

JOCELYN C. HALL, KENNETH J. SYTSMA, AND HUGH H. ILTIS. 2002. Phylogeny of Capparaceae and Brassicaceae based on chloroplast sequence data. *American Journal of Botany* 89(11): 1826-1842.

Appendix 1. Taxon accession data. Capparaceae arranged according to classification system of Pax and Hoffman (1936). Hutchinson's (1967) tribal affiliations of Capparaceae (equivalent to Capparoidae) are indicated: CAP = Capparideae, CAD = Cadabeae, and APO = Apophylleae. GenBank^a numbers in bold indicate new sequences. (AZ) University of Arizona; (GA) = University of Georgia; (GH) = Grey Herbaria; (MO) = Missouri Botanical Gardens; (OKL) = University of Oklahoma; (WIS) = Wisconsin State Herbarium; (WS) = Washington State University Herbarium.

Taxon	Hutchinson's tribes	<i>ndhF</i>	<i>trnL-trnF</i>	Voucher/Publication
CAPPARACEAE				
Subfamily Capparoidae				
Tribe Capparidae				
<i>Apophyllum anomalum</i> F.Muell.	APO	GBAN-AY122356	GBAN-AY122409	Covery 12044 (MO)
<i>Atamisquea emarginata</i> Miers	CAP	GBAN-AY122357	GBAN-AY122410	Solomon 10473 (WIS)
<i>Belencita nemorosa</i> Jacq.	CAP	GBAN-AY122358	GBAN-AY122411	Iltis 30559 (WIS)
<i>Boscia madagascariensis</i> (DC.) Hadj Moust.	CAD	GBAN-AY122359	GBAN-AY122412	Phillipson 3768 (WIS)
<i>Buchholzia coriacea</i> Engler	CAD	GBAN-AY122360	GBAN-AY122413	Merlpo 1656 (MO)
<i>Cadaba kirkii</i> Oliv.	CAP	GBAN-AY122361	GBAN-AY122414	Lovett & Kayombo 4706 (MO)
<i>Cadaba virgata</i> Boj.	CAP	GBAN-AY122362	GBAN-AY122415	Lewis et al. 534 (MO)
<i>Capparis amplissima</i> Lam.	CAP	GBAN-AY122363	GBAN-AY122416	Iltis 31313 (WIS)
<i>Capparis calophylla</i> Blume	CAP	GBAN-AY122364	GBAN-AY122417	Hahn 6198 (WIS)
<i>Capparis flexuosa</i> L.	CAP	GBAN-AY122365	GBAN-AY122418	Iltis 30319 (WIS)
<i>Capparis frondosa</i> Jacq.	CAP	n/a	GBAN-AY122419	Iltis 30751 (WIS)
<i>Capparis hastata</i> Jacq.	CAP	GBAN-AY122366	GBAN-AY122420	Iltis 30330 (WIS)
<i>Capparis odoratissima</i> Jacq.	CAP	GBAN-AY122367	GBAN-AY122421	Iltis 30576 (WIS)
<i>Capparis spinosa</i> L.	CAP	n/a	GBAN-AY122422	Rodman 533 (WIS)
<i>Capparis</i> sp.	CAP	n/a	GBAN-AY122423	Hahn 6201 (WIS)
<i>Capparis tenuisiliqua</i> Jacq.	CAP	GBAN-AY122368	GBAN-AY122424	Iltis 30561 (WIS)
<i>Capparis tomentosa</i> Lam.	CAP	n/a	GBAN-AY122425	Gereau 6113 (MO)
<i>Capparis verrucosa</i> Jacq.	CAP	GBAN-AY122369	GBAN-AY122426	Iltis 30524 (WIS)
<i>Crateva palmeri</i> Rose	CAP	GBAN-AY122370	GBAN-AY122427	Hall 105 (WIS)
<i>Crateva religiosa</i> Forster f.	CAP	GBAN-AY122371	GBAN-AY122428	Hahn 6175 (WIS)
<i>Crateva tapia</i> L.	CAP	GBAN-AY122372	GBAN-AY122429	Iltis 30514 (WIS)
<i>Euadenia eminens</i> Hook. f.	CAP	GBAN-AY122373	n/a	Hart 1575 (MO)
<i>Morisonia americana</i> L.	CAP	GBAN-AY122374	GBAN-AY122430	Iltis 30538 (WIS)
<i>Ritchiea capparoides</i> (Andr.) Britten	CAP	GBAN-AY122375	GBAN-AY122431	Hall 210 (WIS)
<i>Steriphoma paradoxa</i> Endl.	CAP	GBAN-AY122376	GBAN-AY122432	Iltis 30536 (WIS)
Tribe Maerueae				

<i>Maerua angolensis</i> DC.	CAP	GBAN-AY122377	GBAN-AY122433	Madsen 6603 (WI)
<i>Maerua kirkii</i> (Oliv.) F. White	CAP	GBAN-AY122378	GBAN-AY122434	Hall 261 (WIS)
<i>Thylachium africanum</i> Lour.	CAD	GBAN-AY122379	GBAN-AY122435	Hall 251 (WIS)
<i>Thylachium pouponii</i> Aubr. & Pellegr.	CAD	GBAN-AY122380	GBAN-AY122436	Phillipson et al. 3705 (WIS)
Tribe Stixaeae				
<i>Forchhammeria pallida</i> Liebman.	APO	GBAN-AY122381	GBAN-AY122437	Iltis 29350a (WIS)
Subfamily Cleomoideae				
<i>Cleome aculeata</i> L.		GBAN-AY122382	GBAN-AY122438	Iltis 30563a (WIS)
<i>Cleome domingensis</i> Iltis		GBAN-AY122383	GBAN-AY122439	DNA 2/17/89 [85-01-4]
<i>Cleome monophylla</i> L.		GBAN-AY122384	GBAN-AY122440	Gereau 3951 (MO)
<i>Cleome pilosa</i> Benth.		GBAN-AY122385	n/a	Iltis 30585 (WIS)
<i>Cleome viridiflora</i> Schreb.		GBAN-AY122386	GBAN-AY122441	Solomon s.n. (MO)
<i>Cleomella longipes</i> Torr.		GBAN-AY122387	GBAN-AY122442	Vanderpool 1334 (OKL)
<i>Dactylaena pauciflora</i> Griseb.		n/a	GBAN-AY122443	Solomon & Nee 18108 (MO)
<i>Gynandropsis gynandra</i> (L.) Briq (= <i>Cleome gynandra</i> L.)		GBAN-AY122388	GBAN-AY122444	Hall 238 (WIS)
<i>Isomeris arborea</i> Nutt.		GBAN-AY122389	GBAN-AY122445	Fishbein 4146 (WS)
<i>Oxystylis lutea</i> Torr. & Frem.		GBAN-AY122390	GBAN-AY122446	Vanderpool 1228 (OKL)
<i>Polanisia dodecandra</i> DC.		AF064650	GBAN-AY122447	Galloway, Malmberg, and Price, 1998; Grette 8603 (WIS)
<i>Wislizenia refracta</i> Engelm.		GBAN-AY122391	GBAN-AY122448	Vanderpool 1340 (OKL)
Subfamily Dipterygioideae				
<i>Dipterygium glaucum</i> Decne.		GBAN-AY122392	GBAN-AY122449	Bajum 97275 (MO)
Subfamily Podandrogynoideae				
<i>Podandrogyne chiriquensis</i> (Standl.) Woodson		GBAN-AY122393	GBAN-AY122450	Nepokroeff 450 (WIS)
BRASSICACEAE				
<i>Aethionema grandiflora</i> L.		AF064657	n/a	Galloway, Malmberg, and Price, 1998
<i>Aethionema saxatile</i> R. Br.		n/a	GBAN-AY122451	Moore s.n. (WIS)
<i>Arabidopsis thaliana</i> (L.) Heynh.		GBAN-AY122394	GBAN-AY122452	"columbia" ecotype; Hall s.n. (WIS)
<i>Barbarea vulgaris</i> R.Br.		GBAN-AY122395	GBAN-AY122453	Moore 9 (WIS)
<i>Capsella bursa-pastoris</i> (L.) Medicus		GBAN-AY122396	GBAN-AY122454	Moore 4 (WIS)
<i>Iberis amara</i> L.		GBAN-AY122397	GBAN-AY122455	R. Price C19 (GA)
<i>Iberis oppositifolia</i> Pers. (= <i>Aethionema oppositifolium</i> (Pers.) Hedge)		GBAN-AY122398	GBAN-AY122456	Cochrane 6Apr00 (WIS)
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek (= <i>Nasturtium officinale</i> R.Br.)		GBAN-AY122399	GBAN-AY122457	Stahmann 233 (WIS)
<i>Sisymbrium altissimum</i> L.		GBAN-AY122400	GBAN-AY122458	Leach et al. 1939 (WIS)
<i>Stanleya pinnata</i> (Pursh) Britton		GBAN-AY122401	GBAN-AY122459	Hall 1 (AZ)

<i>Thellungiella salsuginea</i> O.E. Schulz	GBAN-AY122402	GBAN-AY122460	R. Price s.n (GA).
<i>Thlaspi arvense</i> L.	n/a	GBAN-AY122461	R. Price C2 (GA)
BATACEAE			
<i>Batis maritima</i> L.	GBAN-AY122403	n/a	H. Iltis 30500 (WIS)
GYROSTEMONACEAE			
<i>Tersonia cyathiflora</i> (Fenzl) A.S. George	GBAN-AY122404	GBAN-AY122462	Cranfield (PERTH no.02068682)
MORINGACEAE			
<i>Moringa oleifera</i> Lam.	GBAN-AY122405	n/a	Iltis 30501 (WIS)
PENTADIPLANDRACEAE			
<i>Pentadiplandra brazzeana</i> Baill.	n/a	GBAN-AY122463	Hall 268 (WIS)
RESEDACEAE			
<i>Reseda lutea</i> L.	GBAN-AY122406	GBAN-AY122464	Rodman 535 (WIS)
TOVARIACEAE			
<i>Tovaria pendula</i> Ruiz. & Pav.	GBAN-AY122407	GBAN-AY122465	Smith and Smith 1834 (WIS)
TROPAEOLACEAE			
<i>Tropaeolum majus</i> L.	GBAN-AY122408	n/a	Rodman 529 (WIS)

^aThe prefix GBAN- has been added to GenBank accession to link the online version of *American Journal of Botany* with GenBank but is not part of the actual accession number.

Appendix 2. Insertion/deletion (indel) events in aligned *trnL-F* and *ndhF* sequences. The base pair (bp) position of start of indel on aligned data set, its size and type, and taxa exhibiting indel are indicated for each indel. Indels are scored relative to outgroups. Asterisks indicate convergent indels. See Figs. 2 and 3 for placements of indels.

	Indel	bp	Size	Taxa
1.	<i>ndhF</i>	371	3-	<i>Forchhammeria, Reseda</i>
2a.*	<i>ndhF</i>	532	6-	<i>Capparis amplissima, C. flexuosa, C. hastata, C. verrucosa</i>
2b.*	<i>ndhF</i>	532	9-	<i>Maerua, Thylachium, Moringa, Tropaeolum</i>
3.	<i>ndhF</i>	646	6+	Capparoideae
4.	<i>ndhF</i>	661	6-	<i>Oxystylis, Wislizenia</i>
5.*	<i>trnL-F</i>	88	5+	<i>Forchhammeria, Reseda</i>
6.*	<i>trnL-F</i>	88	5+	<i>Cleomella, Isomeris, Oxystylis, Wislizenia, Boscia</i> (slightly different nucleotide sequence)
7.*	<i>trnL-F</i>	194	9+	<i>Thlaspi, Forchhammeria, Tersonia</i>
8.	<i>trnL-F</i>	206	307-	<i>Iberis, Sisymbrium, Stanleya, Thellungiella, Thlaspi</i>
9.*	<i>trnL-F</i>	283	13-	<i>Maerua, Ritchiea, Thylachium, Aethionema, Arabidopsis, Barbarea, Capsella, Rorippa, Forchhammeria, Pentadiplandra, Tersonia</i>
10.	<i>trnL-F</i>	369	6+	Cleomoideae
11.	<i>trnL-F</i>	539	9-	<i>Maerua, Thylachium</i>
12.*	<i>trnL-F</i>	549	9-	<i>Forchhammeria, Reseda</i>
13.	<i>trnL-F</i>	800	161-	<i>Arabidopsis, Capsella</i>
14.	<i>trnL-F</i>	913	6-	<i>Forchhammeria, Reseda, Tersonia</i>
15.*	<i>trnL-F</i>	927	5+	<i>Cleomella, Isomeris, Oxystylis, Wislizenia, Tovaria</i>
16.	<i>trnL-F</i>	1027	5+	<i>Boscia, Maerua, Ritchiea, Thylachium</i>
17.	<i>trnL-F</i>	1011	105-	<i>Sisymbrium, Stanleya</i>
18.	<i>trnL-F</i>	1058	4+	<i>Arabidopsis, Barbarea, Capsella, Rorippa</i>
19.	<i>trnL-F</i>	1142	5-	<i>Boscia, Maerua, Ritchiea, Thylachium</i>
20.*	<i>trnL-F</i>	1239	15+	<i>Arabidopsis, Capsella, Rorippa</i>