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A COMPARISON OF THE ANGIOSPERM PHYLOGENY GROUP CLASSIFICATION (2003) WITH SYSTEM OF TAKHTAJAN (1997) AND CRONQUIST (1988)

P. K. BHATTACHARYYA[1] AND KAUSTUV BHATTACHARYYA[2]
[1]*Department of Botany, University of Burdwan, Burdwan 713 104, WB*
[2]*Govt. College of Education, Banipur, 24 Parganas (N) 743 233, WB*

ABSTRACT

A tabular comparison of the classification of the superordinal groups, orders and families of angiosperms by the APG II (2003), Takhtajan (1997) and Cronquist (1988) is presented. The linear sequence of the orders (45) and families (453) is that of the APG. The APG provided a new model of phylogenetic classification. The framework of superordinal groups such as Magnoliids, Monocots, Commelinids, Eudicots, Rosids and Asterids is fully resolved. But many details for understanding the relationships between many of the basal clades of angiosperms, among major eudicot lineages, and many orders such as Malpighiales and Asterales remain to be resolved. Thus, all the accepted order and family names are listed in alphabetical order. Under the superordinal groups there are listed a number of families (32) without assignment to orders, as their ordinal positions are still unclear to the APG. For the present purpose 2 superordinal groups such as "Basal families" and "Prorosids" and 25 additional ordinal names are optionally adopted with quotation-marks/ question mark, italics and parenthesis. Nevertheless seven ordinal positions remain unnamed. Monocots are placed between the Magnoliids and the Eudicots. The APG updated 19 orders with new consignment of families. They have emended (recircumscribed, expanded or restricted) 65 families. There are fifty five (55) square bracketing families below these updated 65 families with which they may be merged or relegated. The APG widely shifted 23 families and deleted about 46 popular families in favour of other broadly circumscribed families. Nineteen (19) obsolete families are reinserted along with a fresh list of 'taxa incertae sedis' of four families and 13 genera. The demise of Avicenniaceae and Flacourtiaceae, the restriction of Euphorbiaceae to the uniovutate subfamilies and the addition and alteration in Scrophulariaceae are noteworthy. The placement of Ebenaceae and Ericaceae in a larger clade Asterids (= sympetale) is a reversion to the earlier concept.

INTRODUCTION

A comparison of angiosperm phylogenetic systems was necessitated by the plethora of new information. The cladistic analysis of the Angiosperm Phylogeny Group classification (APG II 2003)

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has been compared with that of Takhtajan (1997) and Cronquist (1988). The linear sequence of orders and families is that present in APG. The APG provided a new model of phylogenetic classification. The framework of superordinal groups such as Magnoliids, Monocots, Commelinids, Eudicots, Rosids and Asterids is fully resolved. But many details adequate to understand the relationships between many of the basal clades of angiosperms, among major eudicot lineages, and many orders such as Malpighiales and Asterales remain to be resolved. Under the framefork of a phylogenetic scheme of superordinal groups, all the accepted order and family names are listed in alphabetical order. The APG had not assigned any number in listing orders and families. Finally I have numbered each entry.

For the sake of comparison seventy seven (# 77) orders and four hundred fifty three (# 453) families have been reckoned. Under the superordinal groups the APG has listed a number of families (# 32) without assignment to orders, as the ordinal positions are still unclear to them. For the present purpose then two additional superordinal groups ("Basal families', and "Prorosids") and twenty five (#25) additional ordinal names are optionally adopted with quotation- marks, / question mark, italics and parenthesis. Nevertheless seven (27th, 34th, 38th, 44th, 52nd, 63rd, & 71st) ordinal positions remain unnamed. Many details regarding relationships within these categories have not yet been clarified. The APG's outline does not always lend itself to ascertaining where they would assign these thirty two (25+07) orders. Eventually the question mark indicates uncertainty regarding the position of a taxon or to the level at which it should be received. A gap or a dash (-X-) indicates that the taxon/ or a group was not treated. For example, "H Roside, 106 Myrtales, 17" in column two means that the family number 215, Myrtaceae of coloumn one is in the H. subclass Rosidae, # 106th order Myrtales and at the 17th family position within the order Myrtales sensu Takhtajan (1997).

The APG adopted the principle of monophyly in their phylogenetic classification (2003). Many groups at the superordinal and infraordinal levels recognized by earlier authors were not monophyletic, evidently a revised superfamilial and familial classification has been proposed by the APG.. A small number of informal higher categories (groups) have been conceived as a reference tool of broad utility. There are 'basal clades', magnoliids, monocots, commelinids, eudicots, rosids and asterids. On the other hand, whether a widely accepted monophyletic group would be a class, subclass, superorder, order, or suborder is a subjective and intuitive decision. The APG adopted a broad circumscription of the orders. They have recognized 453 families and 45 orders of angiosperms. Cronquist (1988), recognized 378 families and 83 orders, Takhtajan (1997) 591 families, 232 orders and Thorne (on the internet, 2004) no less than 498 families in 74 orders.

The APG expanded 19 orders with new consignment of families. These are widely circumscribed i.e. beyond the traditional limit of the primordial core group of families. Thus Piperales, Alismatales, Pandanales, Commelinales, Poales, Proteales, Ranunculales, Gunnerales, Caryophyllales Saxifragales, Cucurbitales, Malpighiales, Oxalidales, Rosales, Brassicales, Malvales, Cornales, Ericales and Lamiales are with extraordinary configurations.

Under the informal groups like "Basal families", monocots, commelinids, eudicots, core eudicots, rosids, eurosids I & II, asterids, euasterids I & II : there were a number of families which were listed without assignment to order. The ordinal position of these families was uncertain to the APG. Among

these are thirty two families: Amborellaceae, Chloranthaceae, Nymphaeaceae, Petrosaviaceae, Dasypogonaceae, Buxaceae, Sabiaceae, Trochodendraceae, Aextoxicaceae, Berberidopsidaceae, Dilleniaceae, Aphloiaceae, Geissolomataceae, Ixerbaceae, Picramniaceae, Stasburgeriaceae, Vitaceae, Zygophyllaceae, Huaceae, Tapisciaceae, Boraginaceae, Icacinaceae, Oncothecaceae, Vahliaceae, Bruniaceae, Columelliaceae, Eremosynaceae, Escalloniaceae, Paracryphiaceae, Polyosmaceae, Sphenostemonaceae, Tribelaceae. For this comparison, either we have tentatively placed available twenty five (#25) ordinal names or left seven positions unnamed. Thus we put question mark (?) for these probable 32 orders which are indicated in italics and placed in parenthesis. Examples are [i] (? Amborellales), [ii] (? Chloranthales); [iii] (? Nymphaeales); [x] (? Petrosaviales); [xxvii] (? –x-) etc. On the other hand the APG emended (recircumscribed/ expanded or restricted) about 65 families These may be mentioned as Nymphaeaceae, Schisandraceae, Alliaceae, Asparagaceae, Xanthorrhoeaceae, Burmanniaceae, Dioscoreaceae, Thurniaceae, Xyridaceae, Buxaceae, Trochodendraceae, Proteaceae, Circaeasteraceae, Papaveraceae, Gunneraceae, Haloragaceae, Iteaceae, Geraniaceae, Melianthaceae, Melastomataceae, Zygophyllaceae, Parnassiaceae, Juglandaceae, Achariaceae, Chrysobalanaceae, Clusiaceae, Euphorbiaceae, Hypericaceae, Ochnaceae, Passifloraceae, Rhizophoraceae, Salicaceae, Brunelliaceae, Elaeocarpaceae, CannabaceaeUrticaceae, Akaniaceae, Thymelaeaceae, Nitrariaceae Cornaceae, Ebenaceae, Myrsinaceae, Pentaphylacaceae, Primulaceae, Tetrameristaceae, Theophrastaceae, Garryaceae, Acanthaceae, Lamiaceae, Phrymaceae, Plantaginaceae, Scrophulariaceae, Verbenaceae, Montiniaceae, Columelliaceae, Campanulaceae, Rousseaceae, Stylidiaceae, and Caprifoliaceae. The APG indicated that fifty five small families may be reduced to synonym of their sister groups. Such commonly recognized families are placed in square brackets immediately below the family with which they may be merged. Examples are [+Illiciaceae], [+ Agapanthaceae], [+Amaryllidaceae], [+Agavaceae], [+Aphyllanthaceae], [+Hesperocallidaceae], [+Hyacinthaceae], [+Laxmanniaceae], [+Ruscaceae], [+Themidaceae] etc. The APG has shifted (shattered) about 23 families which find their elbow- room in new systematic positions. These are mentioned as Hydnoraceae, Nartheciaceae, Corsiaceae, Triuridaceae, Hanguanaceae, Sparganiaceae, Typhaceae, Barbeuiaceae, Gisekiaceae, Geissolomataceae, Zygophyllaceae, Bonnetiaceae, Ctenolophonaceae, Elatinaceae, Ixonanthaceae, Lophopyxidaceae, Peridiscaceae, Podostemaceae, Carlemanniaceae, Plocospermataceae, Cadiopteridaceae, Phellinaceae, and Adoxaceae. About 46 popular families are now reduced to synonym of widely circumscribed family and deleted from the scheme. Among these are Aceraceae, Alangiaceae, Anthericaceae, Asclepiadaceae, Aspidistraceae, Avicenniaceae, Barringtoniaceae, Bombacaceae, Buddlejaceae, Caesalpiniaceae, Calochortaceae, Capparaceae, Cecropiaceae, Celtidaceae, Chenopodiaceae, Corylaceae, Cuscutaceae, Ehretiaceae, Empetraceae, Epacridaceae, Flacourtiaceae, Globulariaceae, Julianiaceae, Leeaceae, Leitneriaceae, Lemnaceae, Lennoaceae, Mimosaceae, Monotropaceae, Myoporaceae, Najadaceae, Sambucaceae, Sansevieriaceae, Trapaceae, Trilliaceae, Uvulariaceae, Viscaceae, and Zannichelliaceae.

The family Avicenniaceae falls into Acanthaceae and the members of Flacourtiaceae either sink into Salicaceae or Achariaceae. The Euphorbiaceae is now restricted to uniovulate subfamilies. The Scrophulariaceae excludes several members which are now assigned to Calceolariaceae, Orobanchaceae and Plantaginaceae. A handful of genera always remain 'taxa incertae sedis' in all classifications whether the authors explicitly short listed them at the end of the scheme or not. [As the 'unplaced

genus' is the type of a family name, that name is given below for information purpose.] Cronquist (1988) excluded Themidaceae, Boryaceae, Ixioliriaceae, Lanariaceae, Xeronemataceae, Physenaceae, Ixerbaceae, Quillajaceae, Ticodendraceae, Mackinlayaceae, Pennantiaceae Stemonuraceae, Diervillaceae, Mittenniusaceae, and Mitrastemonaceae from his system. Takhtajan (1997) also excluded Setchellanthaceae. In this 'moving staircase', taxa incertae sedis, the APG (2003) has left the members of four families: Apodanthaceae, Balanophoraceae, Cytinaceae and Rafflesiaceae and 13 genera: *Aneulophus, Centroplacus, Cynomorium, Dipentodon, Gumillea, Hoplestigma, Leptaulus, Medusandra, Metteniusa, Mitrastema, Pottingeria, Soyauxia* and *Trichostephanus.*

The APG's syllogism is not a narrative of progress, nor even a narrative of a reduction of historical sciences to computer programs but this modern version sheds light on the interrelationship of plant groups (class, subclass, order, family or genus).

This comparison table is intended as a help in recognizing the similarities and differences among the three major contemporary systems of angiosperm classification. It is hoped that the arrangement of the information in this easily accessible form will help clarify for the student the areas of general agreement as well as the areas of controversy.

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APPENDIX- I

A COMPARISON OF ANGIOSPERM CLASSIFICATION SYSTEMS

APG II 2003	TAKHTAJAN' 97	CRONQUIST' 88
"Basal Families"		
[I] (? Amborellales)	A. MAGNOLIIDAE	1. MAGNOLIIDAE
1 Amborellaceae	– do –, 12 Laurales, 1	– do –, 2 Laurales, 1
[II] (? Chloranthales)	– do –.	—— X ——
2 Chloranthaceae	– do –, 14 Chloranthales, 1	– do –, 3 Piperales, 1
[III] (? Nymphaeales)	B. NYMPHAEIDAE	– do –.
3 Nymphaeaceae em.	– do –, 20 Nymphaeales, 2	– do –, 6 Nymphaeales, 2
4 [+ Cabombaceae]	– do –, 9 Hydropeltidales, 2	– do –, – do –, 4
IV Austrobaileyales	A. MAGNOLIIDAE	– do –.
5 Austrobaileyaceae	– do –, 5 Austrobaileales, 1	– do –, 1 Magnoliales, 5
6 Schisandraceaeem.	– do –, 4 Illeciales, 2	– do –, – do –, 2
7 [+ Illiciaceae]	– do –, – do –, 1	– do –, 5 Illeciales, 1
8 Trimeniaceae	– do –, 12 Laurales, 2	– do –, 2 Laurales, 2
V Ceratophyllales	B. NYMPHAEIDAE	– do –.
9 Ceratophyllaceae	– do –, 21 Ceratophyllales, 1	– do –, 6 Nymphaeales, 5
MAGNOLIIDS	—— X ——	—— X ——
VI Canellales	A. MAGNOLIIDAE	– do –.
10 Canellaceae	– do –, 3 Canellales, 1	– do –, 1 Magnoliales, 10
11 Winteraceae	– do –, 2 Winterales, 1	– do –, – do –, 1
VII Laurales	– do –.	– do –.
12 Atherospermataceae	– in Monimiaceae	– in Monimiaceae
13 Calycanthaceae	– do –, 13 Cyclanthales, 1	– do –, 2 Laurales, 5
14 Gomortegaceae	– do –, 12 Laurales, 4	– do –, – do –, 4
15 Hernandiaceae	– do –, – do –, 5	– do –, – do –, 8
16 Lauraceae	– do –, – do –, 6	– do –, – do –, 7
17 Monimiaceae	– do –, – do –, 3	– do –, – do –, 3
18 Siparunaceae	– in Monimiaceae	– in Monimiaceae
VIII Magnoliales	– do –.	– do –.
19 Annonaceae	– do –, 7 Annonales, 1	– do –, 1 Magnoliales, 8
20 Degeneriaceae	– do –, 1 Magnoliales, 1	– do –, – do –, 2
21 Eupomatiaceae	– do –, 6 Eupomatiales, 1	– do –, – do –, 4
22 Himantandraceae	– do –, 1 Magnoliales, 2	– do –, – do –, 3
23 Magnoliaceae	– do –, – do –, 3	– do –, – do –, 5
24 Myristicaceae	– do –, 8 Myristicales, 1	– do –, – do –, 9
IX Piperales	– do –,	– do –.
25 Aristolochiaceae	– do –, 9 Aristolochiales, 1	– do –, 4 Aristolochiales, 1
26 Hydnoraceae	– do –, 15 Hydnorales, 1	V Rosidae, 10 Rafflesiales, 1
27 Lactoridaceae	– do –, 10 Lactoridales, 1	1 Magnoliidae, 1 Magnoliales, 7

	28 Piperaceae	– do –, 11 Piperales, 3	– do –, 3 Piperales, 3
	29 Saururaceae	– do –, – do –, 1	– do –, – do –, 2
	MONOCOTS	**LILIOPSIDA**	**LILIOPSIDA**
[X]	(? Petrosaviales)	—— X ——	—— X ——
	30 Petrosaviaceae	E Triuriddidae, 51 Petrosaviales 1	I Alismatidae, 4 Triuridales, 1
XI	Acorales	F ARECIDAE	II ARECIDAE
	31 Acoraceae	– do –, 54 Acorales, 1	– do –, 4 Arales, 1
XII	Alismatales	—— X ——	—— X ——
	32 Alismataceae	Alismatidae, 44 Alismatales, 2	Alismatidae, 1 Alismatales, 3
	33 Aponogetonaceae	– do –, 45 Aponogetonales, 1	– do –, 3 Najadales, 1
	34 Araceae	F Aridae 53 Arales, 1	II Arecidae, 4 Arales, 2
	35 Butomaceae	Alismatidae, 41 Butomales, 1	Alismatidae, 1 Alismatales, 1
	36 Cymodoceaceae	– do –, 49 Cymodoceales, 2	– do –, 3 Najadales, 9
	37 Hydrocharitaceae	– do –, 42 Hydrocharitales, 1	– do –, 2 Hydrocharitales, 1
	38 Juncaginaceae	– do –, 46 Juncaginales, 2	– do –, 3 Najadales, 3
	39 Limnocharitaceae	– do –, 44 Alismatales, 1	– do –, 1 Alismatales, 2
	40 Posidoniaceae	– do –, 48 Posidoniales, 1	– do –, 3 Najadales, 8
	41 Potamogetonaceae	– do –, 47 Potamogetonales, 1	– do –, – do –, 4
	42 Rupiaceae	– do –, – do –, 2	– do –, – do –, 5
	43 Scheuchzeriaceae	– do –, 46 Juncaginales, 1	– do –, 3 Najadales, 2
	44 Tofieldiaceae	A Liliidae 1 Melanthiales, 1	– in Liliaceae
	45 Zosteraceae	D Alismatidae, 50 Zosterales, 1	I Alismatidae, 3 Najadales, 10
XIII	Asparagales	A LILIIDAE	V LILIIDAE
	46 Alliaceae em.	– do –, 11 Amaryllidales, 3	– in Liliaceae
	47 [+ Agapanthaceae]	– in Alliaceae	– in Liliaceae
	48 [+ Amaryllidaceae]	– do –, – do –, 7	– in Liliaceae
	49 Asparagaceae em.	– do –, 12 Asparagales, 4	– in Liliaceae
	50 [+ Agavaceae] (incl. Anthericaceae p.p. maj)	– do –, 11 Amaryllidales, 6 & 12 Asparagales, 15Anthericaceae p.p maj.	– do –, 1 Liliales, 9
	51 [+ Aphyllanthaceae]	– do –, 12 Asparagales, 16	– in Liliaceae
	52 [+ Hesperocallidaceae]	– do –, 11 Amaryllidales, 4	– in Liliaceae
	53 [+ Hyacinthaceae]	– do –, – do –, 2	– in Liliaceae
	54 [+ Laxmanniaceae]	– in Anthericaceae	– in Liliaceae
	55 [+ Ruscaceae]	– do –, – do –, 3	– in Liliaceae
	56 [+ Themidaceae]	in Alliaceae	—— X ——
	57 Asteliaceae	– do –, – do –, 12	– in Liliaceae
	58 Blandfordiaceae	– do –, – do –, 7	– in Liliaceae
	59 Boryaceae	– in Anthericaceae	—— X ——
	60 Doryanthaceae	– do –, – do –, 11	– in Agavaceae

61	Hypoxidaceae	– do –, 9 Hypoxidales, 1	– in Liliaceae
62	Iridaceae	– do –, 6 Iridales, 2	– do –, 1 Liliales, 6
63	Ixioliriaceae	– do –, 7 Tecophilaeales, 1	—— X ——
64	Lanariaceae	– do –, – do –, 2	—— X ——
65	Orchidaceae	– do –, 10 Orchidales, 1	– do –, 2 Orchidales, 4
66	Tecophilaeaceae	– do –, 7 Tecophilaeales, 4	– in Liliaceae
67	Xanthorrhoeaceae	– do –, 13 Xanthorrhoeales, 5	– do –, 1 Liliales, 10
68	[+ Asphodelaceae]	– do –, 12 Asparagales, 13	– in Liliaceae
69	[+ Hemerocallidaceae]	– do –, 11 Amaryllidales, 1	– in Liliaceae
70	Xeronemataceae	– in Asphodelaceae (?)	—— X ——
XIV	Dioscoreales	– do –,	– do –
71	Burmanniaceae	– do –, 8 Burmanniales, 1	– do –, 2 Orchidales, 2
72	Dioscoreaceae	– do –, 17 Dioscoreales, 4	– do –, 1 Liliales, 15
73	Nartheciaceae stat. nov.	– do –, 1 Melanthiales, 5	– in Liliaceae
XV	Liliales	– do –,	– do –.
74	Alstroemeriaceae	– do –, 5 Alstroemeriales, 1	– in Liliaceae
75	Campynemataceae	– do –, 2 Colchicales, 4	– in Liliaceae
76	Colchicaceae	– do –, – do –, 6	– in Liliaceae
77	Corsiaceae stat. nov.	– do –, 8 Burmanniales, 3	– do –, 5 Orchidales, 3
78	Liliaceae	– do –, 4 Liliales, 1	– do –, 1 Liliales, 5
79	Luzuriagaceae	– do –, 16 Smilacales, 1	– in Smilacaceae
80	Melanthiaceae	– do –, 1 Melanthiales, 2	– in Liliaceae
81	Philesiaceae	– do –, 16 Smilacales, 2	– in Smilacaceae
82	Rhipogonaceae	– do –, – do –, 3	– in Smilacaceae
83	Smilacaceae	– do –, – do –, 4	– do –, 1 Liliales, 14
XVI	Pandanales	—— X ——	—— X ——
84	Cyclanthaceae	F Aridae, 55 Cyclanthales, 1	II Arecidae, 2 Cyclanthales, 1
85	Pandanaceae	– do –, 56 Pandanales, 1	– do –, 3 Pandanales, 1
86	Stemonaceae	A Liliidae, 15 Stemonales, 1	V. Liliidae, 1 Liliales, 13
87	Triuridaceae	E. Triuridídae, 52 Triuridales, 1	I Alismatidae, 4 Triuridales, 1
88	Velloziaceae	Commelinidae, 20 Velloziales, 1	V Liliidae, 1 Liliales, 7
	COMMELINIDS	—— X ——7	—— X ——
[XVII	(? Dasypogonales)	—— X ——	—— X ——
89	Dasypogonaceae	Liliidae, 13 Xanthorrhoeales, 3	in Xanthorrhoeaceae
XVIII	Arecales	C ARECIDAE	II ARECIDAE
90	Arecaceae	– do –, 40 Arecales, 1	– do –, 1 Arecales, 1
XIX	Commelinales	—— X ——	—— X ——
91	Commelinaceae	B Commelinidae, 28 Commelinales, 1	III Commelinidae, 1 Commelinales, 4

92	Haemodoraceae	¬– do –, 23 Haemodorales, 1	V Liliidae, 1 Liliales, 3
93	Hanguanaceae	A Liliidae, 14 Hanguanales, 1	– do –, – do –, 11
94	Philydraceae	Commelinidae, 21 Philydrales, 1	– do –, – do –, 1
95	Pontederiaceae	¬– do –, 22 Pontederiales, 1	– do –, – do –, 2
XX	Poales	—— X ——	—— X ——
96	Anarthriaceae	¬– do –, 37 Restionales, 3	– in Restionaceae
97	Bromeliaceae	¬– do –, 19 Bromeliales, 1	IV Zingiberidae, 1 Bromeliales, 1
98	Centrolepidaceae	¬– do –, 38 Centrolepidales, 1	Commelinidae, 3 Restionales, 4
99	Cyperaceae	¬– do –, 35 Cyperales, 1	– do –, 5 Cyperales, 1
100	Ecdeiocoleaceae	¬– do –, 37 Restionales, 4	– in Restionaceae
101	Eriocaulaceae	– do –, 32 Eriocaulales, 1	– do –, 2 Eriocaulales, 1
102	Flagellariaceae	¬– do –, 36 Flagellariales, 1	– do –, 3 Restionales, 1
103	Hydatellaceae*	¬– do –, 33 Hydatellales, 1	– do –, 6 Hydatellales, 1
104	Joinvilleaceae	– do –, 37 Restionales, 1	– do –, 3 Restionales, 2
105	Juncaceae	¬– do –, 34 Juncales, 1	– do –, 4 Juncales, 1
106	Mayacaceae	¬– do –, 29 Mayacales, 1	– do –, 1 Commelinales, 3
107	Poaceae	¬– do –, 39 Poales, 1	– do –, 5 Cyperales, 2
108	Rapateaceae	¬– do –, 31 Rapateales, 1	– do –, 1 Commelinales, 1
109	Restionaceae	¬– do –, 37 Restionales, 2	– do –, 3 Restionales, 3
110	Sparganiaceae	F Aridae, 57 Typhales, 1	– do –, 7 Typhales, 1
111	Thurniaceae	Commelinidae, 34 Juncales, 2	– do –, 4 Juncales, 2
112	Typhaceae	F Aridae, 57 Typhales, 2	– do –, 7 Typhales, 2
113	Xyridaceae	Commelinidae, ¬ 30 Xyridales, 1	– do –, 1 Commelinales, 2
XXI	Zingiberales	B COMMELINIDAE	IV ZINGIBERIDAE
114	Cannaceae	¬– do –, 27 Cannales, 1	– do –, 2 Zingiberales, 7
115	Costaceae	¬– do –, 26 Zingiberales, 2	– do –, – do –, 6
116	Heliconiaceae	– do –, 24 Musales, 3	– do –, – do –, 2
117	Lowiaceae	¬– do –, 25 Lowiales, 1	– do –, – do –, 4
118	Marantaceae	¬– do –, 27 Cannales, 2	– do –, – do –, 8
119	Musaceae	¬– do –, 24 Musales, 2	– do –, – do –, 3
120	Strelitziaceae	¬– do –, ¬– do –, 1	– do –, – do –, 1
121	Zingiberaceae	¬– do –, 26 Zingiberales, 1	– do –, – do –, 5
	EUDICOTS	—— X ——	—— X ——
[XXII]	(? Buxales)	—— X ——	—— X ——
122	Buxaceae	Hamamelididae 45 Buxales, 1	Rosidae 12 Euphorbiales, 1
123	[+ Didymelaceae]	¬– do –, 44 Didymelales, 1	Hamamelidae 4 Didymelales, 1
[XXIII]	(? Sabiales)	—— X ——	—— X ——
124	Sabiaceae	¬ H Rosidae, 110 Sabiales, 1	Magnoliidae, 7 Ranunculales, 8
[XXIV]	(? Trochodendrales)	—— X ——	—— X ——

*Thorne (2007, Bot. Rev.) shifted Hydatellaceae to the "Basal Families" near Nymphaeaceae/Ceratophyllaceae.

125 Trochodendraceae	F Hamamelididae	II Hamamelidae,
	36 Trochodendrales,	1 Trochodendrales, 2
126 [+ Tetracentraceae]	¬– do –, ¬– do –, 2	– do –, – do –, 1
XXV Proteales	—— X ——	—— X ——
127 Nelumbonaceae	C Nelumbonidae,	I Magnoliidae,
	22 Nelumbonales, 1	6 Nymphaeales, 1
128 Proteaceae	H Rosidae, 36 Proteales, 1	V Rosidae, 3 Proteales, 2
129 [+ Platanaceae]	F Hamamelididae	II Hamamelidae,
	40 Hamamelidales, 3	2 Hamamelidales, 3
XXVI Ranunculales	—— X ——	—— X ——
130 Barberidaceae	D Ranunuclidae,	I Magnoliidae,
	25 Berberidales, 2	7 Ranunculales, 3
131 Circaeasteraceae	¬– do –, 27 Circaeasterales, 2	– do –, – do –, 2
132 [+ Kingdoniaceae]	¬– do –, ¬– do –, 1	– in Circaeasteraceae
133 Eupteleaceae	F Hamamelididae	II Hamamelidae
	38 Eupteleales, 1	2 Hamamelidales, 2
134 Lardizabalaceae	D Ranunculidae,	I Magnoliidae,
	23 Lardizabalales, 1	7 Ranunculales, 5
135 Menispermaceae	¬– do –, 24 Menispermales, 1	– do –, – do –, 6
136 Papaveraceae em.	¬– do –, 31 Papaverales, 1	– do –, 6 Papaverales, 1
137 [+ Fumariaceae]	¬– do –, ¬– do –, 4	– do –, – do –, 2
138 [+ Pteridophyllaceae]	¬– do –, 34 Papaverales, 2	in Fumariaceae
139 Ranunculaceae	¬– do –, 26 Ranunculales, 1	– do –, 7 Ranunculales, 1
CORE EUDICOTS	—— X ——	—— X ——
[XXVII] (? —— X ——)	—— X ——	—— X ——
140 Aextoxicaceae	Dilleniidae 91 Euphorbiales, 3	Rosidae 11 Celastrales, 9
[XXVIII] (? Berberidopsidales)	¬—— X ——	—— X ——
141 Berberidopsidaceae	¬– do –, 77 Violales, 1	– in Flacourtiaceae
[XXIX] (? Dilleniales)	—— X ——	—— X ——
142 Dilleniaceae	– do –, 53 Dilleniales, 1	Dilleniidae 1 Dilleniales, 1
XXX Gunnerales	—— X ——	—— X ——
143 Gunneraceae e	¬H Rosidae, 100 Gunnerales, 1	V Rosidae 5 Haloragales, 2
144 [+ Myrothamnaceae]	F Hamamelididae	II Hamamelidae,
	39 Myrothamnales, 1	2 Hamamelidales, 5
XXXI Caryophyllales	—— X ——	—— X ——
145 Achatocarpaceae	¬ E Caryophyllidae,	III Caryophyllidae
	32 Caryophyllales, 5	1 Caryophyllales, 2
146 Aizoaceae	¬– do –, ¬– do –, 8	– do –, – do –, 4
147 Amaranthaceae	¬– do –, ¬– do –, 20	– do –, – do –, 8

	148 Ancistrocladaceae	G Dilleniidae, 61 Ancistrocladales, 1	IV Dilleniidae, 6 Violales, 13
	149 Asteropeiaceae	¬– do –, 55 Theales, 3	– in Theaceae
	150 Barbeuiaceae	32 Caryophyllales, 4	E. Caryophyllidae, – in Phytolaccaceae
	151 Basellaceae	¬– do –, ¬– do –, 14	III Caryophyllidae, 1 Caryophyllales, 10
	152 Cactaceae	¬– do –, ¬– do –, 16	– do –, – do –, 6
	153 Caryophyllaceae	¬– do –, ¬– do –, 19	– do –, – do –, 12
	154 Didiereaceae	¬– do –, ¬– do –, 17	– do –, – do –, 5
	155 Dioncophyllaceae	G Dilleniidae,	62 Dioncophyllales, 1
IV	Dilleniidae,	6 Violales, 12	
	156 Droseraceae	¬– do –, 66 Droserales, 1	– do –, 5 Nepenthales, 3
	157 Drosophyllaceae	– in Droseraceae	– in Droseraceae
	158 Frankeniaceae	¬– do –, 81 Tamaricales, 3	– do –, 6 Violales, 11
	159 Gisekiaceae	E Caryophyllidae, 32 Caryophyllales, 2	– in Phytolaccaceae
	160 Halophytaceae	¬– do –, ¬– do –, 15	– in Chenopodiaceae
	161 Molluginaceae	¬– do –, ¬– do –, 18	III Caryophyllidae, 1 Caryophyllales, 11
	162 Nepenthaceae	G Dilleniidae,65 Nepenthales, 1	IV Dilleniidae, 5 Nepenthales, 2
	163 Nyctaginaceae	E Caryophyllidae, 32 Caryophyllales, 7	III Caryophyllidae, 1Caryophyllales, 3
	164 Physenaceae	G Dilleniidae, 57 Physenales, 1	II Hammamelidae "6 Urticales (* ?)"
	165 Phytolaccaceae	E Caryophyllidae, 32Caryophyllales, 1	III Caryophyllidae, 1Caryophyllales, 1
	166 Plumbaginaceae	– do –, 35 Plumbaginales, 1	– do –, 3 Plumbaginales, 1
	167 Polygonaceae	– do –, 34 Polygonales, 1	– do –, 2 Polygonales, 1
	168 Portulacaceae	– do –, 32 Caryophyllales, 12	– do –, 1 Caryophyllales, 9
	169 Rhabdodendraceae	H Rosidae, 112 Rutales, 2	V Rosidae, 1 Rosales, 24
	170 Sarcobataceae	in Chenopodiaceae	in Chenopodiaceae
	171 Simmondsiaceae	F Hamamelididae, , 46 Simmondsiales	1V Rosidae, 12 Euphorbiales, 2
	172 Stegnospermataceae	E Caryophyllidae, 32 Caryophyllales,11	– in Phytolaccaceae
	173 Tamaricaceae	G Dilleniidae, 81 Tamaricales, 2	IV Dilleniidae 6 Violales, 10
XXXII	Santalales	H ROSIDAE	V ROSIDAE
	174 Olacaceae	– do –, 133 Santalales, 1	– do –, 9 Santalales, 3
	175 Opiliaceae	– do –, – do –, 2	– do –, – do –, 4
	176 Loranthaceae	– do –, – do –, 7	– do –, – do –, 7

177 Misodendraceae	– do –, – do –, 6	– do –, – do –, 6
178 Santalaceae	– do –, – do –, 5	– do –, – do –, 5
? "PRO ROSIDS"	—— X ——	—— X ——
XXXIII Saxifragales	—— X ——	—— X ——
179 Altingiaceae	F Hamamelididae, 40Hamamelidales, 2	– in Hamamelidaceae
180 Aphanopetalaceae	- in Cunoniaceae	– in Cunoniaceae
181 Cercidiphyllaceae	– do –, 37 Cercidiphyllales, 1	II Hamamelidae, 2 Hamamelidales, 1
182 Crassulaceae	H Rosidae, 94 Saxifragales, 3	V Rosidae, 1 Rosales, 16
183 Daphniphyllaceae	F Hamamelididae, 42 Daphniphyllales, 1	II Hamamelidae, 3Daphniphyllales, 1
184 Grossularlaceae	H Rosidae, 94 Saxifragales, 5	V Rosidae, 1 Rosales, 11
185 Haloragaceae em.	– do –, 98 Haloragales, 1	– do –, 5 Haloragales, 1
186 [+ Penthoraceae]	– do –, 94 Saxifragales, 2	– in Saxifragaceae
187 [+ Tetracarpaeaceae]	– do –, – do –, 1	– in Grossulariaceae
188 Hamamelidaceae	F Hamamelididae, 40 Hamamelidales, 1	II Hamamelidae 2 Hamamelidales, 4
189 Iteaceae	H Rosidae, 94 Saxifragales, 7	– in Grossulariaceae
190 [+ Pterostemonaceae]	– do –, – do –, 6	– in Grossulariaceae
191 Paeoniaceae	D Ranunculidae, 30 Paeoniales, 1	IV Dilleniidae, 1 Dilleniales, 2
192 Saxifragaceae	H Rosidae, 94 Saxifragales, 4	V Rosidae 1 Rosales, 18
ROSIDS	—— X ——	—— X ——
[XXXIV] (? —— X ——)	—— X ——	—— X ——
193 Aphloiaceae	G Dilleniidae, 77 Violales, 2	– in Flacourtiaceae
[XXXV] (? Geissolomatales)	—— X ——	—— X ——
194 Geissolomataceae	– do –, 71 Geissolomatales, 1	V Rosidae, 11 Celastrales, 1
[XXXVI] (? Ixerbales)	—— X ——	—— X ——
195 Ixerbaceae	H Rosidae, 125 Brexiales, 1	—— X ——
[XXXVII] (? Picramniales)	—— X ——	—— X ——
196 Picramniaceae	– in Simaroubaceae	– in Simaroubaceae
[XXXVIII] (?—— X ——)	—— X ——	—— X ——
197 Strasburgeriaceae	G Dilleniidae, 59 Ochnales, 1	– in Ochnaceae
[XXXIX] (? Vitales)	H ROSIDAE	V. ROSIDAE
198 Vitaceae	– do –, 137 Vitales, 1	– do –, 13 Rhamnales, 3
XL Crossosomatales	– do –	—— X ——
199 Crossosomataceae	– do –, 102 Crossosomatales, 1	– do –, 1 Rosales, 21
200 Stachyuraceae	G Dilleniidae, 55 Theales, 1	IV Dilleniidae, 6 Violales, 8

201 Staphyleaceae	H Rosidae, 108 Sapindales, 1	V Rosidae, 16 Sapindales, 1
XLI Geraniales	– do –.	– do –.
202 Geraniaceae	– do –, 118 Geraniales, 3	– do –, 17 Geraniales, 2
203 [+ Hypseocharitaceae]	– do –, – do –, 1	– in Oxalidaceae
204 Ledocarpaceae	– do –, – do –, 4	– in Geraniaceae
205 Melianthaceae	– do –, 112 Rutales, 10	– do –, 16 Sapindales, 13
206 [+ Francoaceae]	– do –, 97 Francoales, 1	– in Saxifragaceae
207 Vivianiaceae	– do –, 118 Geraniales, 2	– in Geraniaceae
XLII Myrtales	– do –.	– do –.
208 Alzateaceae	– do –, 106 Myrtales, 1	– do –, 6 Myrtales, 4
209 Combretaceae	– do –, – do –, 5	– do –, 6 Myrtales, 14
210 Crypteroniaceae	– do –, – do –, 6	– do –, – do –, 6
211 Heteropyxidaceae	– do –, – do –, 16	– in Myrtaceae
212 Lythraceae	– do –, – do –, 9	– do –, – do –, 2
213 Melastomataceae	– do –, – do –, 8	– do –, – do –, 13
214 [+ Memecylaceae]	– do –, – do –, 7	– in Melastomataceae
215 Myrtaceae	– do –, – do –, 17	– do –, – do –, 9
216 Oliniaceae	– do –, – do –, 4	– do –, – do –, 12
217 Onagraceae	– do –, – do –, 13	– do –, – do –, 11
218 Penaeaceae	– do –, – do –, 3	– do –, – do –, 5
219 Psiloxylaceae	– do –, – do –, 15	– in Myrtaceae
220 Rhynchocalycaceae	– do –, – do –, 2	– do –, – do –, 3
221 Vochysiaceae	– do –, 122 Vochysiales, 3	– do –, 15 Polygalales, 2
EUROSIDS I	—— X ——	—— X ——
[XLIII] (? Zygophyllales)	H ROSIDAE	V ROSIDAE
222 Zygophyllaceae ;	– do –, 121 Zygophyllales, 1	– do –, 16 Sapindales, 15
223 [+ Krameriaceae]	– do –, 122 Vochysiales, 5	– do –, 15 Polygalales, 7
[XLIV] (?—— X ——)	—— X ——	—— X ——
224 Huaceae	G Dilleniidae, 89 Malvales, 7	IV Dilleniidae 6 Violales, 5
XLV Celastrales	H. ROSIDAE	V. ROSIDAE
225 Celastraceae	– do –, 127 Celastrales, 2	– do –, 11 Celastrales, 2
226 Lepidobotryaceae	– do –, 118 Geraniales, 4	– in Oxalidaceae
227 Parnassiaceae em	– do –, 126 Parnassiales, 1	– in Saxifragaceae
228 [+ Lepuropetalaceae]	– do –, – do –, 2	– in Saxifragaceae
XLVI Cucurbitales	—— X ——	—— X ——
229 Anisophylleaceae	– do –, 104 Anisophylleales, 1	IV Dilleniidae, 6 Violales, 13
230 Begoniaceae	G Dilleniidae, 83 Begoniales, 3	– do –, – do –, 23
231 Coriariaceae	H Rosidae, 114 Coriariales, 1	I Magnoliidae, 7 Ranunculales, 7
232 Corynocarpaceae	– do –, 124 Corynocarpales, 1	V Rosidae, 11 Celastrales, 11

233 Cucurbitaceae	G Dilleniidae, 82 Cucurbitales, 1	IV Dilleniidae, 6 Violales, 21
234 Datiscaceae	– do –, 83 Begoniales, 1	– do –, – do –, 22
235 Tetramelaceae	– do –, – do –, 2	– in Grossulariaceae
XLVII Fabales	H. ROSIDAE	V ROSIDAE
236 Fabaceae	– do –, 107 Fabales, 1	– do –, 2 Fabales, 1 – 3
237 Polygalaceae	– do –, 123 Polygalales, 1	– do –, 15 Polygalales, 5
238 Quillajaceae	– in Rosaceae	—— X ——
239 Surianaceae	– do –, 112 Rutales, 5	– do –, 1 Rosales, 23
XLVIII Fagales	F. HAMAMELIDIDAE	II HAMAMELIDAE
240 Betulaceae	– do –, 48 Corylales, 1	– do –, 10 Fagales, 4
241 Casuarinaceae	– do –, 49 Casuarinales, 1	– do –, 11 Casuarinales, 1
242 Fagaceae	– do –, 47 Fagales, 1	– do –, 10 Fagales, 2
243 Juglandaceae	– do –, 57 Juglandales, 1	– do –, 8 Juglandales, 2
244 [+ Rhoipteleaceae]	– do –, 51 Rhoipteleales, 1	– do –, – do –, 1
245 Myricaceae	– do –, 50 Myricales, 1	– do –, 9 Myricales, 1
246 Nothofagaceae	– do –, 47 Fagales, 2	– do –, 10 Fagales, 3
247 Ticodendraceae	– do –, 48 Corylales, 3	– do –, —— X ——
XLIX Malpighiales	.—— X ——	—— X ——
248 Achariaceae	G Dilleniidae, 78 Passiflorales, 4	IV Dilleniidae, 6 Violales, 17
249 Balanopaceae	F Hamamelididae,43 Balanopales, 1	II Hamamelidae, 10 Fagales, 1
250 Bonnetiaceae	G Dilleniidae, 56 Hypericales, 1	– in Theaceae
251 Caryocaraceae	– do –, 55 Theales, 8	–do –, 2 Theales, 5
252 Chrysobalanaceae	– do –, 103 Chrysobalanales, 1	V Rosidae, 1 Rosales, 22
253 [+ Dichapetalaceae]	– do –, 91 Euphorbiales, 2	– do –, 11 Celastrales, 12
254 [+ Euphroniaceae]	– in Vochysiaceae	– in Vochysiaceae
255 [+ Trigoniaceae]	H Rosidae, 122 Vochysiales, 2	V Rosidae, 15 Polygalales, 3
256 Clusiaceae	G Dilleniidae, 56 Hypricales, 2	IV Dilleniidae, 2 Theales, 18
257 Ctenolophonaceae	H Rosidae, 116 Linales, 3	– in Hugoniaceae
258 Elatinaceae	G Dilleniidae, 60 Elatinales, 1	– do –, – do –, 15
259 Euphorbiaceae .	– do –, 91 Euphorbiales, 1	V Rosidae, 12 Euphorbiales 4
260 Goupiaceae	H. Rosidae, 127 Celastrales, 1	– in Celastraceae
261 Humiriaceae	– do –, 116 Linales, 5	– do –, 14 Linales, 2
262 Hypericaceae	G Dilleniidae, 56 Hypericales 3	– in Clusiaceae
263 Irvingiaceae	H Rosidae, 112 Rutales, 6	– in Simaroubaceae
264 Ixonanthaceae	– do –, 116 Linales, 4	– do –, – do –, 3
265 Lacistemataceae	G Dilleniidae, 77 Violales, 5	IV Dilleniidae, 6 Violales, 6
266 Linaceae	H Rosidae 116 Linales, 2	V Rosidae, 14 Linales, 5
267 Lophopyxidaceae	– do –, 127 Celastrales, 3	– in Celastraceae
268 Malpighiaceae	– do –, 122 Vochysiales, 1	– do –, 15 Polygalales, 1
269 Ochnaceae	G Dilleniidae 59 Ochnales, 2	IV Dilleniidae, 2 Theales, 1

	270 [+ Medusagynaceae]	– do –, 58 Medusagynales, 1	– do –, – do –, 17
	271 [+ Quiinaceae]	– do –, 59 Ochnales, 5	– do –, – do –, 14
	272 Pandaceae	– do –, 91 Euphorbiales, 2	V Rosidae, 12 Euphorbiales, 3
	273 Passifloraceae	– do –, 78 Passiflorales, 1	IV Dilleniidae, 6 Violales, 16
	274 [+ Malesherbiaceae]	– do –, – do –, 3	– do –, – do –, 15
	275 [+ Turneraceae]	– do –, – do –, 2	– do –, – do –, 14
	276 Peridiscaceae	– do –, 77 Violales, 6	– do –, – do –, 2
	277 Phyllanthaceae	– in Euphorbiaceae	– in Euphorbiaceae
	278 Picrodendraceae	– in Euphorbiaceae	– in Euphorbiaceae
	279 Podostemaceae	H Rosidae, 99 Podostemales, 1	V Rosidae, 4 Podostemales, 1
	280 Putranjivaceae	– in Euphorbiaceae	– in Euphorbiaceae
	281 Rhizophoraceae em.	– do –, 105 Rhizophorales, 1	V Rosidae, 7 Rhizophorales, 1
	282 [+ Erythroxylaceae]	– do –, 116 Linales, 6	V Rosidae, 14 Linales, 1
	283 Salicaceae		
	(incl. Flacourtiaceae p.p.)	G Dilleniidae, 80 Salicales, 1	IV Dilleniidae, 7 Salicales, 1
	284 Violaceae	– do –, 77 Violales, 7	– do –, 6 Violales, 9
L	**Oxalidales**	—— X ——	—— X ——
	285 Brunelliaceae	H Rosidae, 93 Cunoniales, 4	V Rosidae, 1 Rosales, 1
	286 Cephalotaceae	– do –, 95 Cephalotales, 1	– do –, – do –, 17
	287 Connaraceae	– do –, 111 Connarales, 1	– do –, – do –, 2
	288 Cunoniaceae	– do –, 93 Cunoniales, 1	– do –, 1 Rosales, 4
	289 Elaeocarpaceae	G Dilleniidae, 88 Elaeocarpales, 1	IV Dilleniidae, 3 Malvales, 1
	290 Oxalidaceae	– do –, 117 Oxalidales, 1	V Rosidae, 17 Geraniales, 1
LI	**Rosales**	—— X ——	—— X ——
	291 Barbeyaceae	F Hamamelididae, 41 Barbeyales, 1	II Hamamelidae, 6 Urticales, 1
	292 Cannabaceae	G Dilleniidae, 90 Urticales, 3	– do –, – do –, 3
	293 Dirachmaceae	– do –, 89 Malvales, 2	– in Geraniaceae
	294 Elaeagnaceae	H Rosidae, 135 Elaeagnales, 1	V Rosidae, 3 Proteales, 1
	295 Moraceae	G Dilleniidae, 90 Urticales, 2	II Hamamelidae, 6 Urticales, 4
	296 Rhamnaceae	H Rosidae, 134 Rhamnales, 1	V Rosidae, 13 Rhamnales, 1
	297 Rosaceae	– do –, 101 Rosales, 1	– do –, 1 Rosales, 19
	298 Ulmaceae	G Dilleniidae, 90 Urticales, 1	III Hamamelidae, 6 Urticales, 2
	299 Urticaceae	– do –, – do –, 5	– do –, – do –, 6
	EUROSIDS II	—— X ——	—— X ——
[LII]	(? —— X ——)	—— X ——	—— X ——
	300 Tapisciaceae	H Rosidae, 108 Sapindales, 2	in Staphyleaceae
LIII	Brassicales	—— X ——	—— X ——
	301 Akaniaceae	– do –, – do –, 8	V Rosidae, 16 Sapindales, 4
	302 [+ Bretschneideraceae]	– do –, – do –, 7	– do –, – do –, 3

	303 Bataceae	G Dilleniidae, 86 Batales, 1	IV Dilleniidae, 9 Batales, 2
	304 Brassicaceae	– do –, 84 Capparales, 4	– do –, 8 Capparales, 3
	305 Caricaceae	– do –, 79 Caricales, 1	– do –, 6 Violales, 18
	306 Emblingiaceae	H Rosidae, 123 Polygalales, 3	– in Polygalaceae
	307 Gyrostemonaceae	E Caryophyllidae, 33 Gyrostemonales, 1	– do –, 9 Batales, 1
	308 Koeberliniaceae	G Dilleniidae, 84 Capparales, 3	– in Capparaceae
	309 Limnanthaceae	K Lamiidae, 168 Limnanthales, 1	V Rosidae, 17 Geraniales, 3
	310 Moringaceae	G Dilleniidae, 85 Moringales, 1	IV Dilleniidae, 8 Capparales, 4
	311 Pentadiplandraceae	– do –, 84 Capparales, 2	– in Capparaceae
	312 Resedaceae	– do –, 84 Capparales, 6	– do –, -do–, 5
	313 Salvadoraceae	H Rosidae, 128 Salvadorales, 1	V Rosidae, 11 Celastrales, 5
	314 Setchellanthaceae	—— X ——	—— X ——
	315 Tovariaceae	G Dilleniidae, 84 Capparales, 5	IV Dilleniidae, 8 Capparales, 1
	316 Tropaeolaceae	H Rosidae, 109 Tropaeolales, 1	V Rosidae, 17 Geraniales, 4
LIV	Malvales	—— X ——	—— X ——
	317 Bixaceae	G Dilleniidae, 87 Cistales, 1	IV Dilleniidae, 6 Violales, 4
	318 [+ Diegodendraceae]	– do –, 89 Malvales, 9	– in Ochnaceae
	319 [+ Cochlospermaceae]	– do –, 87 Cistales, 2	– in Bixaceae
	320 Cistaceae	– do –, – do –,3	– do –, – do –, 4
	321 Dipterocarpaceae	– do –, 89 Malvales, 4	– do –, 2 Theales, 4
	322 Malvaceae	– do –, – do –, 12	– do –, 3 Malvales, 5
	323 Muntingiaceae	– in Tiliaceae	– in Flacourtiaceae
	324 Neuradaceae	H Rosidae, 1 Rosales, 2	V Rosidae, 1 Rosales, 20
	325 Sarcolaenaceae	G Dilleniidae, 89 Malvales, 5	IV Dilleniidae 2, Theales, 3
	326 Sphaerosepalaceae	– do –, – do –,10	– do –, – do –, 2
	327 Thymelaeaceae	– do –, 92 Thymelaeales, 2	V Rosidae, 6 Myrtales, 7
LV	Sapindales	H ROSIDAE,	V ROSIDAE
	328 Anacardiaceae	– do –, 115 Burserales, 2	– do –, 16 Sapindales, 9
	329 Biebersteiniaceae	– do –, 119 Biebersteiniales, 1	– in Geraniaceae
	330 Burseraceae	– do –, 115 Burserales, 1	– do –, – do –, 8
	331 Kirkiaceae	– do –, 112 Rutales, 7	– in Simaroubaceae
	332 Meliaceae	– do –, – do –, 10	– do –, – do –, 13
	333 Nitrariaceae em.	– do –, 121 Zygophyllales, 4	– in Zygophyllaceae
	334 [+ Peganaceae]	– do –, – do –, 2	– in Zygophyllaceae
	335 [+ Tetradiclidaceae]	– do –, – do –, 5	– in Zygophyllaceae
	336 Rutaceae	– do –, 112 Rutales, 1	– do –, – do –, 14
	337 Sapindaceae	– do –, 108 Sapindales, 4	– do –, – do –, 5
	338 Simaroubaceae	– do –, 112 Rutales, 4	– do –, - do - , 11
	ASETRIDS	—— X ——	—— X ——
LVI	Cornales	—— X ——	—— X ——

339 Cornaceae	I Cornidae, 141 Cornales, 5	– do –, 8 Cornales, 2
340 [+ Nyssaceae]	– do –, – do –, 2	– in Cornaceae
341 Curtisiaceae	– do –, – do –, 4	– in Cornaceae
342 Grubbiaceae	G Dilleniidae, 70 Bruniales, 2	IV Dilleniidae, 10 Ericales, 3
343 Hydrangeaceae	– do –, 138 Hydrangeales, 2	V Rosidae, 1 Rosales, 9
344 Hydrostachyaceae	K Lamiidae,	VI Asteridae,
	174 Hydrostachyales, 1	4 Callitrichales, 3
345 Loasaceae	J Asteridae, 169 Loasales, 1	IV Dilleniidae, 6 Violales, 24
LVII Ericales cont. nove	—— X ——	—— X ——
346 Actinidiaceae	G Dilleniidae, 67 Actinidiales, 1	– do –, 2 Theales, 7
347 Balsaminaceae	H Rosidae, 120 Balsaminales, 1	V Rosidae, 17Geraniales, 5
348 Clethraceae	G Dilleniidae, 68 Ericales, 1	IV Dilleniidae, 10 Ericales, 2
349 Cyrillaceae	– do –, – do –,2	– do –, – do –, 1
350 Diapensiaceae	– do –, 69 Diapensiales, 1	– do –, 11 Diapensiales, 1
351 Ebenaceae em.	– do –, 73 Styracales, 3	– do –, 12 Ebenales, 2
352 Ericaceae	– do –, 68 Ericales, 3	– do –, 10 Ericales, 6
353 Fouquieriaceae	– do –, 72 Fouquieriales, 1	– do –, 6 Violales, 19
354 Lecythidaceae	– do –, 63 Lecythidales, 2	– do –, 4 Lecithidales, 1
355 Maesaceae	– in Myrsinaceae	– in Myrsinaceae
356 Marcgraviaceae	– do –, 55 Theales, 7	– do –, 12 Theales, 13
357 Myrsinaceae em.	– do –, 75 Myrsinales, 1	– do –, 13 Primulales, 2
358 Pentaphylacaceae em.	– do –, 55 Theales, 4	– do –, 12 Theales, 9
359 [+ Ternstroemiaceae]	– in Theaceae	– in Theaceae
360 [+ Sladeniaceae]	– in Theaceae	– in Theaceae
361 Polemoniaceae	K Lamiidae, 166 Polemoniales, 1	VI Asteridae, 2 Solanales, 8
362 Primulaceae em.	G Dilleniidae, 76 Primulales, 1	IV Dilleniidae, 13 Primulales, 3
363 Roridulaceae	I Cornidae, 140 Roridulales, 1	– in Byblidaceae
364 Sapotaceae	G Dilleniidae, 74 Sapotales, 1	– do –, 12 Ebenales, 1
365 Sarraceniaceae	– do –, 64 Sarraceniales, 1	– do –, 5 Nepenthales, 1
366 Styracaceae	– do –, 73 Styracales, 1	– do –, 12 Ebenales, 3
367 Symplocaceae	– do –, – do –,2	– do –, – do –, 5
368 Tetrameristaceae em.	– do –, 55 Theales, 5	– do –, 2 Theales, 10
369 [+ Pellicieraceae]	– do –, – do –, 9	– do –, – do –, 11
370 Theaceae	– do –, – do –,2	– do –, – do –, 1
371 Theophrastaceae em.	– do –, 75 Myrsinales, 2	– do –, 13 Primulales, 1
EUASTERIDS I	—— X ——	—— X ——
[LVIII] (? Boraginales)	—— X ——	—— X ——
372 Boraginaceae	J Asteridae,167Boraginales,2	VI Asteridae, 3 Lamiales, 2
(incl. Hydrophyllaceae)	(&1Hydrophyllaceae p.p.)	(& 2 Solanales, 8 Hydrophyllaceae p.p.)
[LIX] (? Icacinales)	—— X ——	—— X ——

373 Icacinaceae	H Rosidae, 29 Icacinales, 3	V Rosidae 11 Celastrales, 8
[LX] (? Oneothecales)	—— X ——	—— X ——
374 Oncothecaceae	G Dilleniidae, 55 Theales, 6	IV Dillenidae 2 Theales, 12
[LXI] (? Vahliales)	—— X ——	—— X ——
375 Vahliaceae	H Rosidae, 94 Saxifragales, 9	– in Saxifragaceae
LXII Garryales	I CORNIDAE	II HAMAMELIDAE
376 Eucommiaceae	– do –, 145 Eucommiales, 1	– do –, 5 Eucommiales, 1
377 Garryaceae em	– do –, 142 Garryales, 1	V Rosidae, 8 Cornales, 3
378 [+ Aucubaceae]	– do –, 143 Aucubales, 1	– in Cornaceae
LXIII Gentianales	K LAMIIDAE	VI ASTERIDAE
379 Apocynaceae	– do –, 163 Apocynales, 1	– do –, 1 Gentianales, 4
380 Gelsemiaceae	– do –, 161 Gentianales, 1	– in Loganiaceae
381 Gentianaceae	– do –, – do –, 6	– do –, – do –, 2
382 Loganiaceae	– do –, – do –, 2	– do –, – do –, 1
383 Rubiaceae	– do –, 162 Rubiales, 2	– do –, 8 Rubiales, 1
LXIV Lamiales	—— X ——	—— X ——
384 Acanthaceae em.	– do –, 171 Scrophulariales, 14	– do –, – do –, 8
385 Bignoniaceae	– do –, – do –, 9	– do –, – do –, 10
386 Byblidaceae	Cornidae, 151 Byblidales, 1	V Rosidae 1 Rosales, 8
387 Calceolariaceae	– in Scrophulariaceae	– in Scrophulariaceae
388 Carlemanniaceae	K Lamiidae, 162 Rubiales, 4	– in Caprifoliaceae
389 Gesneriaceae	– do –, 171 Scrophulariales, 7	VI Asteridae, 6 Scrophulariales, 7
390 Lamiaceae	- do –,172 Lamiales,7[&1 Verbenaceae p.p]	–do –, 3 Lamiales, 4 [& 3 Verbenaceae p.p]
391 Lentibulariaceae	– do –, 171 Scrophulariales, 15	– do –, 6 Scrophulariales, 12
392 Martyniaceae	– do –, – do –, 11	– in Pedaliaceae
393 Oleaceae	– do –, 170 Oleales, 1	– do –, – do –, 2
394 Orobanchaceae	– in Scrophulariaceae	– do –, – do –, 6
395 Paulowniaceae	– in Scrophulariaceae	– in Bignoniaceae
396 Pedaliaceae	– do –, 171 Scrophulariales, 10	– do –, 6 Scrophulariales, 9
397 Phrymaceae	– do –, 172 Lamiales, 2	– in Verbenaceae
398 Plantaginaceae	– do –, 171 Scrophulariales, 8 [& 4 Scrophulariaceae p.p. maj]	– do –, 5 Plantaginales, 1 [&6Scrophulariales3Scrophulariaceae p.p. maj]
399 Plocospermataceae	– do –, 161 Gentianales, 9	– in Apocynaceae
400 Schlegeliaceae	– in Scrophulariaceae	– in Bignoniaceae
401 Scrophulariaceae em.	– do –, – do –, 4 p.p.	– do –, 6 Scrophulariales, 3 p.p.
402 Stilbaceae	– do –, – do –, 3	– in Verbenaceae
403 Tetrachondraceae	– do –, 167 Boraginales, 3	– in Lamiaceae
404 Verbenaceae em	– do –, 172 Lamiales, 1	– do –, 3 Lamiales, 3

LXV Solanales	– do –.	– do –.
405 Convolvulaceae	– do –, 165 Convolvulales, 1	– do –, 2 Solanales, 4
406 Hydroleaceae	– in Hydrophyllaceae	—— X ——
407 Montiniaceae	I Cornidae, 138 Hydrangeales, 12	– in Grosulariaceae
408 Solanaceae	J Asteridae, 164 Solanales, 1	– do –, – do –, 3
409 Sphenocleaceae	– do –, 155 Campanulales, 2	– in Aquifoliaceae
EUASTERIDS II	—— X ——	—— X ——
[LXVI] (? Bruniales)	—— X ——	—— X ——
410 Bruniaceae	– do –, 156 Goodeniales, 1	V Rosidae, 1 Rosales, 13
[LXVII] (? Columelliales)	—— X ——	—— X ——
411 Columelliaceae	I Cornidae, 138 Hydrangeales, 14	– do –, – do –, 10
412 [+ Desfontainiaceae]	– do –, 139 Desfontainiales, 1	– in Loganiaceae
[LXVIII] (? —— X ——)	—— X ——	—— X ——
413 Eremosynaceae	H Rosidae, 94 Saxifragales, 8	– in Saxifragaceae
[LXIX] (? Escalloniales)	—— X ——	—— X ——
414 Escalloniaceae	I Cornidae, 138 Hydrangeales, 1	in Grossulariaceae
[LXX] (? Paracryphiales)	—— X ——	—— X ——
415 Paracryphiaceae	G Dilleniidae, 54 Paracryphiales, 1	IV Dilleniidae 2 Theales, 16
[LXXI] (? —— X ——)	—— X ——	—— X ——
416 Polyosmaceae	– in Escalloniaceae	– in Grossulariaceae
[LXXII] (? Sphenostemonales)	—— X ——	—— X ——
417 Sphenostemonaceae	H Rosidae, 129 Icacinales, 4	- in Aquifoliaceae
[LXXIII] (? Tribelales)	—— X ——	—— X ——
418 Tribelaceae	– do –, 138 Hydrangeales, 10	in Grossulariaceae
LXXIV Apiales	I CORNIDAE	V ROSIDAE,
419 Apiaceae	– do –, 149 Araliales, 3	– do –, 18 Apiales, 2
420 Araliaceae	– do –, – do –, 1	– do –, – do –, 1
421 Aralidiaceae	– do –, 146 Aralidiales, 1	– in Cornaceae
422 Griseliniaceae	– do –, 144 Griseliniales, 1	– in Cornaceae
423 Mackinayaceae	– in Araliaceae	—— X ——
424 Melanophyllaceae	– do –, 138 Hydrangeales, 11	in Cornaceae
425 Myodocarpaceae	– in Araliaceae	in Araliaceae
426 Pennantiaceae	– in Icacinaceae	—— X ——
427 Pittosporaceae	– do –, 150 Pittosporales, 1	– do –, 1 Rosales, 7
428 Toricelliaceae	– do –, 147 Toricelliales, 1	in Cornaceae
LXXV Aquifoliales	—— X ——	– do –.
429 Aquifoliaceae	H Rosidae, 129 Icacinales, 1	– do –, 11 Celastrales, 7
430 Cardiopteridaceae	– do –, 131 Cardiopteridales, 1	– do –, – do –, 10

431 Helwingiaceae	I Cornidae, 148 Helwingiales, 1	– in Cornaceae
432 Phyllonomaceae	– do –, 138 Hydrangeales, 8	in Grossulariaceae
433 Stemonuraceae	in Icacinaceae	—— X ——
LXXVI Asterales cont. nove	—— X ——	—— X ——
434 Alseuosmiaceae	– do –, – do –,6	– do –, 1 Rosales, 15
435 Argophyllaceae	– do –, – do –, 4	– in Grossulariaceae
436 Asteraceae	J Asteridae, 160 Asterales, 1	VI Asteridae, 11 Asterales, 1
437 Calyceraceae	– do –, 159 Calycerales, 1	– do –, 10 Calycerales, 1
438 Campanulaceae em.	– do –, 155 Campanulales, 3	– do –, 7 Campanulales, 3
439 [+ Lobeliaceae]	– do –, – do –,7	– in Campanulaceae
440 Goodeniaceae	– do –, 156 Goodeniales, 2	– do –, – do –, 7
441 Menyanthaceae	– do –, 158 Menyanthales, 1	– do –, 2 Solanales, 7
442 Pentaphragmataceae	– do –, 155 Campanulales, 1	– do –, 7 Campanulales, 1
443 Phellinaceae	H Rosidae, 129 Icacinales, 2	– in Aquifoliaceae
444 Rousseaceae	– do –, 125 Brexiales, 3	– in Grossulariaceae
445 Stylidiaceae	J Asteridae, 157 Stylidiales, 2	– do –, – do –, 4
446 [+ Donatiaceae]	– do –, – do –, 1	– do –, 7 Campanulales, 5
LXXVII Dipsacales	I CORNIDAE	– do –.
447 Adoxaceae	– do –, 153 Adoxales, 2	– do –, 9 Dipsacales, 2
448 Caprifoliaceae	– do –, 154 Dipsacales, 1	– do –, -do –, 1
449 [+ Diervillaceae]	– in Caprifoliaceae	—— X ——
450 [+ Dipsacaceae]	– do –, 154 Dipsacales, 4	– do –, – do –, 4
451 [+ Linnaeaceae]	– in Caprifoliaceae	– in Caprifoliaceae
452 [+ Morinaceae]	– do –, – do –, 5	– in Dipsacaceae
453 [+ Valerianaceae]	– do –, – do –, 2	– do –, – do –, 3
TAXA INCERTAE SEDIS		
[XXXIIb] (? Medusandrales)	H ROSIDAE	V ROSIDAE,
173 b (Medusandraceae) Medusandra	– do –, 132 Medusandrales, 1	– do –, 9 Santalales, 1
[XXXVIIb] (? —— X ——)	—— X ——	—— X ——
? 196 b Gumillea	—— X ——	—— X ——
[XLIXb] (? —— X ——)	—— X ——	—— X ——
272 b Centroplacus	– in Pandaceae	—— X ——
273b Soyauxia	– in Passifloraceae	– in Flacourtiaceae
282 b Aneulophus	– in Erythroxylaceae	– in Erythroxylaceae
283 b Trichostephanus	in Flacourtiaceae / in Salicaceae	– in Flacourtiaceae
284 b (Dipentodontaceae) Dipentodon	G Dilleniidae, 77 Violales, 8	– do –, 9 Santalales, 2
[372 b] (Hoplestignataceae) Hoplestigma	K Lamiidae, 167 Boraginales,4	IV Dilleniidae, 6 Violales, 20

373 b Leptaulus	—— X ——		—— X ——
[373 c] (Metteniusaceae)			
Metteniusa	H Rosidae, 130 Metteniusales,1		—— X ——
[432 b] (Pottingeriaceae)	I Conidae, 138 Hydrangeales, 9		– in Hydrangeaceae
Pottingeria			
[LXXVIII] (? Rafflesiales)	A MAGNOLIIDAE		V ROSIDAE
454 Apodanthaceae	– do –, 16 Rafflesiales, 1		– in Rafflesiaceae
454 b (Mitrastemonaceae)	– do –,	– do –, 2	—— X ——
Mitrastema			
455 Rafflesiaceae	– do –,	– do –, 3	– do –, 10 Rafflesiales, 3
[456 Cytinaceae]	– do –,	– do –, 4	– in Rafflesiaceae
Cytinus	-in Cytinaceae		–in Rafflesiaceae
Bdallophyton	-in Cytinaceae		–in Rafflesiaceae
[LXXIX] (?Balanophorales)	– do –,		—— X ——
457 Balanophoraceae	– do –,18 Balanophorales,8		– do –,9 Santalales,10
[LXXIXb](?Cynomoriales)	– do –		—— X ——
457b (Cynomoriaceae)	– do –, 17 Cynomoriales, 1		- in Balanophoraceae
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APPENDIX- II

Index to family names. All accepted names are in romantype and the rest in italic type.

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Alstroemeriaceae	74	Biebersteiniaceae	329
Altingiaceae	179	Bignoniaceae	385
Alzateaceae	208	Bixaceae	317
Amaranthaceae	147	Blandfordiaceae	58
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Halophytaceae	160	Leguminosae = Fabaceae	236
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एजियोस्पर्म फाइलोजेनी ग्रुप क्लासीफिकेशन (ए.पी.जी. 2003) की तख्ताजान (1197) क्रांक्विस्ट (1998) से तुलना

पी.के. भट्टाचार्य[1] एवं कौस्तव भट्टाचार्य[2]

[1]वनस्पति विभाग, बर्दवान विश्वविद्यालय, बर्दवान - 713104

[2]गोवर्नमेंट ऑफ एजूकेशन कॉलेज, बनीपुर

सार संक्षेप

इस आलेख में पुष्पीय पौधों का ए.पी.जी.-II (2003) तख्ताजान (1997) एवं क्रांक्विस्ट (1998) वर्गीकरण पद्धति का तुलनात्मक अध्ययन प्रस्तुत किया गया है। ए.पी.जी. (2003) द्वारा फाइलोजेनेटिक वर्गीकरण के एक नये मॉडल का सुत्रपात किया गया है। मोनोकॉटस को मैग्नोलिड एवं युडाइकॉट के बीच रखा गया है। ए.पी.जी. में 65 कुलों की पुन: व्याख्या की गयी है। 23 कुलों के समूह में परिवर्तन किया गया है एवं 23 कुल निकाल दिये गये हैं। 19 कुल दोबारा स्थापित किए गए हैं। इबेनेसी एवं इरीकेसी को क्लेड एस्टेरीड्स (सिम्पेटली) में पुरानी धारणा के अनुसार रखा गया है।