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MOLLUGINACEAE

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MOLLUGINACEAE

ABDUL GHAFOOR

Herbs, usually non-succulent, glabrous or glandular to stellately hairy. Leaves simple, opposite, alternate or verticillately crowded, often exstipulate or rarely stipulate, entire, not fleshy. Inflorescence axillary or terminal, lax or dense cymose clusters, sometimes flowers solitary. Flowers sessile to pedicellate, small, bisexual, actinomorphic, hypogynous. Sepals 5, free or subunited basally, mostly persistent. Petals absent. Stamens (3-) 5-numerous, episepalous or not, filaments free or basally united into fascicles, alternating with sepals, anthers dithecous, longitudinally dehiscent; staminodes present or absent, sometimes petaloid. Carpels 2-5 (-6), free or syncarpous; ovary superior, 2-5 (-6)-loculed, ovules solitary and basal or many in each locule on axile placenta; styles and stigmas as many as locules. Fruit a loculicidally 2-5-valved capsule or aggregate of achenes breaking into 2-5 mericarps. Seeds reniform, albuminous, with or without strophioles; embryo usually curved.

A family of 10 genera and nearly 100 species, distributed mostly in tropical and subtropical regions chiefly in South Africa. Represented in Libya by 4 genera with 5 species.

Sometimes included under *Aizoaceae* from which it is distinguished by its non-succulent habit, free or almost free sepals (never forming a tube) and superior ovary.

1. \+ Raphides very distinct in leaves and sepals. Carpels free. Fruit an aggregate of achenes. **1.Gisekia**

   — Raphides in leaves and other parts absent. Carpels united. Fruit a capsule or schizocarp 2

2. \+ Plants usually viscid-glandular hairy. Ovary bicarpellary with 2 stigmas. Fruit a schizocarp splitting into 2 mericarps when ripe **2. Limeum**

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— Plants usually glabrous. Ovary 3-5-carpellate with 3-5 stigmas. Fruit a loculicidal capsule 3

3. + Leaves alternate. Sepals 4-5 mm long, staminodes petaloid **3. Corbichonia**

— Leaves whorled or all radical. Sepals up to 3 mm long. Staminodes absent. **4. Mollugo**

1. GISEKIA

Linn.,Mantissa 2:554.1771

Annual, diffusely branched, prostrate-procumbent herb with ± prominent numerous, whitish linear raphides. Leaves exstipulate, sessile or short petioled, opposite, linear to oblanceolate-spathulate or elliptic, entire, slightly fleshy. Inflorescence axillary, sessile or pedunculate, condensed or loose, dichasial cymes. Flowers very small, bisexual or unisexual, actinomorphic, shortly pedicellate. Sepals 5, free. Petals absent. Stamens 5-20, free. Carpels superior, (3-) 5 (-6), apocarpous, each compressed, 1-loculed with solitary basal ovule; styles short, as many as carpels. Fruit an aggregate of indehiscent, 1-seeded achenes with papillate, thin, transparent pericarp. Seeds ± reniform, estrophiolate.

A genus of c. 5 species, distributed in Africa and Asia; represented in Libya by one species.

Gisekia pharnaceoides Linn., Mant. 2: 562. 1771; Andrews, Fl. Anglo-Egypt. Sudan 1: 91. 1950; Ozenda, Fl. Sahara 202. 1958; Quezel & Santa, Nouv. Fl. Alger. 1:308. 1963; Y. Nasir in Nasir & Ali, Fl. W. Pak. 41 (Aizoaceae): 10. fig. 2, J-M. 1973.

G.rubella Moq. in DC.,Prodr.13(2):27.1849; Andrews,l.c. 92.

Annual, glabrous, ± succulent herb with 30-60 cm long, spreading, decumbent branches. Leaves usually opposite, sessile or with ± winged, minute petiole, linear to oblanceolate-obovate to elliptic, 5-60 x 2-15 (-20) mm, entire, acute to obtuse. Inflorescence a congested or lax, few to many-flowered, ±umbellate cyme. Flowers sessile or on up to 5 mm long pedicel, bisexual, greenish-white with

rosy or pale tinge. Sepals elliptic, 1.5-3 mm long, persistent. Stamens 5 with basally dilated filaments. Carpels and styles 5. Achenes whitish to pinkish, cristate, ± fimbriate margined. Seeds compressed, c. 1 mm long, minutely punctate.

Type: Cultivated at Uppsala, Herb.Linn.399.1 (LINN).

Reported from Tibesti by Ozenda (l.c.).

Distribution: South and tropical Africa, Southern Sahara, Madagascar, S.W.Asia to India and Mascarene Islands.

A higly variable desert species of sandy habitats.

Fl. October-March.

2. **LIMEUM**

Linn.,Syst.Nat.ed.10.995.1759

Annual or perennial, viscid-glandular hairy to glabrous, usually prostrate, diffusely branched herbs or subshrubs. Leaves exstipulate, alternate to subopposite or opposite, linear-lanceolate to ovate or obovate-orbicular, entire. Inflorescence axillary or terminal, few to many-flowered, lax or congested cymes.Flowers small, hypogynous, bisexual, greenish, bracteate. Sepals 5, free. Petals absent. Stamens (5-) 7 (-10), inserted below the ovary, filaments dilated towards base; staminodes 3 (-5), free, rarely petaloid or absent. Ovary bicarpellary, syncarpous, superior, globose, 2-loculed; each locule with 1 basal ovule; style simple, stigmas 2. Fruit schizocarpic, splitting into 2, indehiscent, reticulate to spinescent or smooth, membranous winged or wingless, 1-seeded mericarps. Seeds reniform.

A genus of c. 28 species, distributed in South and Tropical Africa, Arabia and Pakistan. The genus, with the following species, has been recorded for the first time from Libya.

Limeum obovatum Vicary, Journ. As. Soc. Beng. 16: 1163. 1847; Hedge & Lamond in Rech. f., Fl. Iran. 114: 3. 1975 (Fig. 1).

Limeum indicum Stocks ex T. Anders in Journ. Linn. Soc. Bot. 5 Suppl. 1: 30. 1860; Andrews, Fl. Pl. Anglo-Egypt. Sudan 1: 94. 1950; Ozenda, Fl.

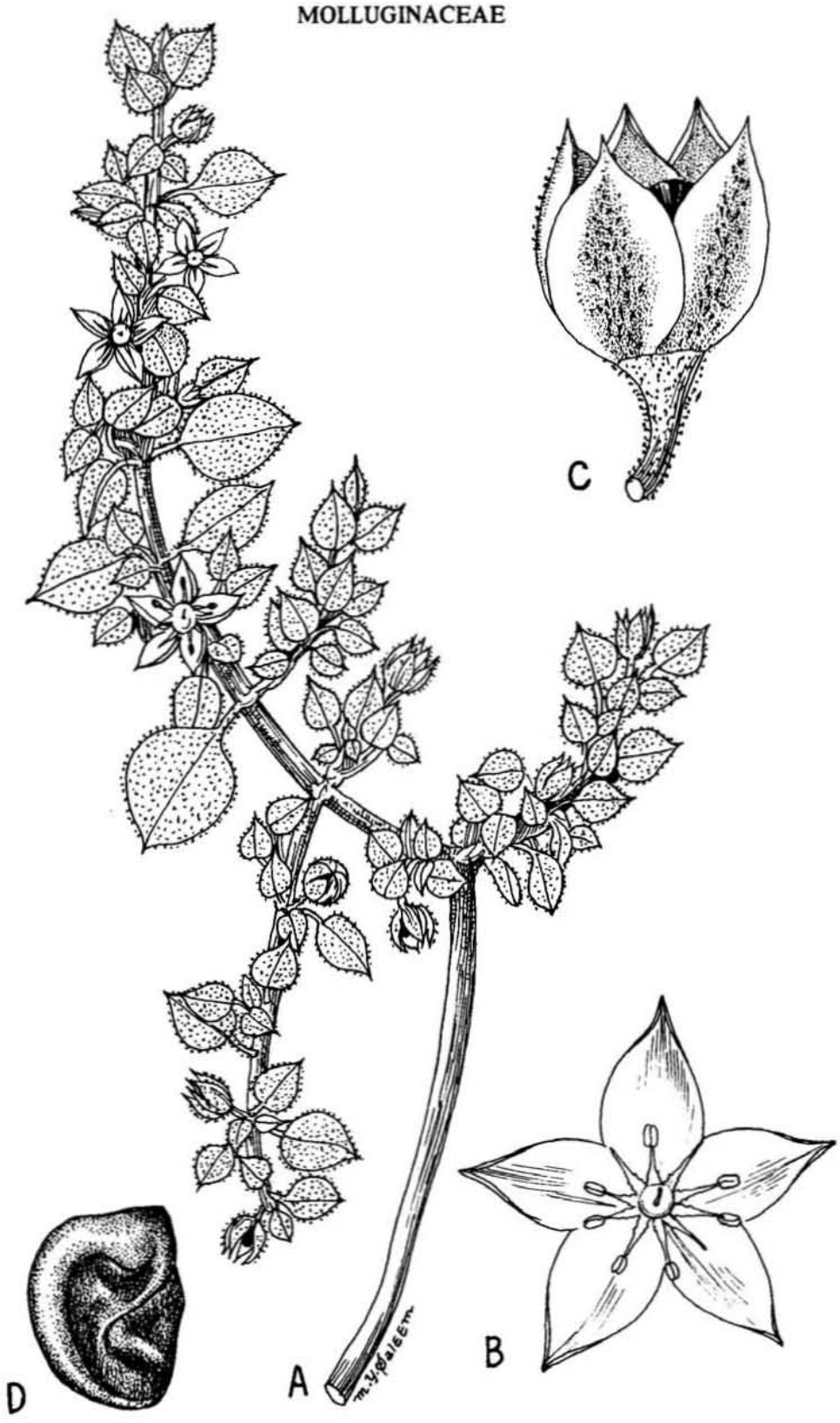


Fig. 1, **Limeum obovatum:** A, Habit x 3; B, Flower in surface view x 8; C, Flower in lateral view x 12; D, Seed x 16.

Sahara 204. 1958; Y. Nasir in Nasir & Ali, Fl. W. Pak. 41 (Aizoaceae): 11. fig. 2, N-W. 1973.

A prostrate, finely papillate and glandular to glabrescent herb with up to 30 cm long, dichotomously branched spreading stems. Leaves subopposite, with up to 5 mm long, glandular petiole; lamina broadly elliptic-ovate to suborbicular, (4-) 5-12 x (3-) 4-8 mm, unequal sided, entire, mucronate at the apex, finely papillate and glandular, glands ± viscid. Cymes axillary, sessile to subsessile, few to many-flowered. Flowers small, 5-6 mm across, greenish-white; bracts ovate. Sepals lanceolate-ovate, c. 2.5 mm long, margins whitish-membranous, glandular outside, persistent and enlarged up to 3 mm in fruit. Stamens 7, filaments c. 1 mm long, united and fimbriate at the base, persistent; staminodes shorter than sepals, ± clawed. Ovary glabrous, c. 1 mm in diameter. Capsule enveloped by sepals, c. 2 mm in diameter, mericarps 1-seeded, plano-convex, c. 1.2 mm long, seeds white, compressed.

Type: Described from Hala Mountains near Kotree, Sind (Pakistan), *Vicary* (K).

G-8 Gebel Uweinat, 7.11.1968, *L. Boulos* 3378 (ULT).

Also reported from Tibesti by Ozenda (l.c.).

Distribution: South Libya, Chad, Sudan, S.W. Egypt eastwards to Pakistan (Saharo-Sindian element).

Fl. March-September

3. CORBICHONIA

Scop., Introd. Hist. Pl. 264. 1777.

Annual or perennial, glabrous, suberect, decumbent to prostrate herbs. Leaves exstipulate, petiolate, alternate, obovate-rotundate, entire, apiculate, fleshy. Inflorescence antiphyllous or terminal, lax, few-many flowered cymes. Flowers small, actinomorphic, hypogynous, pedicellate. Sepals 5, free. Petals absent. Stamens many, inserted below the ovary, staminodes present, petaloid. Carpels 5, syncarpous; ovary superior, 5-loculed, each locule multiovulate, placentation axile;

styles and stigmas 5, free. Fruit a loculicidally 5-valved, globose capsule. Seeds numerous, ± reniform.

Orygia Forsk, with *O.portulacifolia* as its type species is synonymous with *Talinum* Linn. (Portulacaceae) and because Forskal's other species, *O.decumbens* is different in having characters of the family Molluginaceae, hence it was placed in the genus *Corbichonia* Scop.

A small genus of 2 African and Tropical Asian species.

Corbichonia decumbens (Forsk.) Exell in Journ. Bot. 73: 80. 1935;Y. Nasir in Nasir & Ali, Fl. W. Pak. 41: 7. fig. 2, A-E. 1973; Hedge & Lamond in Fl. Iran. 114: 4. 1975.

Orygia decumbens Forsk., Fl. Aegypt.-Arab. 103. 1775; Ozenda, Fl. Sahara 202. 1958; Quezel & Santa, Nouv. Fl. Alger. 1: 311. 1962; *Glinus trianthemoides* Heyne in Roth, Nov. Sp. Pl. Ind. Or. 231. 1821.

Annual to perennial herb,suberect to prostrate, often basally subwoody, with up to 60 cm long, purplish branches. Leaves with 4-10 mm long, ± winged petioled; lamina oblanceolate-obovate to ovate-elliptic, 40-60 x up to 30 mm, cuneate at the base, entire, mucronate, glaucous. Inflorescence terminal, becoming leaf-opposed, lax, few to many-flowered, on up to 5 cm long peduncle. Flowers pink to purplish, c. 5 mm across, pedicel up to 4 mm long; bracts lanceolate. Sepals elliptic to broad ovate, 4-5 x 2.5-3 mm, membranous margined. Stamens numerous, in 2 whorls; staminodes petaloid, numerous, oblong, c. 2.5 mm long, united at the base. Capsule ± globose, c. 4-4.5 mm in diameter, shining, yellow-green, glabrous, enclosed by persistent sepals. Seeds compressed, shiny, black, inconspicuously strophiolate.

Type: Arabia, *Forskal.* (Holotype - C; Isotype - BM)

Reported from Tibesti by Ozenda (l.c.).

Distribution: Widely distributed in South, East tropical and subtropical Africa, eastwards to Arabia, South Iran and Indo-Pakistan subcontinent.

Fl. October-February.

MOLLUGINACEAE

4. MOLLUGO

Linn.,Sp.Pl.49.1753; Gen.Pl.ed.5.39.1754.

Annual, glabrous, erect or procumbent herbs. Leaves stipulate or exstipulate, sessile or petiolate, only radical or both cauline and radical, whorled when cauline or rosetted when radical, linear to oblanceolate-spathulate or obovate, entire. Inflorescence axillary or terminal, lax, dichasial, ± umbellate cymes. Flowers very small, pedicellate, bisexual, green, bracts linear. Sepals 5, free, persistent. Petals absent. Stamens 3-5, rarely 6-10, free, inserted below the ovary; staminodes absent. Ovary 3-5-carpelled, syncarpous, superior, 3-5-loculed, each locule with many ovules on axile placenta; styles and stigmas 3-5. Fruit a locucidally 3-5-valved capsule. Seeds numerous, compressed, reniform, estrophiolate.

A genus of c. 20 species, distributed in warm temperate, tropical and subtropical regions. Represented here by 2 species.

+ Plant bearing both cauline and radical leaves. Caulines leaves persistent — 1. **M.cerviana**
- Plant bearing radical oblanceolate-obovate or rotundate leaves only. Cauline leaves absent — 2. **M.nudicaulis**

1. **Mollugo cerviana** (Linn.) Ser. in DC., Prodr.1:392. 1824; Andrews, Fl. Pl. Anglo-Egypt. Sudan 1: 94. 1950; Ozenda, Fl. Sahara 202. fig. 48. 1958; Maire, Fl. Afr. Nord. 8: 281. fig.1002. 1962 (Aizoaceae); Quezel & Santa, Nouv. Fl. Alger. 1: 308. 1962.

Pharnaceum cerviana Linn., Sp. Pl.272. 1753; *Pharnaceum umbellatum* Forsk., Fl. Aegypt.-Arab. 58. 1775; *Mollugo umbellata* (Forsk.) Ser. in DC., Prodr. 1: 393. 1824.

An erect, up to 15 cm tall herb with many, filiform, terete subspreading stems. Leaves sessile, basal rosetted, linear-oblong to oblanceolate-spathulate, 2-10 x c. 0.5-3 mm, soon caducous; cauline leaves whorled, up to 10 per verticel, linear, 5-15 x 0.5-1 mm, entire; stipules scarious white, ovate-triangular. Inflorescence pedunculate, lax, terminal or axillary, ± umbellate cymes. Flowers green, pedicellate, pedicels up to 10 mm long, patent to reflexed. Sepals free, elliptic, 1.5-2.5 mm long, membranous on margins, persistent. Stamens 5, rarely

more or less, filaments dilated at the base. Ovary 3-carpelled, 3-locular; styles and stigmas 3. Capsule subglobose, c. 2.5 mm in diameter, enclosed by sepals. Seeds pale brown.

Syntypes: « Hab. Rostockii, in Russia, Hispania », Herb. Linn. 387/1 (LINN).

Reported from Tibesti by Ozenda (l.c.)

Distribution: Tropical and subtropical Africa, Central and South-West to South Asia, Australia; introduced in tropical America and Gelapagos.

Fl. July-November.

2. **Mollugo nudicaulis** Lam., Encycl. Meth. Bot. 4: 234. 1797; Andrews, l.c. 94; Ozenda, l.c.; Y.Nasir in Nasir & Ali. Fl. W. Pak. 41: 5. fig. 1, E-G. 1973.

Pharnaceum spathulatum Sw.,Fl.Ind.Occ. 1:568.1797.

Annual, erect, up to 25 cm tall, glabrous herb with leafless flowering shoots. Leaves all radical, rosetted, sessile to subsessile oblanceolate-obovate or rotundate, 15-55 x 3-20 mm, narrowed at base, entire, obtuse. Inflorescence scapose, dichotomously branched, many-flowered lax cymes. Flowers green to pinkish, pedicellate, pedicel up to 20 mm long, bracts ovate-lanceolate, c. 2 mm long brownish membranous. Sepals elliptic, 2-3 mm long, membranous margined, mucronate, persistent, green to pinkish. Stamens 3-5, persistent. Ovary 3-carpelled, 3-loculed, with 3 styles and stigmas. Capsule oblong-subglobose, 2.5-3 x 1.5 mm, enclosed in sepals. Seeds brown black, compressed, granulate.

Syntypes: Mauritius *Commerson* (P); illustratio in Burman, Thesaurus Zeylanicus; tab. 8, fig. 2 (1737).

Reported from Tibesti by Ozenda (l.c.)

Distribution: Indo-Pakistan subcontinent westwards to subtropical and tropical Africa, Madagascar, French Guinea, Mascarene Islands,New Caledonia and West Indies.

Fl. August-November

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