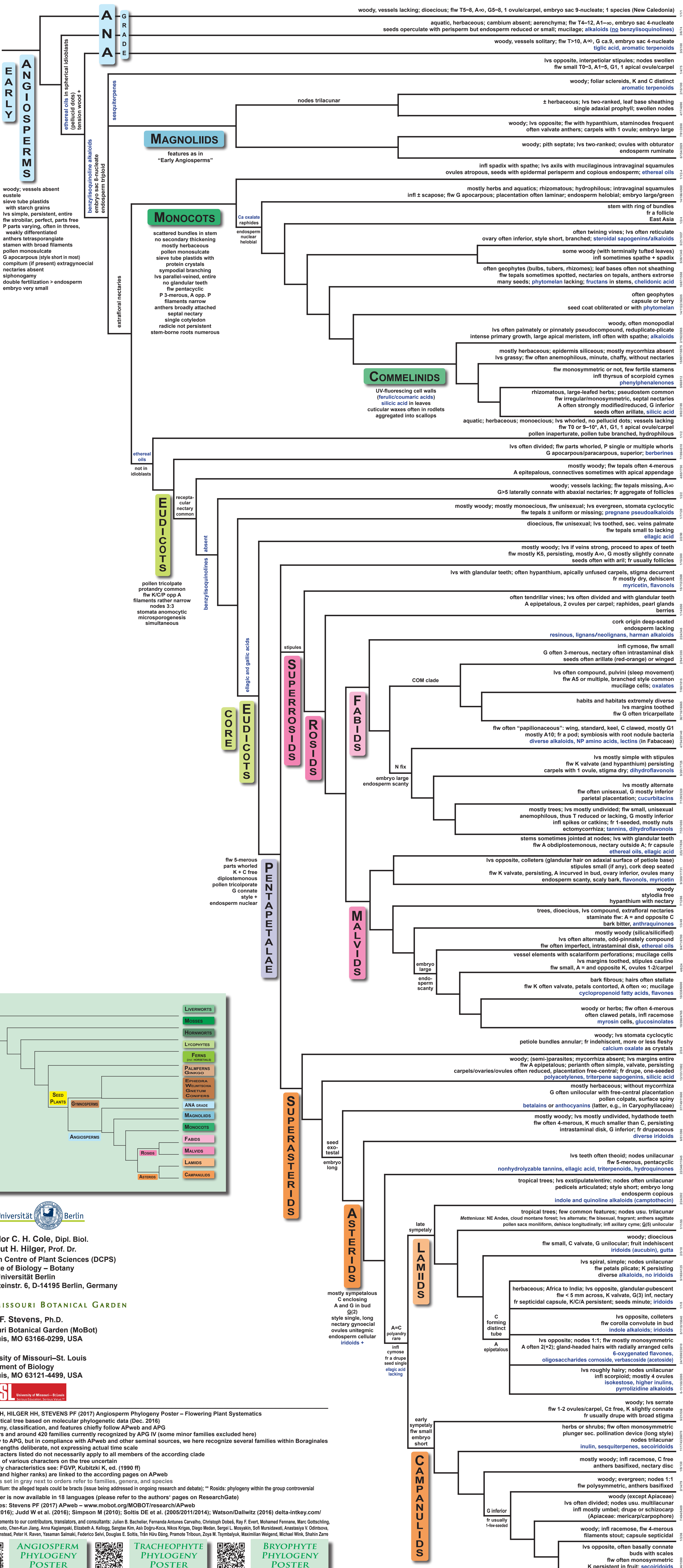


ANGIOSPERM PHYLOGENY

Flowering Plant Systematics



AMBORELLALES	Amborellaceae		
NYMPHAEALES	Cabombaceae	Hydatellaceae	Nymphaeaceae
AUSTROBAILEYALES	Austrobaileyaceae	Schisandraceae (incl. Illiciaceae)	Trimeniaceae
CHLORANTHALES	Chloranthaceae		
CANELLALES	Canellaceae	Winteraceae	
PIPERALES	Aristolochiaceae (incl. Hydnoraceae)	Piperaceae	Saururaceae
LAURALES	Calycanthaceae	Hernandiaceae	Monimiaceae
	Gomortegaceae	Lauraceae	Siparunaceae
MAGNOLIALES	Annonaceae	Eupomatiaceae	Magnoliaceae
	Degeneriaceae	Himantandraceae	Myristicaceae
ACORALES	Acrocaraceae		
ALISMATALES	Alismataceae	Butomaceae	Posidoniaceae
	Aponogonaceae	Hydrocharitaceae	Potamogetonaceae
	Araceae	Juncaginaceae	Ruppeliaceae
PETROSAVIALES	Petrosaviaceae		
DIOSCOREALES	Burmanniaceae	Dioscoreaceae	Nartheciaceae
			Taccaceae
PANDANALES	Cyclanthaceae	Pandanaceae	Triuridaceae
			Velloziaceae
LILIALES	Alstroemeriaceae	Corsiaceae	Melanthiaceae
	Colchicaceae	Liliaceae	Petermanniaceae
			Philesiaceae
			Smilacaceae
ASPARAGALES	Amariyllidaceae (incl. Agapanthaceae, Alliaceae)		Hypoxidaceae
	Asparagaceae (incl. Agavaceae, Hyacinthaceae, Ruscaceae)		Lanariaceae
	Tecophilaeaceae	Asphodelaceae (incl. Xanthorrhoeaceae, Hemerocallidaceae)	Orchidaceae
ARECALES	Arecaceae	Dasygongonaceae	
POALES	Bromeliaceae	Eriocaulaceae	Poaceae
	Cyperaceae	Juncaceae	Rapateaceae
			Typhaceae (incl. Sparganiaceae)
COMMELINALES	Commelinaceae	Haemodoraceae	Pontederiaceae
		Phyllodraceae	
ZINGIBERALES	Cannaceae	Heliconiaceae	Marantaceae
	Costaceae	Lowiaceae	Musaceae
			Strelitziaceae
			Zingiberaceae
CERATOPHYLLALES	Ceratophyllaceae		
RANUNCULALES	Berberidaceae	Eupteleaceae	Menispermaceae
	Circaeasteraceae	Lardizabalaceae	Papaveraceae
			Ranunculaceae
PROTEALES	Nelumbonaceae	Platanaceae	Proteaceae
			Sabiaceae
TROCHODENDRALES	Trochodendraceae		
BUXALES	Buxaceae (incl. Haptanthaceae)		
GUNNERALES	Gunneraceae	Myrothamnaceae	
DILLENIALES	Dilleniaceae		
SAXIFRAGALES	Aitingiaceae	Cynomoriaceae	Haloragaceae
	Cercidiphyllaceae	Daphniphyllaceae	Hamamelidaceae
	Crassulaceae	Grossulariaceae	Iteaceae
			Peridiscaceae
			Paoniaceae
			Saxifragaceae
VITALES	Vitaceae		
ZYGOPHYLLALES	Krameriaceae	Zygophyllaceae	
CELASTRALES	Celastraceae (incl. Hippocrateaceae, Brexiaceae, Parmassiaceae)		Lepidobotryaceae
OXALIDALES	Brunelliaceae	Connaraceae	Elaeocarpaceae
	Cephalotaceae	Cunoniaceae	Huaceae
			Oxalidaceae
MALPIGHIALES	Achariaceae	Euphorbiaceae	Rafflesiaceae
	Chrysobalanaceae	Hypericaceae	Ochnaceae
	Clusiaceae	Linaceae	Passifloraceae
	Erythroxylaceae	Malpighiaceae	Phyllanthaceae
			Picrodendraceae
			Salicaceae
			Violaceae
FABALES	Fabaceae	Polygalaceae	Quillajaceae
			Surianaceae
ROSALES	Barbeyaceae	Elaeagnaceae	Rosaceae
	Cannabaceae	Moraceae	Ulmaceae
	Dirachmaceae	Rhamnaceae	Urticaceae (incl. Cecropiaceae)
CUCURBITALES	Apodanthaceae	Begoniaceae	Corynocarpaceae
	Anisophyllaceae	Coriariaceae	Cucurbitaceae
			Tetradaceae
			Tetradaceae
FAGALES	Betulaceae	Fagaceae	Myricaceae
	Casuarinaceae	Juglandaceae	Nothofagaceae
			Ticodendraceae
GERANIALES	Geraniaceae	Francoaceae (incl. Ledocarpaceae, Melianthaceae, Vivianiaceae)	
MYRTALES	Combretaceae	Myrtaceae	Penaeaceae (incl. Oliniaceae)
		Lythraceae (incl. Punicaceae, Sonneratiaceae, Trapaceae)	
	Melastomataceae (incl. Memecylaceae)	Onagraceae	Vochysiaceae
CROSSOSOMATALES	Crossosomataceae	Stachyuraceae	
	Geissolomataceae	Staphyleaceae	Strasburgeriaceae
PICRAMNIALES	Picramniaceae		
SAPINDALES	Anacardiaceae	Burseraceae	Kirkiaceae
	Biebersteiniaceae	Meliaceae	Rutaceae
			Sapindaceae
			Simaroubaceae
HUERTEALES	Dipentodontaceae	Gerrardinaceae	Petenaeaceae
			Tapisciaceae
MALVALES	Bixaceae	Malvaceae (incl. Bombacaceae, Sterculiaceae, Tiliaceae)	
	Cistaceae	Cytinaceae	Muntingiaceae
	Dipterocarpaceae	Neuradaceae	Sphaerosepalaceae
			Thymelaeaceae
BRASSICALES	Bataceae	Caricaceae	Limnathaceae
	Brassicaceae	Cleomaceae	Moringaceae
	Capparaceae	Koerberliniaceae	Resedaceae
			Salvadoraceae
			Tovariaceae
			Tropaeolaceae
BERBERIDOPSISDALES	Aextoxicaceae	Berberidopsidaceae	
SANTALES	Balanophoraceae	Misodendraceae	Opiliaceae
	Loranthaceae	Olaaceae	Santalaceae
			Schoepfiaceae
			Viscaceae
CARYOPHYLLALES	Aizoaceae	Caryophyllaceae	Molluginaceae
	Amaranthaceae	Didiereaceae	Nepenthaceae
	(incl. Chenopodiaceae)	Droseraceae	Nyctaginaceae
	Basellaceae	Drosophilaceae	Phytolaccaceae
	Cactaceae	Frankeniaceae	Plumbaginaceae
			Tamaricaceae
CORNALES	Cornaceae	Grubiaceae	Loasaceae
	Curtisiaceae	Hydrangeaceae	Hydrostachyaceae
			Nyssaceae
ERICALES	Actinidiaceae	Ericaceae	Polemoniaceae
	Balsaminaceae	Fouquieriaceae	Primulaceae
	Clethraceae	Lecythidaceae	Roridulaceae
	Ebenaceae	Myrsinaceae	Sapotaceae
			Theophrastaceae
ICACINALE	Oncothecaceae	Icacinaceae	
METTENUSIALES	Metteniusaceae		
GARRIALES	Eucommiaceae	Garryaceae (incl. Aucubaceae)	
SOLANALES	Convolvulaceae (incl. Cuscutaceae)		Solanaceae (incl. Nolanaceae)
	Hydroleaceae		Montiniaceae
			Sphenocleaceae
VAHLIALES	Vahliaaceae		
GENTIANALES	Apocynaceae (incl. Asclepiadaceae)		Loganiaceae
	Gentianaceae	Gelsemiaceae	Rubiaceae
LAMIALES	Acanthaceae	Lamiaceae	Orobanchaceae
	Byblidaceae	Martyniaceae	Paulowniaceae
	Gesneriaceae	Oleaceae	Phrymaceae
			Verbenaceae
BORAGINALES	Boraginaceae	Codonaceae	Coldeniaceae
	Heliotropiaceae	Hydrophyllaceae	Namaceae
			Wellstediaceae
AQUIFOLIALES	Aquifoliaceae	Cardiopteridaceae	Stemonaceae
ASTERALES	Asteraceae	Goodeniaceae	Pentaphragmataceae
	Calyceraceae	Menyanthaceae	Rousseaceae
	Campanulaceae (incl. Lobeliaceae)		Stylidiaceae
ESCALLONIALES	Escalloniaceae		
BRUNIALES	Bruniaceae	Columelliaceae (incl. Desfontainia)	
APIALES	Apiaceae	Griselinaceae	Pennantiaceae
	Araliaceae	Myodocarpaceae	Pittosporaceae
PARACRYPHIALES	Paracryphiaceae		
DIPSACALES	Caprifoliaceae		Adoxaceae
	(incl. Dipsacaceae, Diervillaceae, Linnaeaceae, Morinaceae, Valerianaceae)		

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COLE TCH, HILGER HH, STEVENS PF (2017) Angiosperm Phylogeny Poster – Flowering Plant Systematics
• hypothetical tree based on molecular phylogenetic data (Dec. 2016)
• phylogeny, classification, and features chiefly follow APWeb and APG
• 64 orders and around 420 families currently recognized by APG IV (some minor families excluded here)
• contrary to APG, but in compliance with APWeb and other seminal sources, we here recognize several families within Boraginales
• branch lengths deliberate, not expressing actual time scale
• the characters listed do not necessarily apply to all members of the according clade
• position of various characters on the tree uncertain
• for family characteristics see: FGVP, Kubitzki K, ed. (1990 ff)
• orders (and higher ranks) are linked to the according pages on APWeb
• numbers set in gray next to orders refer to families, genera, and species
• *Ceratophyllum*: the alleged tepals could be bracts (issue being addressed in ongoing research and debate); ** Rosids: phylogeny within the group controversial
This poster is now available in 18 languages (please refer to the authors' pages on ResearchGate)
References: Stevens PF (2017) APWeb – www.mobot.org/MOBOT/research/APWeb
APG IV (2016); Judd W et al. (2016); Soltis DE et al. (2005/2011/2014); Watson/Dallwitz (2016) delta-intkey.com/
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