



FLORA DES IRANISCHEN HOCHLANDES
UND DER UMRAHMENDEN GEBIRGE

PERSIEN, AFGHANISTAN, TEILE VON WEST-PAKISTAN,
NORD-IRAQ, AZERBAIDJAN, TURKMENISTAN

von

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AKADEMISCHE DRUCK- u. VERLAGSANSTALT
GRAZ-AUSTRIA

Cont. Nr.	Engler & Diels	Wettstein	De Candolle Boissier	Bentham & Hooker	Hutchinson 2.ed.	Cont. Nr.	Engler & Diels	Wettstein	De Candolle Boissier	Bentham & Hooker	Hutchinson 2.ed.		
49	Hypericaceae	95	55	19	27	54	124	Polygalaceae	77	80	12	21	41
25	Ilicineae	82	86	70	38	58	56	Polygonaceae	43	21	94	95	108
144/I	Illecebraceae	50	29	13	23	109		Pontederiaceae	24a	133a	-	116a	155a
112	Iridaceae	29	135	126	113	163	117	Portulacaceae	49	28	14	24	107
121	Juglandaceae	32	13	109	107	28	83	Potamogetonaceae	14	131	117	125a	150
75	Juncaceae	25	136	133	118	168	9	Primulaceae	118	96	66	69	120
82	Juncaginaceae	14a	130	117a	125b	148	22	Punicaceae	105	65	42	53	57
150	Labiatae	131	112	87	89	144	93	Pyrolaceae	115	98	64	67a	50
150	Lamiaceae	131	112	87	89	144	136	Rafflesiaceae	41	36	101	96	98
141	Lauraceae	56	37	98	98	11		Ranunculaceae	53	39	1	11	91
140/I	Leguminosae	68	59	38	45	13-5	149	Resedaceae	61	47	9	18	102
119	Lemnaceae	23	144	119	123	159	125	Rhamnaceae	90	90	36	40	65
58	Lentibulariaceae	136	107	65	84	137		Rhizophoraceae	106	63	41	51	56
151/I	Liliaceae	26	133	128	116	155	66/I, 152/II	Rosaceae	67	58	39	46	12
106	Linaceae	71	72	23	31	47		Rubiaceae	140	120	58	62	85
45	Loganiaceae	123	115	75	77	79	84	Ruppiaceae	14	131	117	125a	151
116	Loranthaceae	39	19	100	101	61		Ruscaceae	26	133	129	116	157
51	Lythraceae	104	62	43	53	114	36	Rutaceae	73	76	28	34	70
120	Malvaceae	93	69	20	28	46	65	Salicaceae	31	14	113	109	24
133	Meliaceae	76	79	31	37	73	37	Salvadoraceae	84	88	72	74	59
137	Menispermaceae	55	38	2	12	95	155	Santalaceae	38	18	99	102	62
41	Menyanthaceae	124	116	76	78	119	38	Sapindaceae	88	82	30	42	74
	Mimosaceae	68a	59a	38a	45a	14		Sapotaceae	120	101	68	71	69
114	Molluginaceae	48	27	50	57	105	42	Saxifragaceae	64	57	52	47	124
94	Monotropaceae	115	98	64	67a	52	82	Scheuchzeriaceae	-	130	117a	125b	148
153	Moraceae	36	15	107	105a	31	147/I	Scrophulariaceae	133	106	82	82	134
135	Morinaceae	143	123	60	64	129		Selaginaceae	137	108	85	87	-
109	Moringaceae	62	48	37	44	37		Simar(o)ubaceae	74	77	29	35	71
130	Myrsinaceae	117	97	67	70	67		Smila(ca)ceae	26	133	130	116	156
32	Myrtaceae	107	64	40	52	55	100	Solanaceae	132	105	81	81	132
86	Najadaceae	15	132	118	125	153	59	Sparganiaceae	13	146	123	121a	160
115	Nyctaginaceae	46	26	95	91	35	88	Sphenocleaceae	145	125	62a	66	130
33	Nymphaeaceae	51	41	4	14	93	87	Staphyleaceae	85	89	30c	42c	78
7	Oenotheraceae	108	66	44	54	115	156	Sterculiaceae	94	71	21	29	45
52	Oleaceae	122	119	71	73	81	4	Tamaricaceae	98	50	16	25	39
7	Onagraceae	108	66	44	54	115	39	Theligonaceae	111	25	91	105c	113
126	Orchidaceae	30	141	125	112	167	63	Therebinthaceae	81	81	46	43	75
5	Orobanchaceae	135	108	83	83	136	95	Thymelaeaceae	102	60	96	99	34
40	Oxalidaceae	69	73	24	33a	139	148	Tiliaceae	92	70	22	30	44
60	Paeoniaceae	53	39	1	11	89	127	Trapaceae	108a	66a	44a	54	115a
146	Palmae	21	142	121	119	165	71	Typhaceae	11	147	124	121	161
34	Papaveraceae	57	43	5	15	99	142	Ulmaceae	35	16	108	105b	29
140/I	Papilionaceae	68c	59c	38c	45c	15		Umbelliferae	113	94	54	58	127
20	Parnassiaceae	64	57	52	47	126	105	Urticaceae	37	17	106	105	32
128	Pedaliaceae	134	109	77	85	86	11	Vacciniaceae	116	99	63	67	53
73	Periplocaceae	126	118	74	76	83	23	Vahliaceae	64	57	52	47	125
19	Philadelphaceae	64	57	52	47	16	62	Valerianaceae	142	122	59	63	128
35	Phytolaccaceae	47	24	90	94	110	43	Verbenaceae	130	111	86	88	88
15	Plantaginaceae	139	114	89	90	122		Violaceae	100	53	11	20	40
21	Platanaceae	66	34	110	106	22	74	Vitaceae	91	91	32	41	66
108	Plumbaginaceae	119	95	88	68	121	85	Zannichelliaceae	14	131	117	125a	152
70	Poaceae	19	140	135	127	170	81	Zosteraceae	14	131	117	125a	149
101	Podophyllaceae	54	40	3	13	93	98	Zygophyllaceae	72	75	27	32	48

Moraceae

auctore K. BROWICZ, Kórnik

Moraceae LINK, Handb. 2: 444 (1831) „*Moriformes*“.

Lit.: E. BOISSIER, *Flora Orientalis* 5: 1153–1156 (1879) in *Urticaceis*. J. D. HOOKER, *Flora of British India* 5: 477–494 (1888) in *Urticaceis*. A. ENGLER in A. ENGLER & K. A. E. PRANTL, *Die Natürlichen Pflanzenfamilien* 3, 1: 66–98 (1894). C. K. SCHNEIDER, *Illustriertes Handbuch der Laubholzkunde* 1: 234–245 (1904). A. JARMOLENKO in *Flora URSS*. 5: 376–384 (1936). G. H. M. LAWRENCE, *Taxonomy of vascular plants* 462–464 (1958). A. TAKHTAJAN, *Systema et Phylogenia Magnoliphytorum* 127–128 (1966). M. G. POPOV in *Flora Tadjikskoi SSR*. 3: 164–176 (1968). J. HUTCHINSON, *The Genera of Flowering Plants* 2: 151–178 (1967). F. C. BHOPAL & M. N. CHAUDHRI, *Flora of Phothohar and the Adjoining Areas in Pakistan Systematics* 1, 2: 27–40 (1977). C. C. TOWNSEND in *Flora of Iraq* 4: 79–93 (1980).

Arbores et frutices, mono- vel dioici, lactice lacteo. Folia alterna, interdum ± opposita, decidua vel sempervirentia, simplicia, integra vel interdum ± serrata vel lobata; nervi pinnati vel palmati. Stipulae 2, laterales vel supra gemmam pileum formantes, saepe caducae. Flores minutissimi, valde reducti, actinomorphi, unisexuales, capitati vel pseudospicati vel in facie interiore receptaculi concavi dispositi. Perianthii segmenta 4, libera vel connata, reducta vel deficientia. Flores masculi staminibus 4 (vel ad 1–2 reductis), perianthii segmentis oppositis; filamenta distincta. Flores feminei ovario superiore vel inferiore, plerumque uniloculare; styli plerumque 2, filiformes. Fructus parvus, achaenium vel drupula. Infructescentia syncarpa vel syconium. Semina plerumque endospermio praedita.

- 1a. Rami spinis axillaribus praedita. 2. *Maclura* NUTT.
- b. Rami inermes 2
- 2a. Flores in receptaculo concavo dispositi. Stipulae connatae gemmam terminalem includentia, cicatricem annulatam formantes 4. *Ficus* L.
- b. Flores spicati vel capitati. Stipulae liberae, cicatricem non formantes 3
- 3a. Syncarpium ovoideum vel cylindricum, succosum. Gemmae squamis 3–6 1. *Morus* L.
- b. Syncarpium globosum, non succosum. Gemmae squamis 2–3 3. *Broussonetia* L'HÉRIT. ex VENT.

1. *Morus*

Morus L., *Spec. Plant.* 986 (1753).

Lit.: G. KOIDZUMI, *Synopsis specierum generis Mori*, *Bulletin of the Imperial Central Agricultural Experiment Station Japan* 2: 1–45 (1923). T. HOTTA, *Taxonomical studies on the Morus plants and their distribution in Japan and its vicinities* (1958).

Arbores et frutices decidui lactiferi. Gemmae squamis 3–6. Folia alterna, simplicia, serrata vel dentata, indivisa vel lobata, nervis 3–5 e basi orientibus. Stipulae membranaceae, laterales, parvae, mox deciduae. Flores 4-meri, monoici vel dioici, ambo sexus in amentis pedunculatis axillaribus. Perianthium 4-partitum. Stamina 4. Ovarium ovoideum vel subglobosum, biloculare, loculo uno abortivo. Styli 2-partiti. Ovulum solitarium, pendulum. Fructus et drupulae compressi perianthio dilatato succulento inclusi, in syncarpium ovoideum vel cylindricum succulentum aggregati. Semina endospermio carnosio.

- 1a. Folia triloba, argute biserrata; lobi distincte longe caudati . . . 3. *M. serrata* ROXB.
 b. Folia indivisa vel ± lobata, crenato-serrata; lobi non caudati 2
 2a. Folia utrinque pubescentia, supra scabriuscula, subtus molliora, profunde cordata. Styli pilosi 1. *M. nigra* L.
 b. Folia subtus tantum secus costam medianam et nervos validiores pubescentia, truncata usque cordata. Styli glabri 2. *M. alba* L.

1. *M. nigra* L., Spec. Plant. 986 (1753).

Icon.: TOWNSEND, Fl. of Iraq 4, 1: tab. 16 (1980). Fl. Armen. 4: tab. 88 (1962).
 BEAN, Trees and Shrubs hardy in the British Isles ed. 7, 2: 329 et tab. 30 (1951).
 KUNKEL, Arboles Exoticos, Los Arboles Cultivados en Gran Canaria 1: 141 (1969). –
 Tab. nostr.: 1.

Typus: „Habitat in Italiae maritimis“, Herb. LINN 1112, 3.

Arbor plerumque quam 10 m non elatior, coronam densam altitudine arboris saepe latiore formans. Truncus brevis, scaber. Surculi crassiusculi, validi, juveniles rufescenti-brunnei, dense pilosi. Folia longitudini circiter aequilata, 6–12(–20) cm longa, late ovata, plerumque indivisa vel interdum (in speciminibus luxuriantibus) 2–3-loba, grosse serrata, apice acuta vel breviter acuminata, basi profunde cordata, supra scabra, subtus imprimis secus nervos principales pubescentia, subcoriacea. Petiolus ad 3(–4) cm longus, crassus, pilosus. Amenta mascula 15–25 mm longa, quam feminea duplo circiter longiora, ambo pedunculis pubescentibus suffulta. Stylus pilosus. Syncarpium oblongo-ovatum, ad 25 mm longum, nigrum, lucidum, valde surcosum, dulcamarum.

Iraq: Kurd.: Arbil: Shaqlawa, cult., GILLET 8037, OMAR 37619. Algurd Dagh prope Nowanda, GUEST 2775. Prope Halabja, GUEST 13002.

Talish: Prope Lenkoran, HOHEN.

Persia: W: Kermansh.: Kuh-i Parrow prope Bernaj, STR.! Arak: Anjidan (Indschidan), STR. Arak (Sultanabad), STR. Lur.: Borujerd, KOELZ 18643! – S: Kerm.: Kerman, BORNM. 4511!

Afganistan: E: Kabul: Kabul, cult., VOLK 1695! Nuristan: In regione Ashkun, in valle Madshegel superiore, 1620 m, KERST. 1233! – NE: Badakhsh.: Khanabad, 360 m, KOELZ 12223!

Distr. gen.: Origo incerta, culta tantum nota; in Asia australiore, Europa australi et Africa boreali inquilina.

2. *M. alba* L., Spec. Plant. 986 (1753).

Syn.: *M. indica* L., l.c.

Icon.: C. K. SCHNEIDER, Ill. Handb. Laubholzk. 1: fig. 152 (1904). BHOPAL & CHAU-

DHRI, Pakistan Syst. 1, 2: tab. 18 (1977). Hegi, Ill. Fl. Mitteleur. ed. 2, 3, 1: tab. 119 (1957). — Tab. nostr.: 2.

Typus: „Habitat in China“, Herb. LINN 1112, 1.

Arbor 10–15(–20) m alta, corona densa, compacta rotundata, ad 15 m diametro. Truncus brevis, cortice aspero fisso. Surculi juveniles primum pubescentes vel glabri. Folia 5–15 cm, in formis nonnullis ad 20–25 cm longa, latitudine plerumque longiora, ovata usque late ovata, apice acuta vel breviter acuminata, basi rotundata vel truncata vel \pm cordata, grosse dentata, saepe, imprimis in individuis junioribus nondum fructiferis vario modo 3–5(–7)-lobata, supra plerumque laevia et lucida, subtus secus costam medianam et nervos principales patule pilosa, nervorum axillis fasciculis pilorum notatis. Petiolus pilosus, 1–5 cm longus. Stipulae lanceolatae, mox caducae. Amenta mascula 10–15 mm longa, pedunculis brevibus tomentosis suffulta. Amenta feminea minora, 5–10 mm longa. Styli glabri. Syncarpium 10–25 mm longum, plerumque album sed interdum roseo-purpureum vel fere nigrum, succulentum, dulce et sat insipidum. Drupulae pallide brunneae, c. 2 mm longae.

Iraq: Kurd.: Arbil: Algurd Dagh prope Nowanda, GUEST 2777! In faucibus Rawandiz, 600 m, GUEST 459! Shaqlawa, 900 m, cult., GILLET 8031!, 8032! Sul.: Qaradagh, 850 m, GILLET 7946!, 7947! Sarchinar prope Sulaymaniyah, 850 m, cult., GILLET 7688! M. Avroman, HAUSK. 877!, GORDON! Mosul: Kalak (Eski Kellek), CHAPMAN 8381. Girdmamik, CHAPMAN 8387.

Persia: N: Gorg.: Bandar-i Gaz, in silvis, RECH. 5536!, SINT. 1352! Maz.: Prope Chalus, 1200 m, BOWLES Scholarship Bot. Exp. 764! Now Shahr, STUTZ 1200! Karehsang in valle Haraz, 100 m, WDB. 585! — W: Kurd.: M. Shahu, 1200 m, HAUSK.! Arak: Arak (Sultanabad), STR.! Lur.: Khorramabad, BENT & WR. 411–102! 6 km N Andimeshk, BENT & WR. 426–101! Khuz.: Abadan, MCMILLAN 276! — S: Fars.: Shiraz, cult. GRANT 15705! Takht-i Bagh prope Shiraz, cult. STAPF 872! Prope Shapur „Dauleduhek“, STAPF 871! Lar.: Isin, 150 m, KOELZ 14209! Bal.: Miandar, in decl. borealibus Kuh-e Bam Posht, HOTSON. — C: Damgh.-Semn.: Abdullahabad inter Veramin et Semnan, 1200 m, cult., RECH. 2777! Qom: Rahjerd, 2000 m, KOEIE 1606. Qom, cult., COWAN & DARLINGTON 845!

Turcomania: Ashkhabad, cult., SINT. 358-b! In valle Aydere, CZERNJAK.

Afganistan: NW: Herat: Badghiz, Sim Koh supra 900 m, cult., AITCH. 507. — SW: Farah: Jija Sarai, cult., 900 m, KOEIE 409! — SE: Kandahar: Prope Kandahar, EGIERSZDORFF 46!, 48!, 50!, GRIFF.! — E: Kabul: Kabul, cult., 900 m, KOEIE 4091!, NEUB. 291/1950!, 3055! Charikar, cult., NEUB. 292/1950! Jaji: In decl. borealibus Safid Kuh S Oghaz, 1800–2100 m, ANDERS 10362! Nuristan: Wama, 1400 m, EDEL. 516!, 459! Gusalak, 1000 m, EDEL. 2235! Gultscheilam, KERST. 1234! Nuristan orientalis, EDEL. 1136! Inter Barikot et Kamdesh, 900 m, in silvis Qu. Baloot, 900 m, GILLI 2402! 18 km NW Kamdesh, 1567 m, HEWER 1366! Supra Bragamata (Barge Matal), 2200 m, BOHASZEWICZ 1! Prope Pushut, cult., GRIFF.

Pakistan: Chitral: Brumboret Gol N Drosh, 1500 m, STAIN. 2224! Chitral, 1500 m, STAIN. 2193!, HARRISS 16626!, TOPPIN 112! — Kurram: W Thal, AITCH. 364! — N. Wazir.: Boya, 300 m, cult., FZ. 1357, 1358. Razani, cult., 1500 m, FZ. 2177, 2181, 2189. Miram Shah, BLATT & FZ. 521. — S. Wazir.: Sora Rogha, cult., 1200 m, FZ. 128. Tank, WILLIAMS 9181. — Quetta: Quetta, 1500 m, LACE 3366!, SANTAPAU 6253!, 6275! Spin Karez prope Quetta, cult., 1800–1900 m, LAMOND 1124! Inter Quetta et Pishin, HUGHES-BULLER 18819, 18820, 18822. Harnai, LACE. Mastung, LACE. Kotra, HUGHES-BULLER 19253. — Kalat Nal, DUKE. Wad, HUGHES-BULLER 18809, 18810. 115 km S Kalat, 1500 m, HOTSON 148. — Makran: Garmkan 2 km NE Panjgur, 900 m, HOTSON M-168.

Distr. gen.: Iraq, Persia, Turcomania, Afghanistan, Pakistan; in Sina spontanea, in Asia australiore inquilina.

Commonly cultivated in many forms in Asia, Europe, N Africa and America. Planted in gardens and along streets and roads. The leaves are utilized as food for silkworms. Fruits are eaten in fresh and dry state.

3. *M. serrata* ROXB., Fl. Ind. ed. 2, 3: 596 (1832).

Syn.: *M. alba* L. var. *serrata* (ROXB.) BUREAU in DC., Prodr. 17: 242 (1873).

Icon.: BHOPAL & CHAUDHRI, Pakistan Syst. 1, 2: tab. 19 (1977).

Speciebus antecedentibus similis sed folia triloba, argute dupliciter serrata, pedunculo syncarpium lanato-tomentoso.

Pakistan: Swat: Swat, R. R. STEW. — N. Wazir.: Razani, 1500 m, cult., FZ. 2139, 2142. — Bal.: Kharan, HUGHES-BULLER 23102.

Distr. gen.: Pakistan, Kashmir, India.

2. *Maclura*

Maclura NUTT., Gen. N. Amer. Pl. 2: 233 (1818).

Syn.: *Ioxylon* RAFIN., Am. Month. Mag. 2: 118 (1817), nomen.

Arbor decidua, lactifera. Rami spinis axillaribus praediti. Folia alterna, tenuiter petiolata, simplicia, integra, pinnati-nervosa, vernatione involuta. Stipulae minutae, membranaceae, caducae. Flores dioici; masculi pedicellati, staminibus 4, in racemis globosis laxis longe pedunculatis dispositi; flores feminei sessiles, ovario sessili, stylo filiformi indiviso, in capitula globosa densa longo pedunculata dispositi. Perianthium 4-lobum. Achaenia oblonga, in syncarpium magnum globosum mamillato-corticatum composita. Semina sine endospermio.

1. *M. pomifera* (RAFIN.) C. K. SCHNEIDER, Ill. Handb. Laubholz. 1: 239 (1904).

Syn.: *Ioxylon pomiferum* RAFIN., Am. Month. Mag. 2: 118 (1817). *Maclura aurantiaca* NUTT., Gen. N. Amer. Pl. 2: 233 (1818).

Icon.: C. K. SCHNEIDER, l.c.: fig. 153, 154 (1904). SARG., Silva N. Amer. 7: tab. 322, 323 (1890).

Arbor ad 15–20 m alta. Truncus cortice profunde fisso atrate aurantiaco-brunneo. Lignum durum, flavum. Spinae validae, 10–25 mm longae. Surculi juveniles pubescentes mox glabrescentes, olivaceo-virides. Folia 5–12(–16) cm longa, latitudine circiter duplo longiora, ovata usque lanceolato-oblonga, apice ± acuminata, basi cuneata usque subcordata, integra, supra atroviridia, glabra et lucida, subtus pallidiora et juvenilia imprimis secus nervos et costam medianam pubescentia. Petiolus 2–5 cm longus. Flores virides inconspicui, minuti. Inflorescentia mascula racemus subglobosus, 25–35 mm longus, pedunculo racemum aequante vel eo longiore suffultus; racemi glomerati. Inflorescentia feminea solitaria, capitata, dense globosa, c. 20 mm diametro, subsessilis vel breviter pedunculata. Syncarpium subglobosum, aurantio simile, 10–15 cm diametro, virescenti-flavum. Semen fere 10 mm longum.

Talish: sec. GROSSH., Fl. Kavk. 3 (1945).

Persia: sec. SABETI, Forest, Trees and Shrubs of Iran (1976).

Pakistan: sec. R. R. STEWART, Ann. Cat. Vasc. Pl. West Pak. Kashmir in NASIR & ALI, Flora West Pakistan (1972).

Distr. gen.: In parte meridionali Americae borealis (Texas, Oklahoma, Arkansas) spontanea.

Cultivated in gardens of many countries of SW and Middle Asia.

3. *Broussonetia*

Broussonetia L'HERIT. ex VENT., Tabl. regn. veg. 3: 547 (1799).

Arbores decidui et frutices lactiferi. Gemmae squamis 2–3. Folia alterna vel partim opposita, dentata, indivisa vel 3(–5)-loba. Stipulae laterales, ovato-lanceolatae, membranaceae, caducae. Flores dioici, 4-meri. Flores masculi in spicas pendulas cylindricas amentiformes dispositi; flores feminei in capitula globosa, breviter pedunculata dispositi. Ovarium stipitatum; stylus subulatus, tota longitudine stigmatosus. Fructus e drupulis syncarpium globosum formantibus compositus. Semina endospermio praedita.

1. *B. papyrifera* (L.) L'HERIT. ex VENT., Tabl. regn. veg. 3: 547 (1799).

Syn.: *Morus papyrifera* L., Spec. Plant. 986 (1753).

Icon.: C. K. SCHNEIDER, Ill. Handb. Laubholzk. 1: fig. 151e–g; 153a–c; 153g–m (1904). BRANDIS, Indian Trees fig. 189 (1906). NAKAI, Fl. Sylv. Koreana 19: tab. 34 (1932). BHOPAL & CHAUDHRI, Pakistan Syst. 1, 2: tab. 20 (1977).

Typus: „Habitat in Japonia“, LINN 1112, 4.

Arbor parva, 3–10(–16) m alta. Cortex griseus, laevis. Rami validi, imprimis juventute molliter pubescentes. Folia 4–20 × 3,5–16 cm, late ovata usque ovato-elliptica, regulariter grosse dentata, apice breviter acuminata, basi truncata vel leviter cordata, basi saepe asymmetrica, supra dense scabrida, subtus velutina vel pilosa; folia in surculis vegetativis longioribus et in individuis junioribus saepe profunde lobata. Petioli 3–10 cm longi, dense pilosi. Stipulae anguste triangulari-acuminatae, 10–15 mm longae. Inflorescentiae masculae 6–8 cm longae. Syncarpium 2–3 cm diametro, aurantiaco-rubrum, tomentosum. Pedunculus c. 1 cm longus.

Pakistan: Swat, sec. BHOPAL & CHAUDHRI, l.c. – Peshawar: Nowshera 43 km E Peshawar, 400 m, in horto, UOTILA 17355! – Kurram, sec. BHOPAL & CHAUDHRI, l.c.

Distr. gen.: Asia austro-orientalis, Japonia, Sina; ceterum multis locis in hortis et secus vias publicas culta.

4. *Ficus*

Ficus L., Spec. Plant. 1059 (1753).

Lit.: F. A. W. MIQUEL, Prodromus Monographiae Ficuum, Hooker's London Journal of Botany 6: 514–588 (1847); 7: 64–78, 109–116, 221–236, 425–442, 451–471, 563–564 (1848). H. SOLMS-

LAUBACH, Die Herkunft, Domestication und Verbreitung des gewöhnlichen Feigenbaums (*Ficus carica* L.) Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen 28: 1–106 (1882). O. WARBURG, Die Gattung *Ficus* im nichttropischen Vorderasien. Festschrift zur Feier des siebenzigsten Geburtstages des Herrn Prof. Dr. Paul Ascherson 364–370 (1904). R. RAVASINI, Über das von Dr. Heinrich Frh. v. Handel-Mazzetti in Mesopotamien und Kurdistan gesammelte *Ficus* Material, Annalen des K. K. Naturhistorischen Hofmuseums 27: 507–514 (1913). M. G. POPOV, Dikie plodovye derevja i kustarniki Srednej Azii (= Wild growing fruit trees and shrubs of Asia Media): *Ficus* L., Trudy po Prikladnoj Botanike, Genetike i Selekcii 22, 3: 307–327 (1929). I. J. CONDIT, The Fig, A new series of plant science books, 19. Chronica Botanica (1947). I. J. CONDIT & J. ENDERUD, A bibliography of the fig, Hilgardia 25: 1–663 (1956). E. J. H. CORNER, Check-List of *Ficus* in Asia and Australasia with key to identification, Garden's Bulletin, Straits Settlements Singapore 21, 1: 1–186 (1965). G. AWEKE, Revision of the genus *Ficus* L. (Moraceae) in Ethiopia, Mededelingen Landbouwhogeschool Wageningen 79, 3: 1–115 (1979).

Arbores et frutices plerumque monoici, lactiferi, interdum surculosi. Folia sempervirentia vel decidua, alterna, raro opposita, simplicia, integra vel serrata, saepe vario modo lobata. Stipulae connatae, gemmam terminalem includentes, caducae, cicatricem circularem formantes. Flores receptaculo carnosio, ovoideo vel globoso vel pyriformi, ostiolo parvo praedito inclusi. Flores masculi perianthio 2–6-partito staminibus 1–2, raro 3–6. Flores feminei perianthio simili vel perianthium reductum vel nullum. Ovarium rectum vel obliquum, stylo solitario brevi vel filiformi, excentrico vel laterali. Achaenia receptaculo increscente inclusa cum eo ficum formantia. Endospermium saepe parcum.

- | | | |
|-----|--|---|
| 1a. | Folia dentata vel serrata vel ± lobata, decidua | 2 |
| b. | Folia integra, sempervirentia vel semisempervirentia | 6 |
| 2a. | Folia ± lobata | 3 |
| b. | Folia non vel exceptione tantum lobata | 5 |
| 3a. | Folia parva, (1–)2–5(–6) cm longa. Petiolus 0,5–2(–3) cm longus. | |
| | 2. <i>F. Johannis</i> BOISS. subsp. <i>Johannis</i> | |
| b. | Folia majora, 5–20(–35) cm longa. Petiolus plerumque longior, ad 12 cm longus | 4 |
| 4a. | Folia plerumque usque ad tertiam partem vel ad dimidium lobata, undulato-crenata usque dentata, si profunde lobata, lobi spathulati marginibus integris, apice paucidentatis. <i>Ficus</i> sessilis vel subsessilis | |
| | 1. <i>F. carica</i> L. subsp. <i>carica</i> | |
| b. | Folia plerumque profunde saepe fere usque ad basin lobata, tum lobi angusti, marginibus irregulariter dentatis vel inciso-serratis vel in lobos secundarios incisi. <i>Ficus</i> pedicello usque ad 2 cm longo suffultus | |
| | 2. <i>F. Johannis</i> BOISS. subsp. <i>afghanistanica</i> (WARB.) BROWICZ | |
| 5a. | Folia manifeste cordata, plerumque latitudine evidenter longiora, grosse dentata 1. <i>F. carica</i> L. subsp. <i>rupestris</i> (HAUSSKN. ex BOISS.) BROWICZ | |
| b. | Folia basi cuneata vel rotundata vel truncata vel subcordata, latitudine circiter aequilonga, dentata vel dentato-serrata | |
| | 3. <i>F. palmata</i> FORSSK. subsp. <i>virgata</i> (ROXB.) BROWICZ | |
| 6a. | Folia deltoideo-ovata, longe caudata. Petioli ad 11 cm longi 4. <i>F. religiosa</i> L. | |
| b. | Folia forma alia, numquam caudata. Petioli ad 4–5 cm longi | 7 |

- 7a. Fici e ramulis brevibus aphyllis orientes 6. *F. racemosa* L.
 b. Fici e ramulis foliosis orientes 8
 8a. Folia acuminata. Petioli 6–14 mm longi 7. *F. foveolata* WALL. ex MIQ.
 b. Folia apice rotundata vel obtusiuscule subacuta. Petioli 1,5–5 cm longi
 5. *F. benghalensis* L.

1. *F. carica* L., Spec. Plant. 1059 (1753).

Syn.: *F. kopetdagensis* PACHOM. in VVED., Consp. Fl. Asiae Mediae 2: 323 (1971).

Frutex vel arbor decidua ad 10 m alta (vel elatior). Rami juveniles virides, demum brunnei, glabri vel ± puberuli; vetustiores grisei, laeves, crassi, rigidi, pauciramiosi. Folia 5–20(–35) cm longa, interdum longitudine latiora, undulato-crenata usque dentata, ± lobata vel indivisa, plerumque cordata, scabrida, subtus saepe ± pubescentia usque tomentosa, exceptione subglabra. Petiolus 2–8(–12) cm longus, glaber usque tomentosus. Fici singuli, 2–3 cm (in formis cultis usque ad 8 cm) longi, pyriformes et stipitati vel subglobosi, sessiles vel pedicellati, virescentes vel flavescens usque violacei, breviter pilosi vel (imprimis in formis cultis) glabri. Achaenia flava, subsphaerica, c. 1,5 mm longa.

Distr. gen. speciei: Europa mediterranea austro-orientalis, Cyprus, Anatolia, Libanon, Syria, Palaestina, Jordania, Iraq borealis, Persia borealis et occidentalis, Turcomania australis, Afghanistan, Caucasus, Tadjikistan australis.

Probably in many places not wild but only cultivated and subsponaneous.

— — subsp. *carica*

Syn.: *F. colchica* GROSSH., Izv. Azerbajdzansk Fil. Akad. Nauk SSSR. 1–2: 111 (1939). *F. hyrcana* GROSSH., l.c.

Icon.: POPOV, Trudy Prikl. Bot. 22: 309–327, fig. 31–36 (1929). HEGI, Ill. Fl. Mitteleur. ed. 2, 3, 1: tab. 87, fig. 1 (1957). TAKHT., Fl. Armen. 4: tab. 37 (1962). Fl. Tadjik. SSR. 3: tab. 38, fig. 2 (1968).

Typus: Europa australis, Herb. LINN 1240, 1.

Frutex validus vel arbor. Folia magna, ad 10 cm, interdum ad 35 cm longa, ambitu suborbicularia, ± lobata, interdum sublobata; sinus inter lobos tertiam partem vel dimidium laminae attingentes, tum lobi lati, interdum autem sinus multo profundiores, tum lobi angusti, spathulati, margine integri, apice tantum paucidentati. Ficus plerumque pyriformis, stipitatus, sessilis vel subsessilis.

Iraq: Kurd.: Arbil: In faucibus Rawandiz, HELBAEK 796! Bekhal, OMAR 37638! Harir, HELBAEK 795! Galala, OMAR 37646! Sul.: M. Avroman prope Tawilla, 1200 m, RECH. 12387!

Talish: 5 km E Astara prope Mashchan, BEIDEMAN! Prope Alekseevka, PRILIPKO!, SCHIPZINSKY 247! Prope Lerik, GROSSH.! M. Balabur, GROSSH.! In decl. M. Nassiakau, PRILIPKO! Szuwelin, PRILIPKO! Alasapin, PRILIPKO! Insula Sara, RUBTZOVA!

Persia: N: Gorg.: Gorgan, KOELZ 16120!, 16983!, 16984!, 16986!, 16996! 40–80 km W Gorgan versus Sari, 10 m, UOTILA 15971! Bandar-i Gaz, SHAR. 316! Mohammad Reza Shah Res.: Tang-e Gol, 650 m, KUKKONEN 7681! Maz.: Galand Rud, 500 m, ZHUMER 286! S Shahi, 250 m, PABOT 4965! 25 km S Amol, 300 m, KUKKONEN 5570! Abanjarmahali, KOELZ 16191! Regio

Shahsvar, CABALA! Kareh Sang in valle Haraz, 100 m, WDB. 522! Gilan: Inter Bandar-e Pahlavi et Rezvandeh, RECH. 39684! — W: Azerb.: M. Qareh Dagh prope Hasan Beyglu, MIRD. 1919! 20 km W Astara in faucibus fl. Astara, 500 m, GRANT 16417! Insula Espir, 1330 m, WDB. & al. 12063! Arak: Girdu, STR.! Lur.: Safid Dasht, SAB. 327! — S: Fars.: Rishahr, STAPF 865! „Tang-i Tschirkun“, STAPF 867! Barm-e Delak (Baermaek Daelak), STAPF 862! — E: Khor.: M. Kopet Dagh inter Quchan et Lotfabad, in jugo Allah Akbar, 800 m, RECH. 1757!; 1400 m, MIRD. in GAUBA 1915! Torbat-e Heydariyeh, KOELZ 16896!, 16897! Khvor, KOELZ 16818!, 16820!, 16827!, 16829!, 16831! — C: Tehr.: Evin, ZARGANI 14062-E! Qazv.: M. Elburz prope Karaj, 1600 m, BORNM. 1097!

Turcomania: Kara Kala: In faucibus fl. Chandyr, MICHELSON 3962!, CZERNJAK. 739! In faucibus fl. Bogundar, BORISOVA 444!, GIEZDILLO!, In faucibus Joldere, MICHELSON 3118!, 3254!, 3417!, PETROVA 23! In valle fl. Sumbar prope Tutli Kala, SINT. 1982! Aydere, MICHELSON 3604!, 3657!, 3714!, JEGOROVA! Prope Nokhur, GUBANOV 1299!, ANDROSOV! Inter Nokhur et Archman, DUBJANSKIJ!, FEDTSCH. & al. 752! Ashkhabad: In faucibus Firyuza, SINT. 621!, SAMOKISZ & LIPSKY 1315!, MICHELSON 384!, 1281! FEDTSCH. 575! Inter Chuli et Firyuza, FEDTSCH. & al. 738! Chuli, FEDTSCH. & al. 616!, MICHELSON 1913!, NIKITIN! Prope Ashkhabad, LITW. 159!, SINT.! In faucibus Baba-zo, KULT. Germab, ANTONOV! Kopet Dagh austro-orientalis: In M. Chodsha-Balan, BLINOVSKIJ 495!, 496!, 508! Kelat-Chai, BLINOVSKIJ 485!, 517!, 518!, 523!

Afganistan: SE: Kandahar: 3–4 km a Kandahar versus Farah, EGIERSZDORFF 47! Kandahar, KOELZ 13226! — C: Bamian: Ad fl. Bamian, 1600 m, KOEIE 2894! Doab: 13 km S Doab versus Bamian, 1680 m, GREY-WILSON & HEWER 919!

Distr. gen. subspeciei: In tota area speciei, imprimis in parte boreali frequentior.

— subsp. *rupestris* (HAUSSKN. ex BOISS.) BROWICZ, stat. nov.

Syn.: *F. carica* L. var. *rupestris* HAUSSKN. ex BOISS., Fl. Or. 4: 1154 (1879).

Icon.: C. K. SCHNEIDER, Ill. Handb. Laubholz. 1: 237, fig. 151-p (1904). C. C. TOWNSEND, Fl. Iraq 4, 1: tab. 17, fig. 6–7 (1980). — Tab. nostr.: 3.

Typus: Syntypi numerosi ex Anatolia, Syria, Iraq et Persia, G, JE!

Plerumque fruticosa. Folia late ovata usque ovato-oblonga, latitudine manifeste longiora, 5–10(–15) × 4–8(–12) cm, apice plerumque obtusiuscule acuta vel obtusa, basi profunde cordata, utrinque scabra, subtus plerumque molliter pubescentia. Fici plerumque pilosi, forma magnitudineque varia, pyriformia, tum manifeste stipitata vel globosa, sessilia. Pedicellus usque ad 2 cm longus. Stipes interdum tenuissimus subfiliformis, pedicellum aequans vel longior.

Iraq: Kurd. Arbil: M. Sakri Sakran ad fines Persiae, 1600 m, BORNM. 1805! Rost, HALEY 171! In fissuris rupium calc. faucium infra Rawandiz, 700 m, RECH. 11237! Kuh Safin (Sefin Dagh), 1300–1500 m, BORNM. 1806!, KARIM 39406! N viae Salah ad-Din versus Shaqlawa, 850 m, IZDYROREK & WISZNIEWSKI 56! In collibus infra Shaqlawa, BARKLEY & KADHIM 3408! Sul.: QAISI & HAMAD 43519. Kirkuk: In saxosis calc. angustiarum Darband-i Bazian prope Chamchamal, RECH. 10582! Darband-i Bazian, RAWI & GILLET 7649! Jarmo, HELBAEK 1759! Mosul: Jabal Bakhair 90 km NW Mosul, 800 m, RAWI 22976! Zawita, 1100 m, GUEST 4504!, 4766!, OMAR 37678!, EMBERGER & al. 15384. In jugo Zakho NW Mosul, 750 m, GUEST 2247! SW Aqrah, 500 m, ANDERS 1312! 103 km N Mosul, RECH. 10661!

Persia: W: Azerb.: 12 km SE Naqadeh, 1460 m, PABOT 5468! Ser ad lacum Rezaiyeh (Urumia), KNAPP! 16 km NW Mahabad, 1280 m, RECH. 42225! 12 km NE Mahabad versus Miandoab, 1300 m, LAMOND 4212! Saujbulagh prope Mahabad, SAB. in GAUBA 1917!, KOELZ 17045!, 17046! Kurd.: M. Avroman et M. Shahu, HAUSSKN.! 23 km E Marivan (Dezh Shahpur), BENT & WR. 525–601! Ham.: 90 km N Hamadan Aq Bolagh-e Aqdaq, 2000 m, RIOUX & GOLV. AB 95!

Kuh-e Garri, STR.! Kermansh.: Kuh-e Nevoeh prope Karand, STR.! Bisotun, 1350–1650 m, STR.!, PABOT!, JACOBS 6773! 19 km NW Shahpasand inter Kermanshah et Qasr-e Shirin, 1410 m, SERAJ SJ III c/6! Sar-i Pul, 550 m, NAB. 334! In valle Jamnasu, STR.! Esf.: Kuh-e Kolah Qazi 25 km SE Esfahan, substr. calc., 1700–2000 m, RECH. 46735! Arak: M. Rasvand, STR. 444! Girdu, STR.! M. Alvand, Golpayegan, STR.! Lur.: Dow Rud, KOELZ 17409!, 18541! 16 km NW Dow Rud, 1500 m, PABOT 2495! Kebara, KOELZ 18229!, 18230! Baba Zeyd inter Seykan et Halush ad fl. Seymarreh, CABALA! Kuh Giluye, HAUSSKN.! 70 km SW Khorramabad, substr. calc., 980 m, PABOT! 4 km S Bagh-i Sarab inter Khorramabad et Andimeshk, 850 m, BENT & WR. 418–303! Tang-e Malavi, SAB. in GAUBA 1916! 38 km SW Shahabad versus Ilam, 1720 m, SERAJ SJ IV h2! Oshtoran Kuh, STR.! Qaleh Rostam, STR.! Khuz.: Gach Saran (Gosharum), 660 m, STUTZ 978! 10 km S Izeh, PABOT 701! Supra Dehloran, NAB. 335! SE Masjed Soleyman, 750 m, PABOT 791! – S: Fars.: Mian Kotal inter Shiraz et Kazerun, 1800 m, BORN. 4348! – C: Kashan: Kuh-i Qohrud, STR.!

Distr. gen. subspeciei: Anatolia austro-orientalis, Syria borealis, Iraq borealis, Persia austro-occidentalis.

F. carica, *F. Johannis* and *F. palmata* form a very difficult complex of deciduous figs. Specific limits are far from clear, intra-specific variation in each of the three species is homologous, and their extreme forms further complicate the situation. Many varieties and forms, and even individual species, have been recognised in the past.

The so-called cultivated fig is sometimes thought to have originated from hybridisation of several species, with the Arabian peninsula being suggested as the place of origin. On the basis of the rich SW Asiatic collections (though not as yet from Arabia) it can be suggested that, if the cultivated fig is of hybrid origin, then its parents could be *F. carica* subsp. *rupestris* and *F. Johannis*; the ranges of these two species overlap in Iran. On the other hand, *F. carica* subsp. *carica* seems to represent this very hybrid, cultivated and selected for millenies; it also, as a result anthropo- or zoochoric dispersal, readily establishes itself. This latter characteristic makes it very difficult to define its true native distribution and has led to differing views about its status in, for instance, the Mediterranean area, the Caucasus and N Iran.

If this suggested hypothesis is correct then the substantial variation in the leaf lobing of *F. carica* subsp. *carica* is more understandable, since it is inherited from *F. Johannis*. The occurrence of forms with un-lobed leaves could be a result of the influence of *F. carica* subsp. *rupestris*. It is possible that this taxon deserves to be given specific rank; its range is SW Anatolia, N Syria, N Iraq and SW Iran. However, intermediate forms between subsp. *rupestris* and subsp. *carica* are found in the north of the range of subsp. *rupestris* in Anatolia and Iran. Such specimens are:

Persia: W: Esf.: 30 km S Esfahan, 1700 m, PABOT 8289! Arak: SE Arak (Sultanabad), STR. 366! Bakht.: Tali Mansur, KOELZ 15104! Asmand prope Lordegan, 1000 m, IRANSHAHR & MOUSSAVI 15645-E! Lur.: Pol-e Ma'mulan 60 km a Khorramabad versus Andimeshk, 1200 m, WDB. & ASSADI 16597!

2. *F. Johannis* BOISS., Diagn. Pl. Or. Nov. Ser. 1, 7: 96 (1846).

Frutex 1–3(–4) m altus, interdum arbor parva, crebre ramosus. Ramuli sat tenuies, juveniles pubescentes vel subglabri. Folia plerumque parva, lobis 3–5 brevibus inciso-serratis plicatis, lobis interdum longis angustis interdum fere ad nervos principales reductis, basi cordata usque truncata, nervis subtus saepe valde prominentibus. Petioli pubescentes vel glabri. Fici pyriformes, tum stipitati, vel globosi, plerumque distincte pedicellati.

Distr. gen. speciei: Persia australis et orientalis, Turcomania austro-orientalis, Afghanistan, Pakistan et Tadzikistan austro-occidentalis.

— subsp. *Johannis*

Syn.: *F. persica* BOISS., Diagn. Pl. Or. Nov. Ser. 1, 7: 97 (1846). *F. geraniifolia* MIQ. in Hooker's Journ. Bot. 7: 255 (1848). *F. carica* L. var. *Johannis* BOISS., Fl. Or. 4: 1154 (1879). *F. malvastrifolia* WARB. in Festschrift zur Feier des siebenzigsten Geburtstages Dr. Paul Ascherson 369 (1904). *F. vitifolia* WARB., l.c.: 370 (1904). *F. carica* L. var. *longipes* BORNM. ex PARSA, Kew Bull. 1948: 228 (1948).

Icon.: Tab. 4.

Typus (syntypi): KOTSCHY 91, B!, E!, H!, KOTSCHY 91a, E!, H!, JE!

Folia plerumque tantum 1–3(–6) cm longa, valde variabilia, breviter et late lobata usque profunde lobata; sinus inter lobos interdum basin laminae fere attingentes, tum lobi angustissimi, marginibus omnino inciso-serrati; folia talia plerumque nec autem semper in ramulis vegetativis evoluta; folia plerumque subtus, interdum autem utrinque pubescentia. Petioli 0,5–2(–3) cm longi. Fici parvi, 1–1,5(–2) cm longi, plerumque stipitati. Longitudo stipitum variabilis, brevissimi, c. 5 mm usque ad 1,5–2 cm longi. Pedicelli 0,5–2,5(–3) cm longi, ut fici ± pubescentes.

Persia: W: Esf.: 16 km S Esfahan, STUTZ 781! Kuh-e Kolah Qazi 25 km SE Esfahan, substr. calc., 1700–2000 m, RECH. 46759! Bakht.: 57 km S Gandoman, PABOT 2275! Lur.: Kuh-e Seydan, 2230 m, ARCHIBALD 1254! Prope Behbahan, 1500 m, HAUSSKN.! In faucibus Marun, 400 m, PABOT 530! 20 km S Masjed Soleyman, substr. gyss., PABOT 786! SE Masjed Soleyman, substr. calc., 750 m, PABOT 792! 23 km E Haft Gel versus Izeh, 650 m, PABOT 654! 20 km ab Izeh versus Dehdez, 1100 m, IRANSHAHR & MOUSSAVI 15646-E! — S: Fars.: Prope Dalaki, KOTSCHY 91-a!, STAPF 558!, 870! Inter Jiroft et Delvar, DADASHZADEH DK 127! Kuh-i Sivand, STAPF 2760! Konar Takhteh, STAPF! Prope Kazerun, STAPF 864! Nakshi Timur, HAUSSKN.! 8–10 km WNW Kazerun, 800 m, DAVIS & BOKHARI D-56593! 25 km NW Kazerun, 800 m, GRANT 15874! 39 km E Kazerun, 1850 m, PABOT! 10–15 km NE Kazerun, 1200–1300 m, DAVIS & BOKHARI D-55862! Terek SE Kazerun, 840 m, MERTON 3714! Prope Shiraz, 1700 m, GRANT 15007!, BORNM. 4349!, KY. 316!, STAPF 869! Persepolis, 1800 m, BORNM. 4351!, STAPF 863! 39–80 km a Shiraz versus Jahrom, ALAVA & BOKHARI 10674!, 10693! Jahrom, KOELZ 14626! 17 et 100 km a Shiraz versus Esfahan, ALAVA & BOKHARI 10771!, FOROUGH & ASSADI 15102! Mulla Zadeh prope Shiraz, STAPF 868! Kuh-e Sabz Pushan, 1800 m, WDB. 867! Inter Shiraz et Firuzabad, 2000 m, SAB. in GAUBA 1918!, TROTT 929! Tal-e Khosravi, BEHB. 1304-E! Gere inter Bishehr et Shiraz, KY. 91! Bushehr, STAPF 866! Prope Neyriz, 1600 m, BORNM. 4350! Kerm.: Kuh-i Jupar, 2100–3000 m, BORNM. 4356!, FOROUGH & ASSADI 16181!, ARMSTRONG 17! Kuh Tagh Ali, 2200 m, BORNM. 4353! Amirabad Kavir N Kerman, DADASHZADEH DK 128! Khabr-va Rouchon Protected Region, 1400–1500 m, PARRIS 75382! Lar: Qotbabad, 800 m, ZHUMER 353! 22 km N Qotbabad, 1100–1200 m, WDB. & FOROUGH 15807! Kuh-e Gohreh N Bandar Abbas, 800 m, IRANSHAHR & TERME 14060-E! Parabedin, DADASHZADEH! Insula Qeshm, 100 m, KUNKEL 16948! Bal.: Sarhad, JENNINGS! M. Taftan prope Sangon, 1600 m, RECH. 4060-A! Prope Torshab, 2500–2700 m, ASSADI in RECH. 54806! 74–100 km a bifurcatione viae Khash-Iranshahr versus Bazman, 1600 m, RECH. 54958! In decl. orientalibus vulcani Bazman, 1700 m, ASSADI in RECH. 55157!, PARRIS 75467! Ad radices orient. vulcani Bazman, 1400–1700 m, RECH. 55125! 22–40 km N Zahedan, 1500 m, DADASHZADEH!, GREY-WILSON & HEWER 361! Makran: Tang-e Sarha, SAB. 329! Rask, 750 m, SHIRDELPUR 10800! Chah Bahar, SHAR. 264-E! — Persia australis, AUCH. 1318 (typus *F. geraniifoliae*)! — C: Yazd: Yazd, 2200 m, BORNM. 4354! Taft, in montibus, 2000 m, BORNM. 4352! 50 km NW Anar, 1620–1660 m, PABOT 7012! 5 km SW Mehriz, 1700 m, EDMONDSON & al. 1485! Kermanshahan inter Yazd et Kerman, 1800–1900 m, BORNM. 4355!, 4508! S Dasht-e Kavir, W Tabas, LEONARD 5432!

A f g h a n i s t a n : SW: Jija: Jija, 900 m, KOEIE 4090! — SE: Kandahar: N Girishk ad fl. Helmand, KERST. 412! Girishk, KOELZ 13230! Inter Girishk et Kandahar, PABOT A-443! 15 km SW Kanda-

har, 1100 m, FREITAG 34841! Pirzada, 1000 m, KOEIE 2020! N Kandahar, NEUB. 290!, KERST. 379! Ispoli 25 km NNE Spin Boldak (Qala-i Jadid), 1400 m, HDG. & EKBERG W-7086!, 7097! Tirin: In collibus inter lacum artif. „Arghandab Reservoir“ et Tirin, 1400–1700 m, RECH. 34068! Inter Tirin et Orozgan, RECH. 35158!

Pakistan: Quetta: Murdar, Kach Tangi, 1800 m, LACE 4044! 30 km S Quetta, 2000 m, ANDERSEN & PETERSEN 470! – Makran: Nag inter Panjgur et Surab, Tonschiefer, 1300 m, RECH. 28267! – Zahro (Zahrean), STOCKS!

Distr. gen. subspeciei: Persia, Afghanistan australis, Pakistan austro-occidentalis.

— subsp. *afghanistanica* (WARB.) BROWICZ, stat. et comb. nov.

Syn.: *F. afghanistanica* WARB., l.c.: 369 (1904). *F. carica* L. var. *afghanica* POPOV, Trudy Prikl. Bot. 22, 3: 314 (1929). *F. afghanica* (POPOV) DROBOV, Fl. Uzbekist. 288 (1953).

Icon.: Fl. Tadjik. SSR. 3: tab. 29 (1968). Bot. Žurn. SSSR. 64, 3: 433, fig. 2 (1979). — Tab. nostr.: 5.

Typus subspeciei: AITCHISON anno 1884/85, BM!, LE!

Folia majora, plerumque 7–9(–13) cm longa, profunde lobata, scabra vel subglabra, cordata; lobi angusti imprimis mediani margine omnino obtuse dentati, interdum lobulis secundariis dentatis profunde incisus usque ad dimidium laminae attingentibus provisa. Petiolus usque ad 5 cm longus. Fici 2–3(–3,5) cm longi, plerumque pyriformes, stipitati, glabri vel interdum dense pilosi. Pedicelli ad 2 cm longi.

Persia: W: Esf.: 31 km S Esfahan, 1700 m, PABOT! — S: Kerm.: Kerman, in hortis, 2000 m, BORNM. 4347! Kuh Tagh-Ali, BORNM.! — E: Khor.: Torbat-e Heydariyeh, KOELZ 16905! Inter Torbat-e Heydariyeh et Assadabad, RECH. 4399! Khvor, 2400 m, KOELZ 16836!, 16851! Ad radices montium S Birjand, 1600–1900 m, RUNEMARK in RECH. 56074!, 56075! 13 km N Kashmar versus Rivash, 1300–1400 m, RECH. 51174!

Afghanistan: N: Mazar-i Sharif: In faucibus calc. S Mazar-i Sharif 500–800 m, GREY-WILSON & HEWER 887!, PABOT 1179!, 1179-bis!, RECH. 34160! Supra Akupruk in faucibus fl. Balkh, 700–800 m, HDG. & WDB. 3924!, RECH. 16306! Tashkurghan, KOELZ 13183! Akcha, NEUB. 4320! Sangcharak: Karakatak, KOELZ 14025! — NW: Maimana: 16 km W Belchiragh, 900 m, GREY-WILSON & HEWER 1286! Herat: Chashmeh Obeh 1800 m, RECH. 19222! Darrah-i Bum, 800 m, HDG., WDB. & EKB. W-8199! — SW: Ghorat: 61 km a Qala Shahrak (Shaharak), PABOT A-1504! — SE: Kandahar: Kandahar, cult., KOELZ 13226! — E: Kabul: In valle Begtut in M. Paghman, 2400 m, GILLI 2404! — Afghanistan, AITCH. 1665!, 481!

Distr. gen. subspeciei: Persia boreo-orientalis, Turcomania austro-orientalis, Afghanistan, Tadjikistan austro-occidentalis.

F. Johannis shows an even greater range of variation than *F. carica*. Sometimes the whole range of leaf lobing can be seen on the same individual; the same also seems to be true for peduncle length and the stipe of the syconium. Some extreme forms have very narrowly lobed leaves and so incised that the leaf blade is almost restricted to the network of the main veins. These latter forms appear to be most frequent on coppice shoots, browsed, pruned or very young individuals. There is no reason to give them separate varietal status (var. *laciniata* BOISS.).

Because of the great variation of *F. Johannis* it is not surprising that several individual species have been described in the past: *F. geraniifolia* MIQ., *F. persica* BOISS., *F. malvastrifolia* WARB., *F. vitifolia* WARB. and *F. afghanistanica* WARB. Only the last named deserves to be maintained, though only at subspecific level. Compared with subsp. *Johannis* it has larger leaves and figs. It appears that, as is also so with *F. carica* subsp. *carica*, *F. Johannis* subsp. *afghanistanica* is a cultivated form possibly originally selected in the Kerman area of Iran.

At the northern limit of its range of *F. Johannis* subsp. *afghanistanica* hybridizes with *F. carica* subsp. *carica*. Thus in southern Turkmenia and in Iranian Khorassan there are individuals with more or less intermediate characteristics, e.g.: Khor: In saxosis calc. decl. borealibus jugi Allah Akbar inter Quchan et Lotfabad, 800 m, RECH. 1757!; 1400 m, MIRD. in GAUBA 1915! Such hybrid forms are shown in the photographs of leaves in POPOV's paper, Trudy Prikl. Bot. 22, 3: fig. 31–38 (1929). POPOV believed these forms to be subvarieties of *F. carica* var. *transcaspica* POPOV. While the first five photographs – fig. 31–35 (subvar. *subintegrifolia* POPOV, subvar. *obtusiloba* POPOV, subvar. *artocarpifolia* POPOV, subvar. *cordata* POPOV, subvar. *palmata* POPOV) could be considered to be within the circle of *F. carica* subsp. *carica* variability the latter three – fig. 36–38 (subvar. *palmato-auriculata* POPOV, subvar. *irregularis* POPOV) – are unquestionably typical of *F. Johannis* subsp. *afghanistanica*.

3. *F. palmata* FORSSK., Fl. Aegypt.-Arab. 179 (1775).

In ditione nostra tantum occurrit:

– subsp. *virgata* (ROXB.) BROWICZ, stat. et comb. nov.

Syn.: *F. virgata* ROXB., Fl. Ind. ed. 2, 3: 530 (1832). *F. caricoides* ROXB., Fl. Ind. ed. 2, 3: 529 (1832).

Icon.: COLLETT, Fl. Simlensis: fig. 148 (1902). BHOPAL & CHAUDHRI, Pakistan Syst. 1, 2: tab. 24 (1977). – Tab. nostr.: 6.

Typus speciei: India.

Frutex vel arbor parva, 4–10 cm alta, cortice ± laevi. Rami juveniles tomentosi vel pubescentes, saepe glabrescentes, purpurascenti-brunnei. Folia late ovata vel suborbicularia, plerumque 5–10(–12) cm longa, apice breviter acuta usque obtusa, basi cuneata vel truncata vel subcordata, exceptione cordata, margine ± grosse dentata vel dentato-serrata, plerumque non lobata, supra vel interdum utrinque scabra, exceptione subglabra, subtus molliter tomentosa. Petiolus 1,5–5(–7) cm longus, molliter tomentosus. Fici axillares, solitarii, subglobosi vel pyriformes et tum stipitati, 1,5–2,5 cm longi, pedicellati, plerumque tomentosi, maturitate flavi usque purpurei. Stipes 2–10(–12) mm longus. Pedicellus 4–15(–20) mm longus, dense pubescens.

Persia: S: Bal.: Makran: In jugo Kalgar in Kuh-e Bam Posht, 1050–1350 m, HOTSON. Inter Grawan (Giravan?) et Kant, HOTSON.

Afghanistan: E: Kabul: Tang-i Gharu, 1300–1700 m, AMSEL!, GILLI 2406!, HDG. & WDB. W-2796!, KERST. 558!, NEUB. 4123!, PABOT A-1387!, RECH. 16993!, 34379!, UOTILA 17286!, VOLK 1511! Bagrami in valle Nijrao, NEUB. 254! Laghman: Inter Jalalabad et Laghman, 700 m, GILLI 2405! Alishang, 1900 m, WDB. & EKB. W-9732! 45 km N via Sarobi-Jalalabad versus Alishang, 1200 m, GREY-WILSON & HEWER 1032! Jaji: Khudi Khel, 1500 m, KOELZ 11564! Ghorband: 10 km W Charikar, 1600 m, RECH. 36865! Ghorband, 1700 m, KOEIE 2785! Pul-i Matak, PABOT A-639! Khost: Khost, 500 m, VOLK 1082! 25 km W Khost versus Gardez, 1390 m, PODLECH 18547! Nuristan: Gusalak, 1000 m, EDELB. 235!, 2220!, 2223! Kushtos, 1850 m, NEUB. 3265!, 4534! Prope Bragamata (Barge Matal), 1550–1950 m, ANDERS 5157!, HEWER 1363! Inter Asmar et Barikot, 840 m, GILLI 2403! Inter Ningalam et Darim, 1300 m, NEUB. 966! In valle Pech, 1475 m, CARTER 1279! Wana, 1380 m, KERST. 782! Chigha Sarai, 820 m, SCHEIBE 84! Mandagal, 1240 m, SCHEIBE W-281! In valle Kulam, 2100 m, THESIGER! Nuristan, EDELB. 1243! – Afghanistan, GRIFF.!, NEUB. 3179!

Pakistan: Dir: 3 km versus jugum Lowarai, EGIERSZDORFF 3! In jugo Jambatai, HARRISS 16632! Chitral: 1 km W Chitral, MAJCHROWICZ 88! Maroi inter Chitral et Mastuj, 1800 m, STAINT.

2530! In valle Masin, 1200–1500 m, TOPPIN 302! – Peshawar: E Pabbi, 370 m, UOTILA 17385! – Kurram: Shalozan, AITCH. 345! Habib Kalla, AITCH. 218! Aozai, AITCH. 13! – Quetta: 38 km E Gumbaz, 1050 m, RECH. 29686!, 29681! Supra Harnai, substr. calc., 900 m, RECH. 29500!, 29529!, LACE. Hanna, 2100 m, LACE! Urak, 2100 m, CROOKSHANK 91! Musa Khel, FLEMING! – Kalat: Sethar, HUGHES-BULLER 1739. – Bal.: Chagai distr., Gaz. 231. Ad rupes Baluchistan, STOCKS 609.

Distr. gen. subspeciei: *Persia austro-orientalis* (?), *Afghanistan orientalis*, *Baluchistan* (Pakistan), *India*, *Nepal*, in *India* culta.

The typical subspecies—subsp. *palmata*—occurring in E Africa (Aethiopia, Somalia, Sudan) and in the southern part of the Arabian Peninsula has the leaves more elongate, distinctly acute or acuminate and only weakly pubescent or glabrous. The figs are similarly pubescent.

In Pakistan *F. palmata* subsp. *virgata* is probably locally selected for fruits. Forms of this species with large leaves more or less cordate at the base are sometimes wrongly considered to be *F. carica*.

4. *F. religiosa* L., Spec. Plant. 1059 (1753).

Icon.: BENTHALL, The trees of Calcutta: 411 (1946). KUNKEL, Arboles Exoticos. Los Arboles Cultivados en Gran Canaria 1: 141 (1969). BHOPAL & CHAUDHRI, Pakistan Syst. 1, 2: tab. 21 (1977). – Tab. nostr.: 7.

Typus: Habitat in India, LINN 1240, 4–5.

Arbor magna ramis patentibus usque ad 10 m alta; truncus brevis, in speciminibus vetustis forma irregulari. Rami juveniles et omnes fere partes (gemmis foliorum et stipulis exceptis) glabri. Folia sempervirentia, simplicia, integra, leviter undulata, deltoideo-ovata, 6–15(–18) × 4–10(–12) cm, apice abrupte attenuata et longe caudata (cauda $\frac{1}{3}$ longitudinis laminae attingente), basi cuneato-truncata usque subcordata, supra atroviridia, lucida, subtus pallidiora, nervi paribus 8–12. Petioli (4–) 6–10(–11) cm longi, teretes. Fici sessiles, globosi, ± verticaliter compressi, in paribus axillariter dispositi, maturitate atropurpurei, usque ad 12 mm diametro. Achaenia pyriformia, c. 2 mm longa.

Persia: S: Bal.: Makran: Tis, cult., SHAR. 263-E!

Afghanistan: E: Nangarhar: Jalalabad, in horto „Hotel Spinzhar“, 600 m, GILLI 2408!, HDG., WDB. & EKB. W-7498!, KUKKONEN 6586!, VOLK 2430!

Pakistan: Peshawar: Nowshera 43 km E Peshawar, 400 m, KUKKONEN 6614! – S. Wazir.: Tank, cult., STEW. – Quetta: Nasirabad et Sibi, Sibi Gaz. 327. Mushkaf et Rindli, Bolan Gaz. 122. – Karachi: Khadeji 46 km ENE Karachi, RECH. 28570!

Distr. gen.: Patria: India; in Asia austro-orientali frequenter, in Asia austro-occidentalis raro culta.

5. *F. benghalensis* L., Spec. Plant 1059 (1753) „*bengalensis*“.

Icon.: BENTHALL, The Trees of Calcutta: 414 (1946). KUNKEL, Arboles Exoticos. Los Arboles Cultivados en Gran Canaria 1: 127 (1969). SABETI, Forest, Trees and Shrubs of Iran: 356–357 (1976). – Tab. nostr.: 8.

Typus: Habitat in India, LINN 1240, 6(?).

Arbor magna, sempervirens, ad 15–20 m alta, juventute epiphytica, plerumque e ramis dense patentibus subhorizontalibus radicans; radices aerales quoque e trunco orientes. Surculi juveniles pubescentes, demum ± glabri. Folia coriacea, ad extremos

ramos approximata, 8–21 × 5–14 cm, ovata usque orbicularia vel elliptica, apice rotundata vel obtusiuscule acūta, basi rotundata usque subcordata, margine integra, subtus ± molliter brevissime pubescentia. Petiolus 1,5–4(–5) cm longus, crassus, puberulus. Fici per paria prope apicem ramorum axillares, ± globosi, 12–15 mm diametro, puberuli, maturitate rubri.

Persia: S: Fars.: Bushehr, cult., NAB. 336! Baghmani, KOEIE 1746! Insula Khark, cult., HAUSSKN., BORNM. 644!, GRANT 17050! Lar.: Bandar Abbas, KOELZ 14225!, SAB. in GAUBA 1914!, BORNM. 645! Minab, BEHB. 262-E! Makran: Tis 7 km N Chah Bahar, SHAR. 265-E!, SOJAK 1379!

Afghanistan: E: Kabul: Prope Kabul, MANGER 23! Jalalabad, 600 m, GILLI 2407!, VOLK 2046!

Pakistan: Quetta: Rindli, Bolan Gaz. — Bela: Ad fl. Hab, HUGHES-BULLER 18421. Las Bela, 20 m, HOTSON 399-A. Makran: Pasni, HOTSON M-47. Kech (Kej), HUGHES-BULLER 18448.

Distr. gen.: Patria: In regione silvatica inferiore montium Himalaya et peninsulae Deccan.

Commonly planted as a shade tree along roadside and in the vicinity of villages, particularly near reservoirs of water.

6. *F. racemosa* L., Spec. Plant. 1060 (1753).

Syn.: *F. glomerata* ROXB., Pl. Coast Coromandel 2, 2: 13, tab. 123 (1799).

Icon.: BRANDIS, Illustr. Forest Fl. NW India: tab. 49 (1874). BENTHALL, The Trees of Calcutta: 419 (1946).

Typus: Habitat in India.

Arbor mediocris vel magna, sempervirens, cortice laevi. Rami glabri. Folia 8–18 cm longa, ovata vel elliptico-ovata vel elliptico-lanceolata, in apicem obtusiusculum attenuata, basi acuta vel obtusiuscula, adulta integra, membranacea, adulta glabra, nervorum paribus 4–6(–8). Petiolus 2–4 cm longus. Fici subglobosi, 2,5–4 cm diametro, maturitate aurantiaca usque rubra, e ramulis brevibus aphyllis e basi ramorum majorum orientibus orti.

Pakistan: N. Wazir.: Miram Shah, cult., BLATT. & FZ. 522.

Distr. gen.: Pakistan orientalis, India, Bangladesh.

7. *F. foveolata* WALL. ex MIQ., Ann. Mus. Bot. Lugduno-Batavum 3: 294 (1867).

Icon.: BHOPAL & CHAUDHRI, Pakistan Syst. 1, 2: tab. 23 (1977).

Typus: India.

Frutex scandens vel repens, ad nodos radicans. Surculi juveniles pubescentes, adulti glabrescentes. Folia ovata vel elliptica usque lanceolata, forma, magnitudine, pubescentia, crassitudine valde variabilia, (4–)6–12(–15) cm longa, apice acuminata, basi rotundato-cordata usque subcuneata, margine integra, supra glabra, subtus secus costam medianam et nervos leviter pubescentia; consistentia rigide membranacea usque tenuiter coriacea, sempervirentia, nervi laterales paribus (7–)8–10(–12); petiolus 6–14 mm longus, pubescens. Fici axillares plerumque solitarii, ovoideo-subglobosi usque globosi, 8–16 mm diametro, pubescentes. Pedicellus 3–7 mm longus, pubescens.

Pakistan: „Climbs on trees and cliffs in Chitral, Swat, . . .“ sec. R. R. STEWART, Ann. Cat. Vasc. Pl. West Pak. Kashmir in NASIR & ALI, Flora West Pakistan (1972).

Distr. gen.: Asia australis et austro-orientalis, a Pakistan ad Burmam et Sinam.

ACKNOWLEDGEMENT

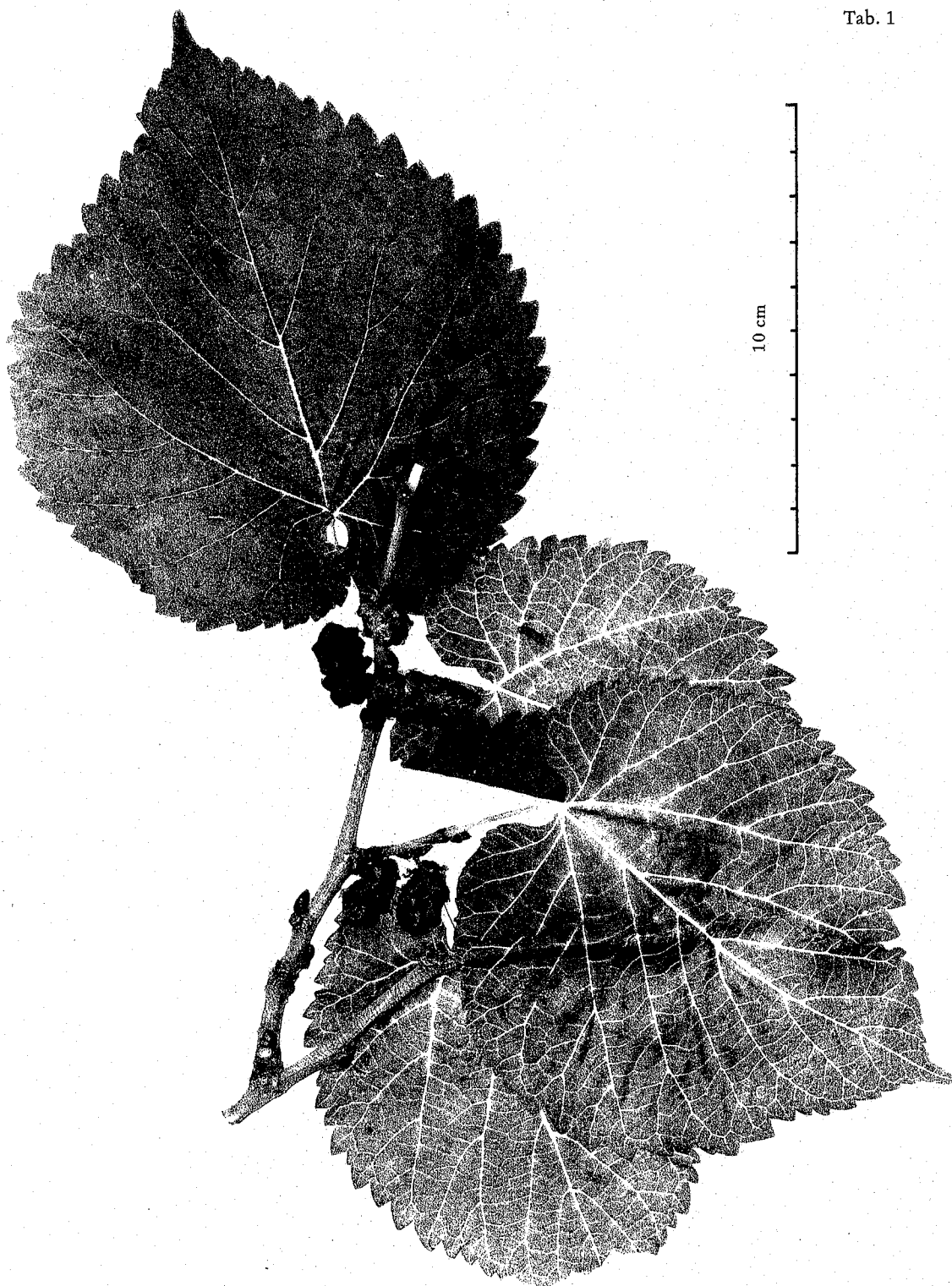
The author's and the editor's thanks are due to Mr. IAN HEDGE, Royal Botanic Garden, Edinburgh, for linguistic revisions of the English text.

Broussonetia L'HERIT. ex VENT.	5	subsp. Johannis	10
papyrifera (L.) L'HERIT. ex VENT.	5	<i>kopetdagensis</i> PACHOM.	7
Ficus L.	5	<i>malvastrifolia</i> WARB.	10
<i>afghanica</i> (POPOV) DROBOV	11	palmata FORSSK.	12
<i>afghanistanica</i> WARB.	11	subsp. palmata	13
<i>benghalensis</i> L.	13	subsp. <i>virgata</i> (ROXB.) BROWICZ	12
carica L.	7	<i>persica</i> BOISS.	10
subsp. carica	7	racemosa L.	14
subsp. rupestris (HAUSSKN. ex		religiosa L.	13
BOISS.) BROWICZ	8	<i>virgata</i> ROXB.	12
var. <i>afghanica</i> POPOV	11	<i>vitifolia</i> WARB.	10
var. <i>Johannis</i> BOISS.	10	Ioxylon RAFIN.	4
var. <i>longipes</i> BORNHM. ex PARSA	10	<i>pomiferum</i> RAFIN.	4
var. <i>rupestris</i> HAUSSKN. ex BOISS.	8	Maclura NUTT.	4
var. <i>transcaspica</i> POPOV	12	<i>aurantiaca</i> NUTT.	4
<i>caricoides</i> ROXB.	12	pomifera (RAFIN.) C. K. SCHNEIDER	4
<i>colchica</i> GROSSH.	7	Morus L.	1
foveolata WALL. ex MIQ.	14	alba L.	2
<i>geraniifolia</i> MIQ.	10	var. <i>serrata</i> (ROXB.) BUREAU	4
<i>glomerata</i> ROXB.	14	<i>indica</i> L.	2
<i>hyrcana</i> GROSSH.	7	nigra L.	2
Johannis BOISS.	9	<i>papyrifera</i> L.	5
subsp. afghanistanica (WARB.)		serrata ROXB.	4
BROWICZ	11		

ILLUSTRATIONS

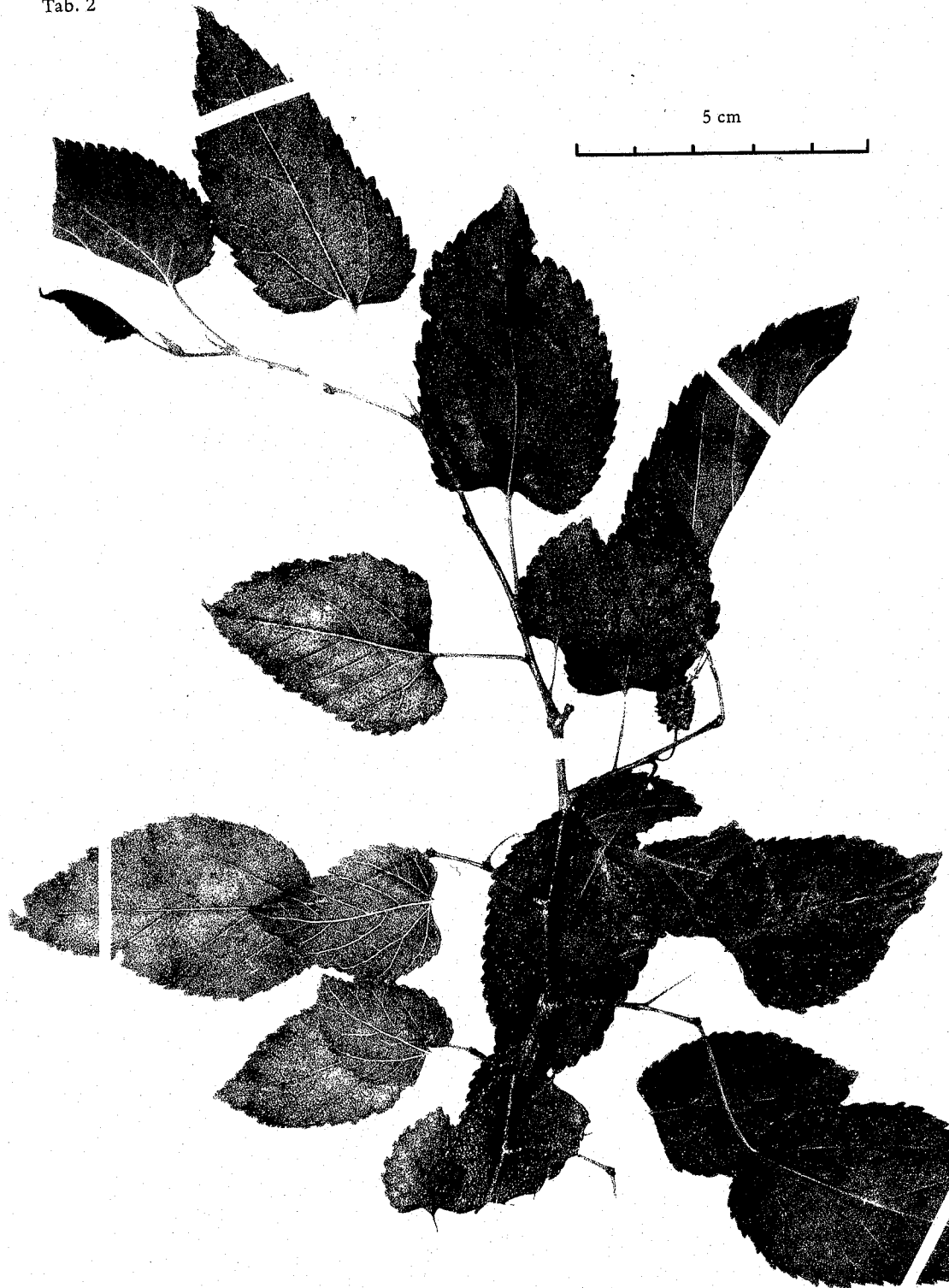
All plates have been photographed by the Akademische Druck- u. Verlagsanstalt,
Graz.

Tab. 1



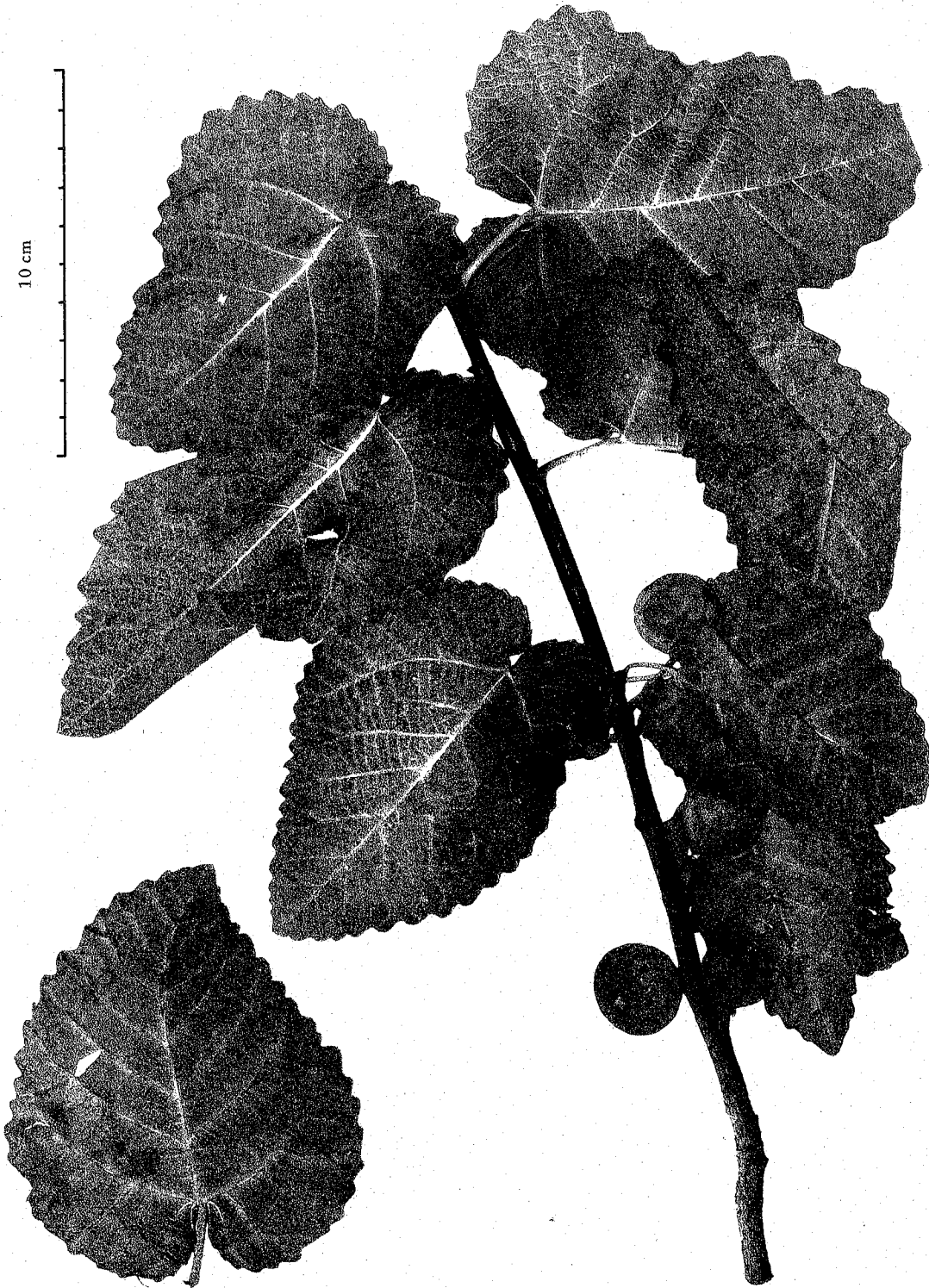
Morus nigra L. — KERSTAN 1233

Tab. 2



Morus alba L. - RECH. 5536

Tab. 3



Ficus carica L. subsp. *rupestris* (HAUSSKN. ex BORNM.) BROWICZ — RECH. 10661

Tab. 4

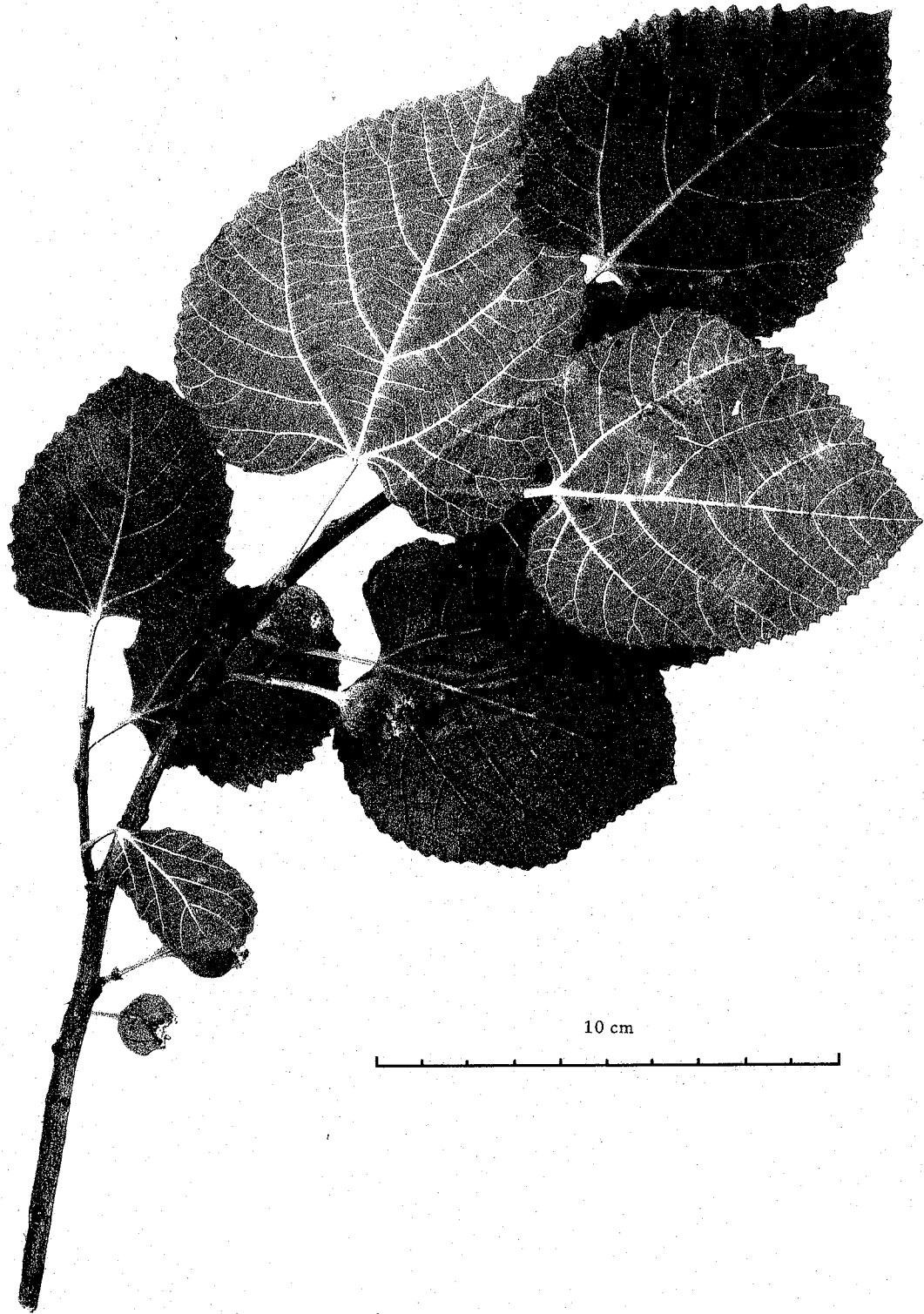


Ficus Johannis BOISS. subsp. *Johannis* — 1: SHARIF 264-E; 2: RECH. 4060-A

Tab. 5

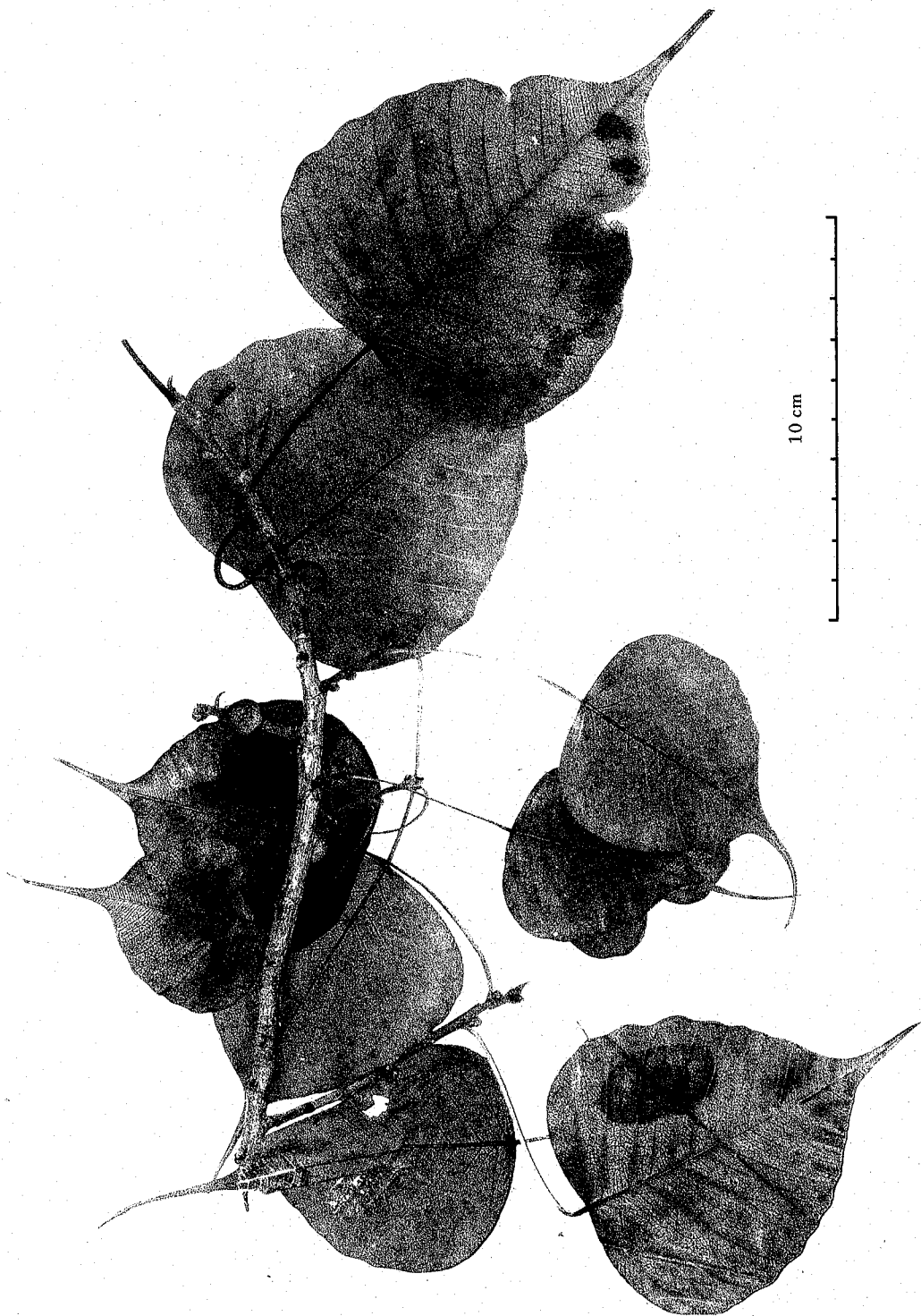


Ficus Johannis BOISS. subsp. *afghanistanica* (WARB.) BROWICZ — GREY-WILSON & HEWER 1286



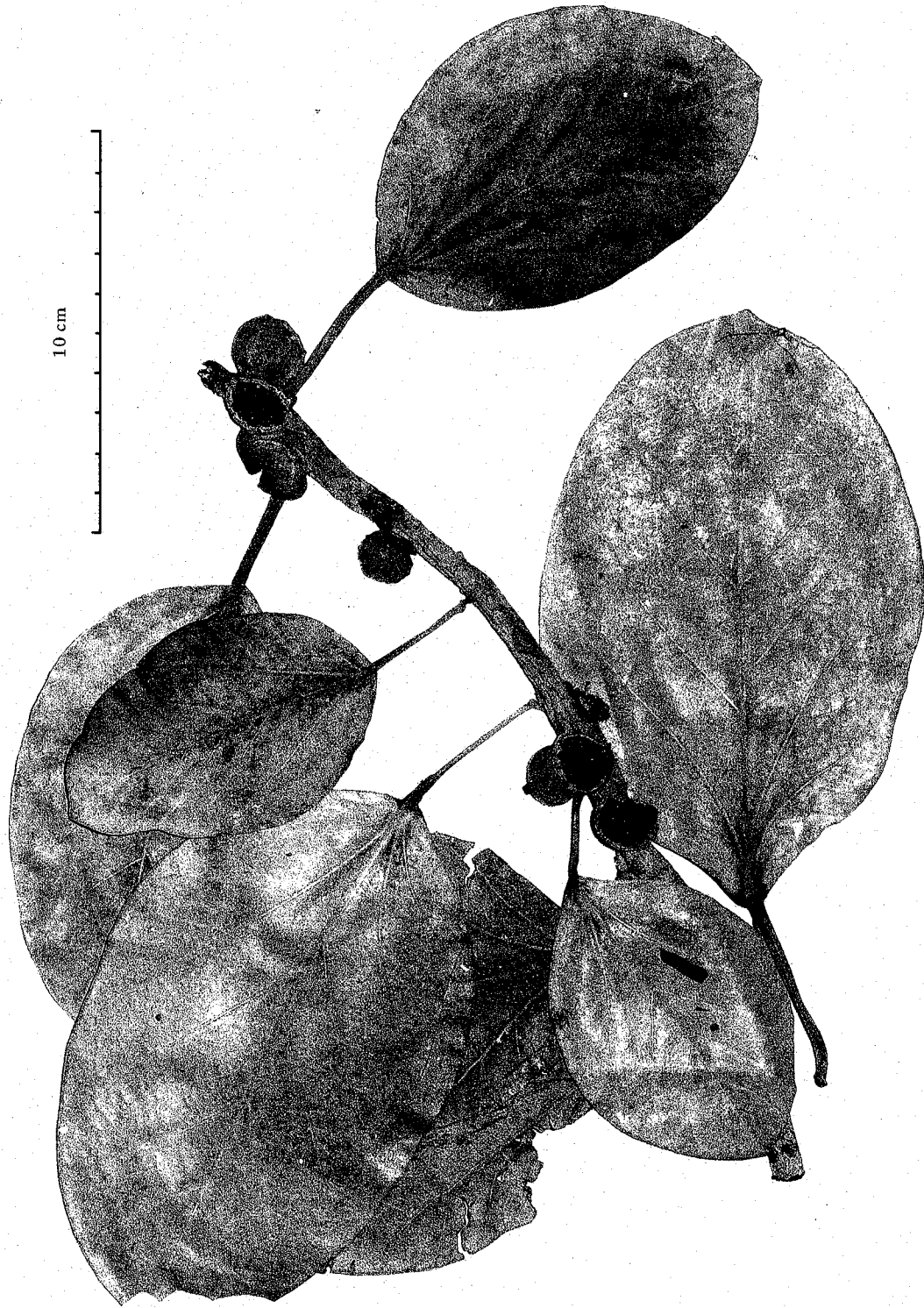
Ficus palmata FORSSK. subsp. *virgata* (ROXB.) BROWICZ — RECH. 29500

Tab. 7



Ficus religiosa L. — RECH. 28570

Tab. 8



Ficus benghalensis L. — SOJAK 1379

SYSTEMATISCHE ANORDNUNG DER FAMILIEN

Familien mit vorangestellter Continuatio-Nummer sind bereits erschienen.

Cont. Nr.	Engler & Diels	Wettstein	De Candolle Boissier	Bentham & Hooker	Hutchinson 2. ed.	Cont. Nr.	Engler & Diels	Wettstein	De Candolle Boissier	Bentham & Hooker	Hutchinson 2. ed.	
PTERIDOPHYTA												
	1	2	143	(2)	(2)	10	Caprifoliaceae	141	121	57	61	20
0	2	1	142	(1)	(1)	144/I	Caryophyllaceae	50	29	13	23	105
3	5	5	144	(4)	(4)	64	Celastraceae	83	87	35	39	60
4	3	3	140	(6)	(6)	28	Ceratophyllaceae	52	42	15	110	94
2	4	4	141	(3)	(3)		Chenopodiaceae	44	22	92	93	111
	6	6	145	(5)	(5)	46	Cistaceae	99	49	10	19	33
						132	Commelinaceae	24	138	132	117	154
						90/I, 122/II	Compositae	146	126	61	65	121
						139a/III, 139b/III, 145/IV, 154/V						
GYMNOSPERMAE												
0	9	8	136	(8)	(8)	2	Convolvulaceae	127	102	78	80	133
3	10	10	138	(10)	(10)	54	Cornaceae	114	92	56	60	18
4	8	9	135	(7)	(9)	97	Corylaceae	33	11	112	108	27
2	7	7	137	(9)	(7)	72	Cruciferae	63	56	51	48	123
						57	Cruciferae	60	46	7	16	101
						123	Cucurbitaceae	144	124	48	55	42
						77	Cupuliferae	33-4	11-2	111-2	108	25-7
4	138	110	84	86	135	8	Cuscutaceae	128	103	79	80a	141
1	86	83	30a	42a	76	39	Cynocrambaceae	111	25	91	105c	113
3	48	27	50	57	106	129	Cynomoriaceae	110a	20a	102	103	63
8	16	127	115	124	146		Cyperaceae	20	139	134	126	169
6	26	133	128	116	155	136	Cytinaceae	41	36	101	96	98
1	45	23	93	92	112	29	Datisceae	101	54	49	56	43
7	27	134	128	114	162	104	Dioscoreaceae	28	137	131	115	164
4	91	91	32	41	66		Dipsacaceae	143	123	60	64	129
3	81	81	46	43	75	30	Ebenaceae	121	100	69	72	68
	113	94	54	58	127	48	Ehretiaceae	129	104	80	79	87
3	125	117	82	75	82	55	Elaeagnaceae	103	61	97	100	64
25	82	86	70	38	58	16	Elatinaceae	96	52	18	26	103
1	22	143	120	122	158	11	Ericaceae	116	99	63	67	51
2	112	93	55	59	19	89	Eriocaulaceae	23a	138b	-	125a	154a
26	40	35	103	97	96	6	Euphorbiaceae	78	30	104	104	49
73	126	118	74	76	84	140/I	Fabaceae	68	59	38	45	13-5
	26	133	129	116	155,7pp.	77	Fagaceae	34	12	111	108a	26
48	129	104	80	79	142	113	Ficoidaceae	48	27	50	57	106
0/I, 122/II	146	126	61	65	131	99	Frankeniaceae	97	51	17	22	38
31	130	111	86	88	88	110	Fumariaceae	58	44	6	15a	100
29	42	20	102	103	63	41	Gentianaceae	124	116	76	78	118
43	89	85	25	33b	140	69	Geraniaceae	70	74	26	33	138
11	54	40	3	13	96	17	Globulariaceae	137	108	85	87	142
96	33	11	112	108	25	134	Goodeniaceae	145a	125a	62a	66a	130a
44	137a	108a	76a	85a	86a	70	Gramineae	19	140	135	127	170
48	129	104	80	79	142	47	Grossulariaceae	64	57	52	47	17
57	60	46	7	16	101	49	Guttiferae	95	55	19	27	54
45	123	115	75	77	80	18	Halorag(id)aceae	109	67	46	50	115
07	75	78	33	36	72	53	Hamamelidaceae	65	33	53	49	21
79	17	128	116	124a	145		Helleboraceae	53	39	1	11	90
27	80	31	105	104a	23	92	Hippocastanaceae	87	84	30b	42b	77
	68b	59b	38b	45b	13	31	Hippuridaceae	110	68	45	50a	116
18	79	32	47	50b	117	19	Hydrangeaceae	64	57	52	47	16a
13	145	125	62	66	130	127	Hydrocaryaceae	108a	66a	44a	54	115a
38	37	17a	106	105	30	80	Hydrocharitaceae	18	129	114	111	146
68	59	45	8	17	36							