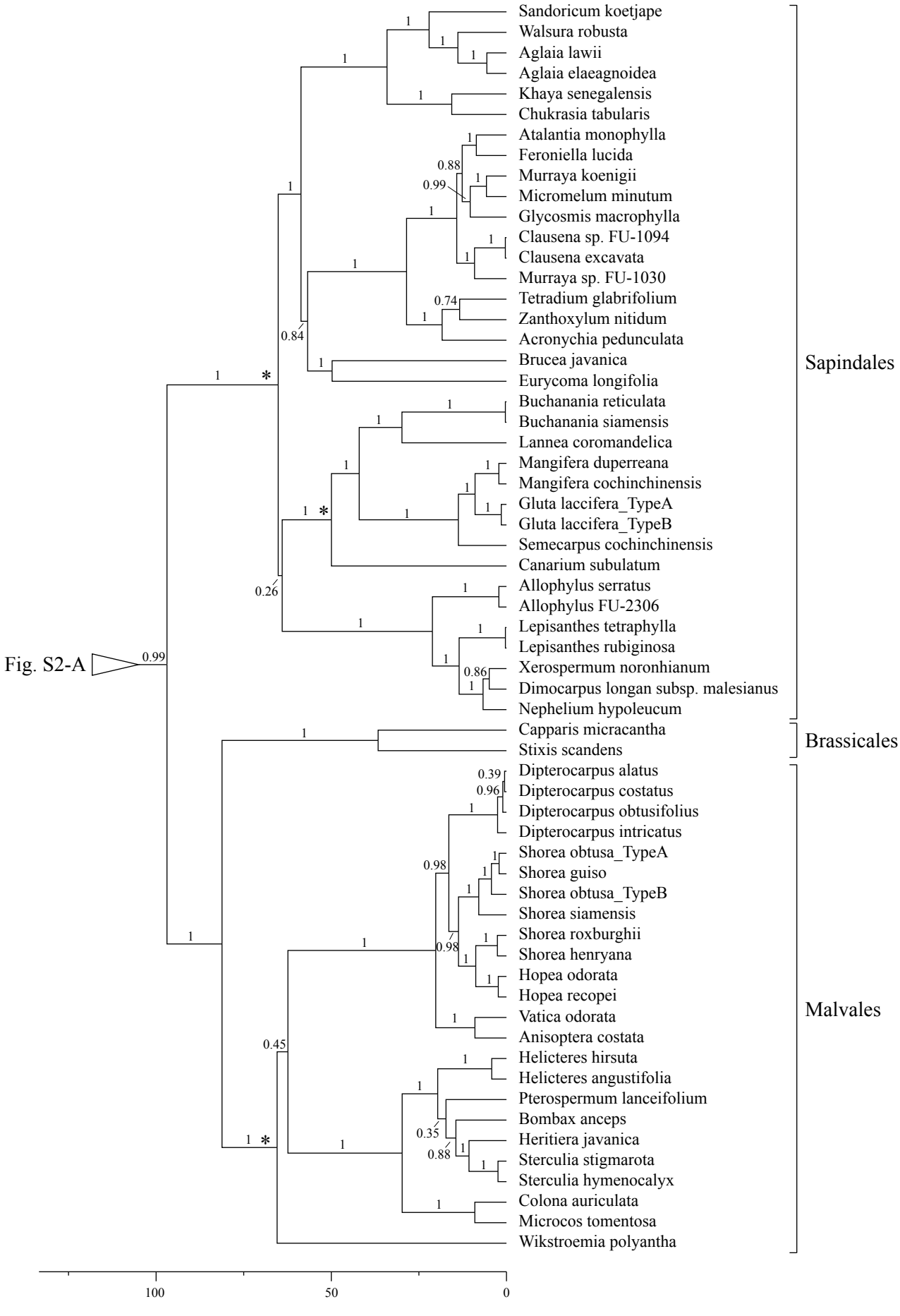
Sandoricum koetjape
Walsura robusta
Aglaia lawii
Aglaia elaeagnoidea
Khaya senegalensis
Chukrasia tabularis
Atalantia monophylla
Feroniella lucida
Murraya koenigii
Micromelum minutum
Glycosmis macrophylla
Clausena sp. FU-1094
Clausena excavata
Murraya sp. FU-1030
Tetradium glabrifolium
Zanthoxylum nitidum
Acronychia pedunculata
Brucea javanica
Eurycoma longifolia
Buchanania reticulata
Buchanania siamensis
Lannea coromandelica
Mangifera duperreana
Mangifera cochinchinensis
Gluta laccifera_TypeA
Gluta laccifera_TypeB
Semecarpus cochinchinensis
Canarium subulatum
Allophylus serratus
Allophylus FU-2306
Lepisanthes tetraphylla
Lepisanthes rubiginosa
Xerospermum noronhianum
Dimocarpus longan subsp. malesianus
Nephelium hypoleucum
Capparis micracantha
Stixis scandens
Dipterocarpus alatus
Dipterocarpus costatus
Dipterocarpus obtusifolius
Dipterocarpus intricatus
Shorea obtusa_TypeA
Shorea guiso
Shorea obtusa_TypeB
Shorea siamensis
Shorea roxburghii
Shorea henryana
Hopea odorata
Hopea recopei
Vatica odorata
Anisoptera costata
Helicteres hirsuta
Helicteres angustifolia
Pterospermum lanceifolium
Bombax anceps
Heritiera javanica
Sterculia stigmarota
Sterculia hymenocalyx
Colona auriculata
Microcos tomentosa
Wikstroemia polyantha
Sapindales
Brassicales
Malvales
Fig. S2-A
100
50
0

Figure S3

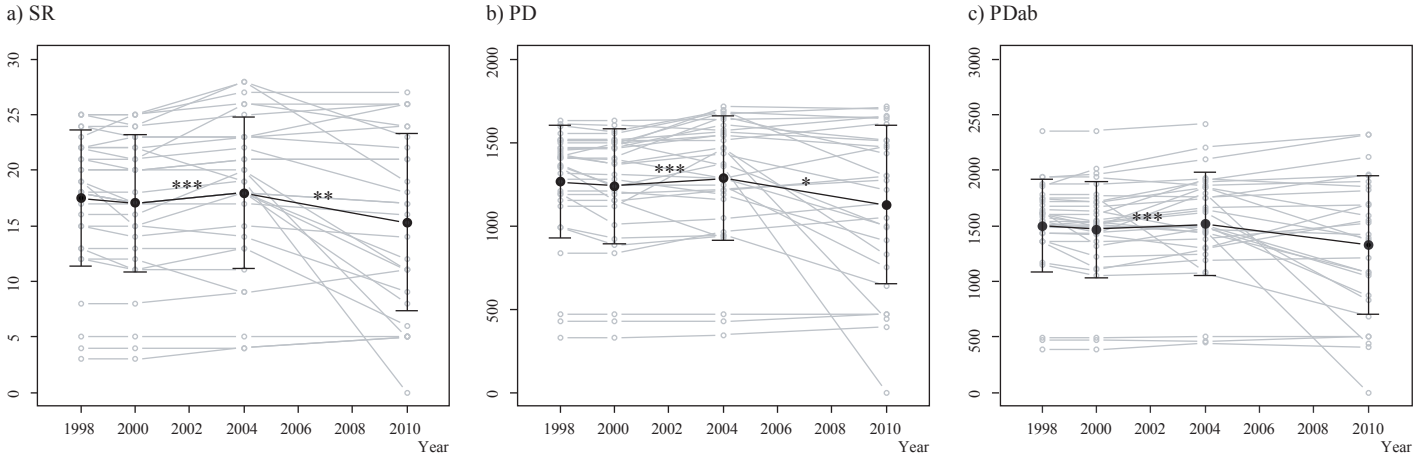
a) SR
b) PD
c) PDab
***
**
*
***
***
0
5
10
15
20
25
30
500
1000
1500
2000
2500
3000
1998
2000
2002
2004
2006
2008
2010
Year

Figure S4

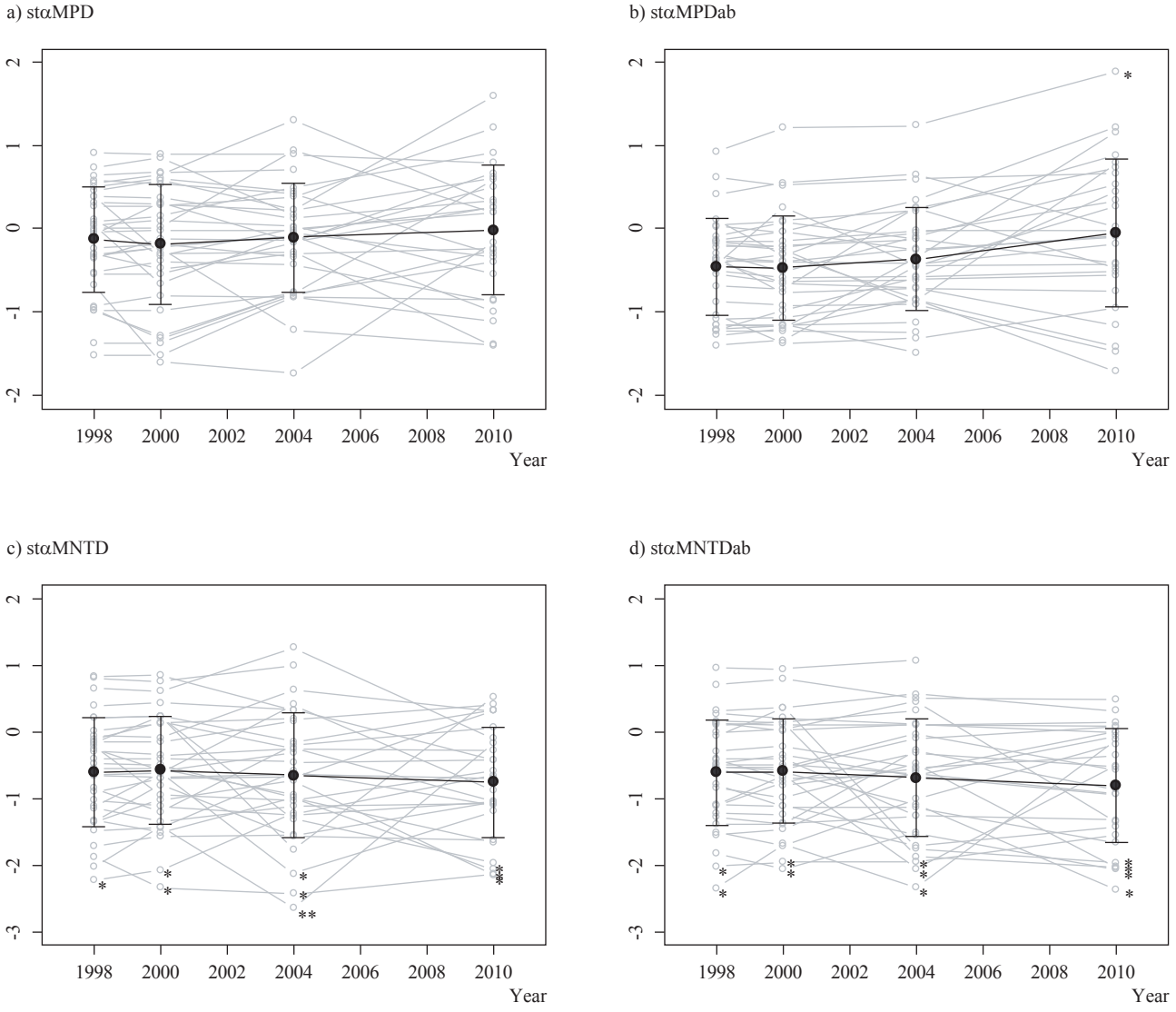
a) stαMPD
b) stαMPDab
c) stαMNTD
d) stαMNTDab
2
1
0
-1
-2
-3
1998
2000
2002
2004
2006
2008
2010
Year

Figure S5

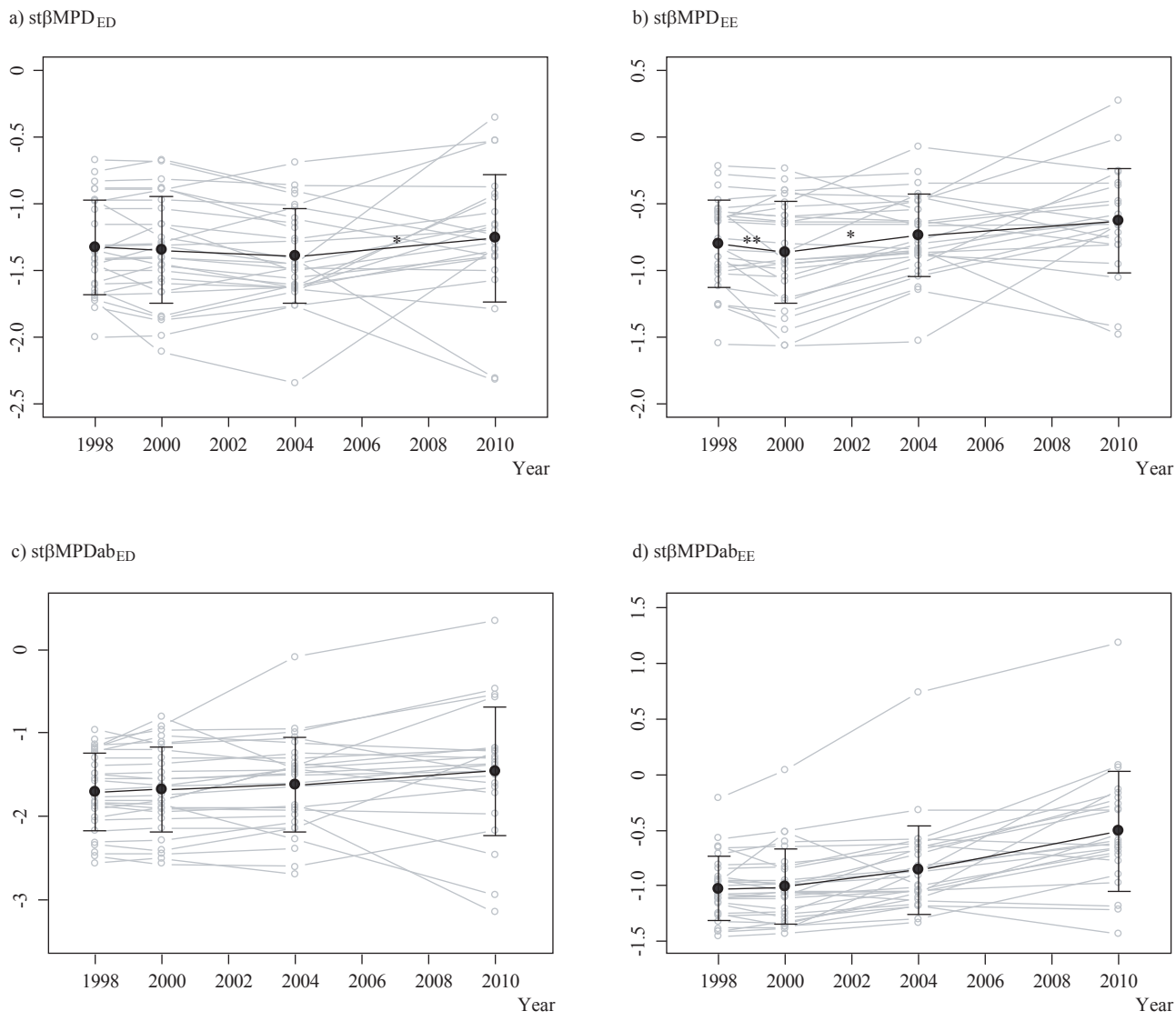
a) stβMPD$_{ED}$
b) stβMPD$_{EE}$
c) stβMPDab$_{ED}$
d) stβMPDab$_{EE}$
Year
1998
2000
2002
2004
2006
2008
2010
*
**

Figure S6

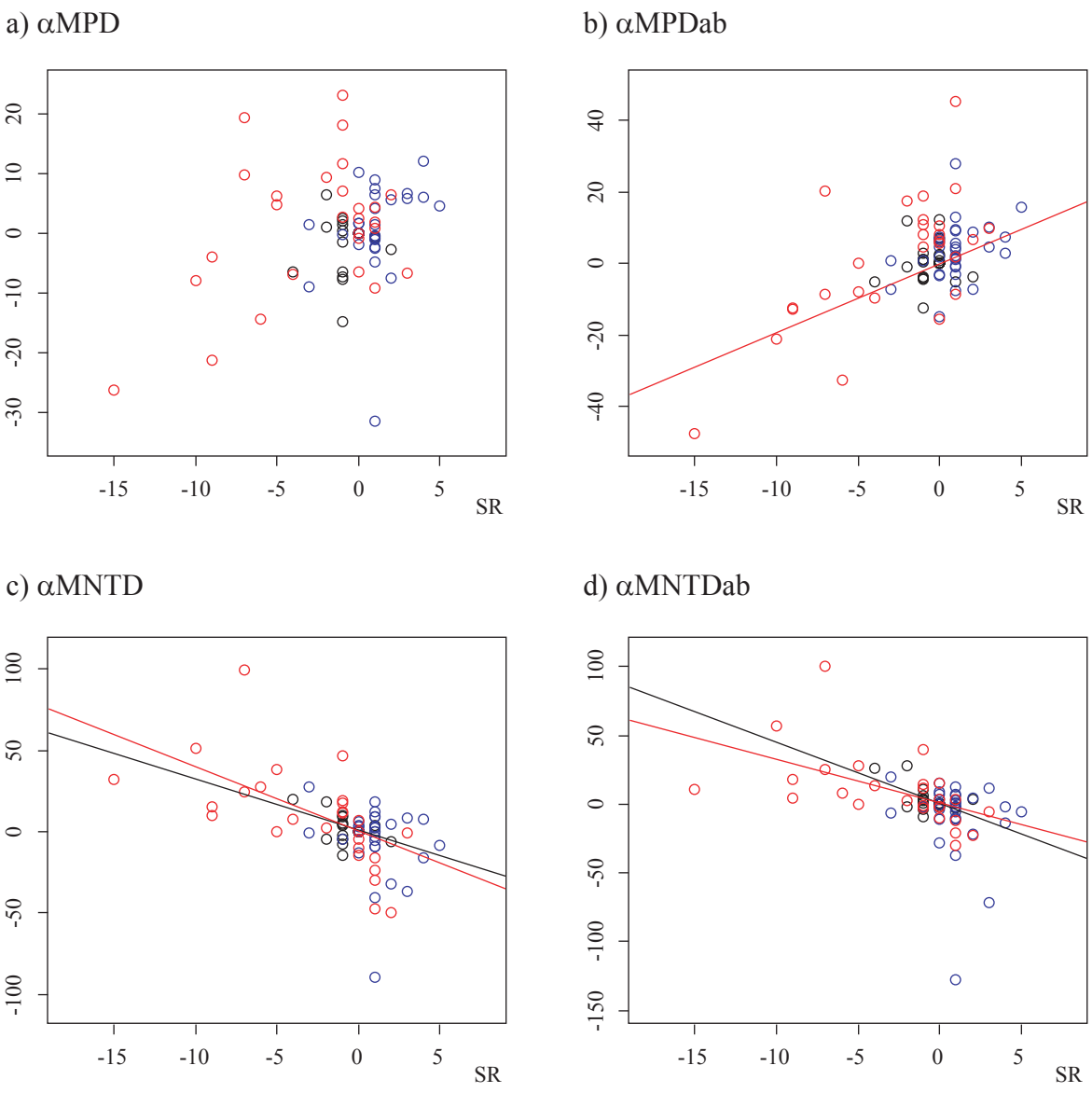
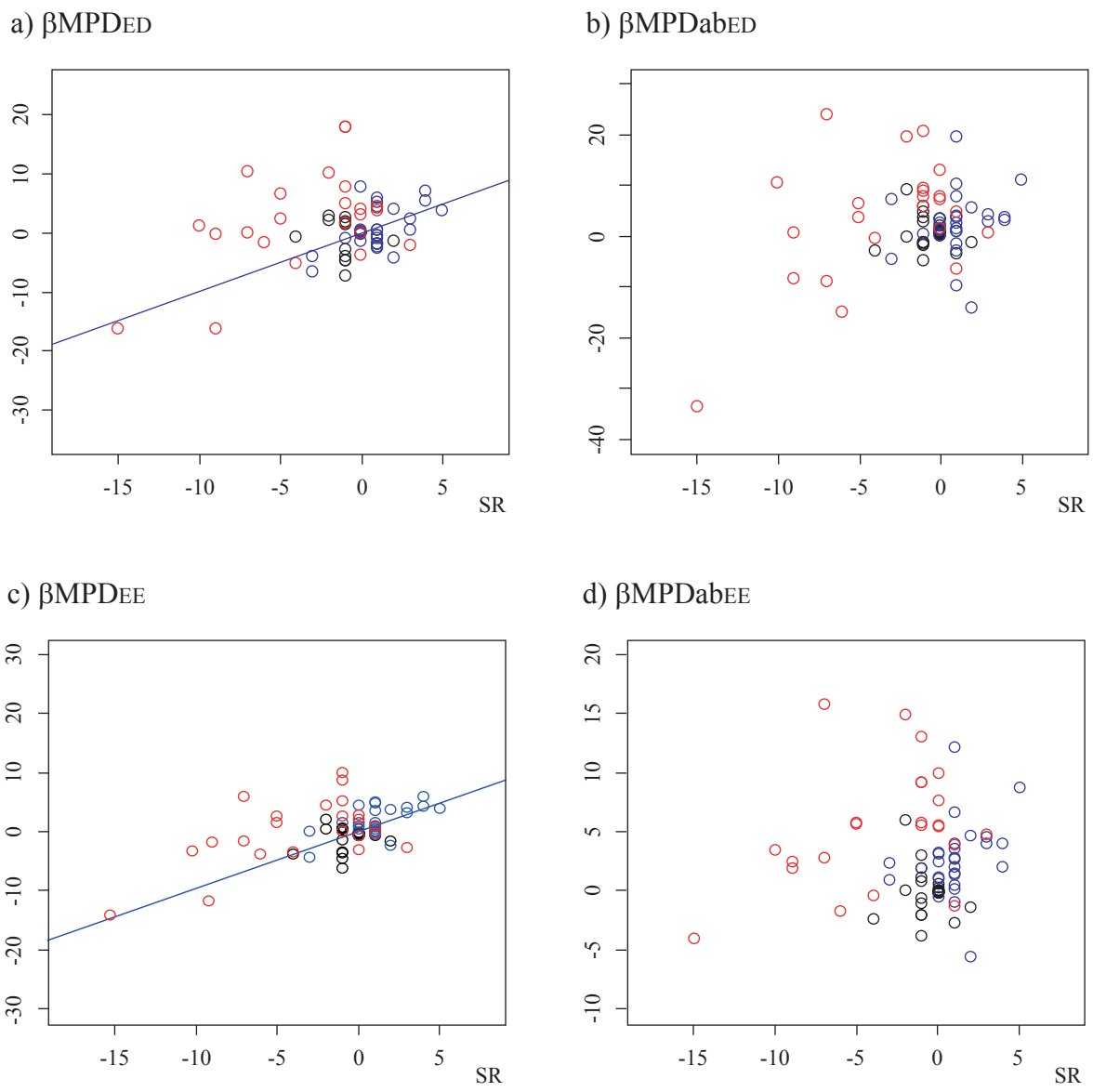
Figure S7