

A revision of the (*Kickxia aegyptiaca*) complex (*Scrophulariaceae*)

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Summary. The *Kickxia aegyptiaca* complex is revised. Six discretely dispersed subspecies are recognized, ranging from the Western Sahara, the Mediterranean coast of North Africa to the Sudan Republic, Sinai and Israel. The varieties and forms previously recognized are considered to be local growth forms and of doubtful taxonomic importance. A key to the subspecies is provided.

Kickxia aegyptiaca is represented by a number of subspecies discretely dispersed through the Western Sahara and the Mediterranean coast of North Africa from Morocco to Egypt and extending into Sinai and Israel (Map 1).

A number of varieties and forms have been recognized in the past. These are, in my opinion, of doubtful taxonomic status, constituting mere growth responses to different environmental conditions. The ranges of variation within the subspecies are shown in Fig. 1; the variations follow a normal curve.

In view of the difficulties in tracing the original descriptions for the infraspecific taxa and the necessity of making new combinations for some of the subspecies, it was considered advisable to bring all the essential information together in a revision.

Kickxia aegyptiaca (L.) Nábělek in Publ. Fac. Sci. Univ. Masaryk, Brno 80:30 (1926); Janchen in Oester. Bot. Zeit. 82: 152 (1933); Rechinger, Fl. Lowland Iraq: 543 (1964). Type: Egypt, Memphis, 1678-1704, *Lippi* s.n. (P, holotype).

Antirrhinum aegyptiacum L., Sp. Pl.: 613 (1753), & Syst. Veg.: 464 (1774); Forsskal, Fl. Aeg.-Arab.: 112 (1775); Lam., Encycl. 4:350 (1797); Pers., Syn. Pl. 2:155 (1806); Ait. f., Hort. Kew. ed. 2, 4: 11 (1812); Del., Fl. Aegypt.: 95, t. 32 (1813); Spreng, Syst. Veg. 2: 796 (1825).

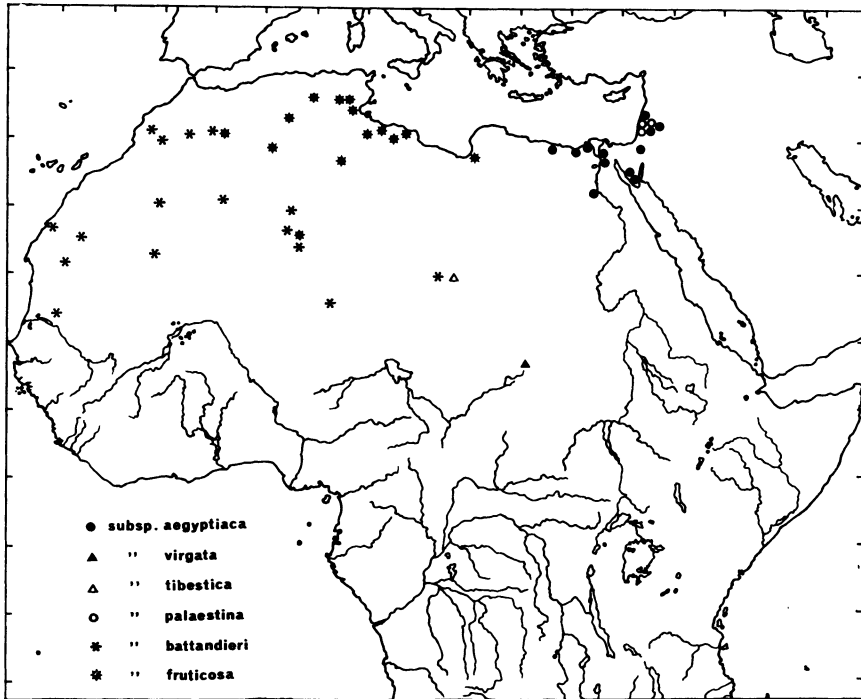
Linaria aegyptiaca (L.) Dum.-Cours., Bot. Cult. ed. 2, 2: 92 (1801); Chav., Monogr. Antirrhinées: 110 (1833); Boiss., Fl. Orient. 4: 369 (1879); Post, Fl. Syria, Palest. & Sinai, ed. 1: 584 (1896), & ed. 2, 2: 285 (1933); Batt., Fl. Algeria Suppl.: 70 (1910), & Fl. Arab.: 342 (1921); Pamp., Prodr. Fl. Cirenaica: 405 (1930); Tackholm, Stud. Fl. Egypt: 126 (1956).

Elatinoides aegyptiaca (L.) Wettst. in Engl. & Prantl, Nat. Pflanzenfam. 4, 3b: 58 (1891).

The subspecies recognized may be identified according to the following key:

KEY TO SUBSPECIES

1. Plant conspicuously glandular pubescent:
 2. Flowers large; calyx 3-5 mm long; corolla (including the spur) 12.5-18 mm long subsp. **aegyptiaca**



MAP 1. Distribution of the subspecies of *Kickxia aegyptiaca*.

2. Flowers small:
 3. Calyx 2.5–3.5 mm long; corolla (including the spur) 9–10 mm long; pedicels 4.5–20 mm long subsp. **virgata**
 3. Calyx c.2 mm long; corolla (including the spur) 8 mm long; pedicels 2–3 mm long subsp. **tibestica**
1. Plant not conspicuously glandular pubescent:
 4. Indumentum of stem, petiole and calyx of short, white, retrorse eglandular hairs; calyx 2.5–4 mm long; corolla (including the spur) 10–14 mm long; pedicels 3–11 mm long
subsp. **palaestina**
 4. Indumentum not as above:
 5. Hairs long, usually lax; calyx 3.5–4 mm long, sepals obtuse; corolla (including the spur) 9.5–14 mm long; pedicels 3–9 mm long subsp. **battandieri**
 5. Hairs short, dense; calyx 2–3.5 mm long, sepals acute; corolla (including the spur) 8.5–15 mm long; pedicels 3–5 (–9) mm long subsp. **fruticosa**

subsp. **aegyptiaca**

Linaria aegyptiaca var. *heterophylla* Bornm. in Allg. Bot. Zeit. 15:131 (1909)

Type: Egypt, Giza pyramids, *Bornmüller* s.n. (B, holotype).

L. aegyptiaca subsp. *eu-aegyptiaca* Maire in Bull. Soc. Hist. Nat. Afr. Nord 16:95 (1925).

DISTRIBUTION: Egypt, Sinai, Israel, Jordan.

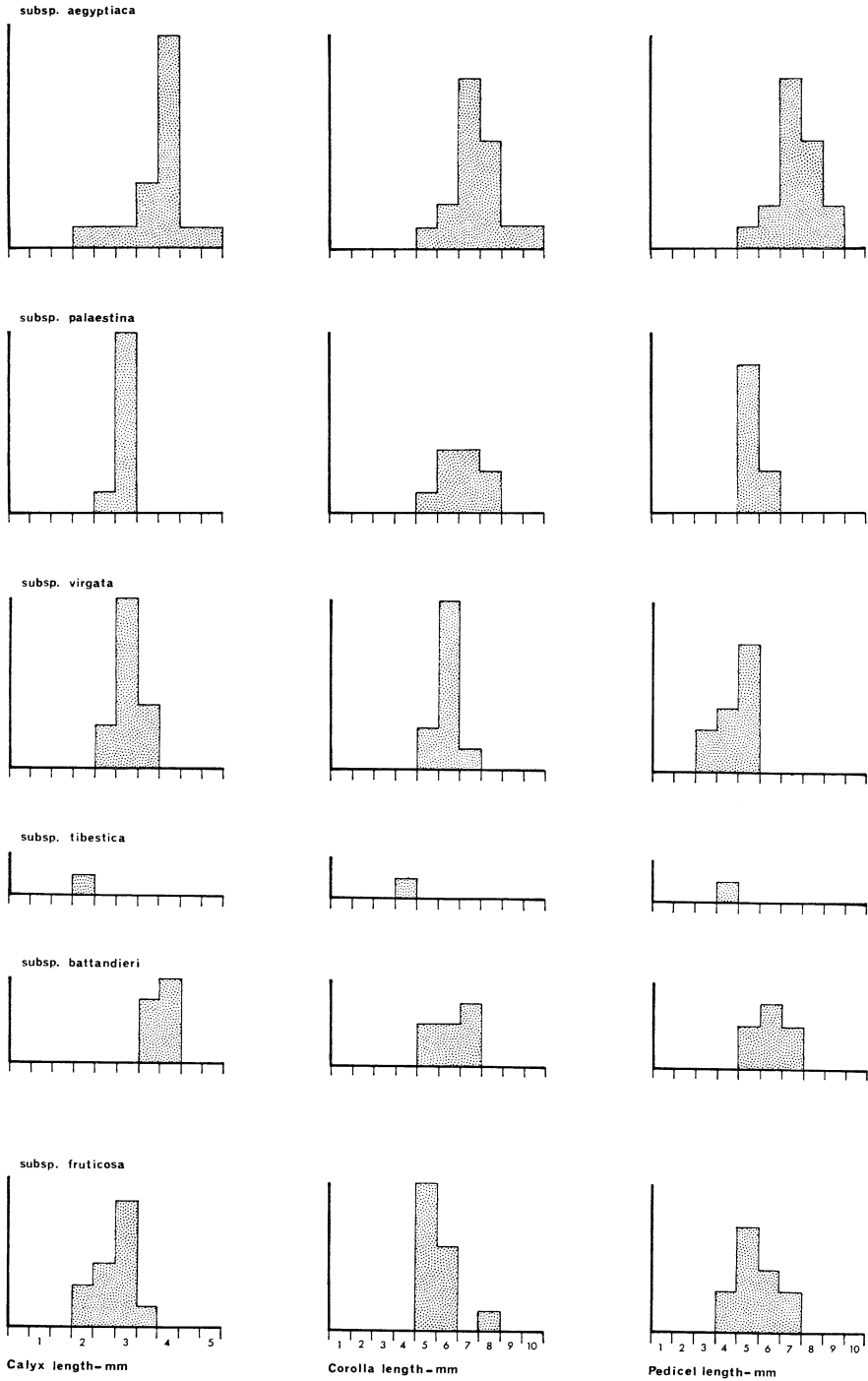


FIG. 1. Histograms showing variation in length of calyx, corolla and pedicel for the subspecies of *Kickxia aegyptiaca*.

subsp. **virgata** *Wickens* in Kew Bull. 25: 377, fig. 2 (1971). Type: Sudan, Jebel Marra, Deriba Crater, 2290 m, Dec. 1957, *Robertson* 129 (K, holotype).

Linaria aegyptiaca sensu Lester-Garland in Journ. Bot. 59: 48 (1921); Norman in Journ. Bot. 62: 138 (1924); Broun & Massey, Fl. Sudan: 325 (1929); *non* (L.) Dum.-Cours. sensu stricto.

DISTRIBUTION: Sudan (endemic to Jebel Marra).

subsp. **tibestica** *Wickens*, subsp. nov. Type: Chad, Tibesti, Emi Koussi, 1956, *Quézel* s.n. (Univ. Marseille, holotype!)*

Linaria aegyptiaca subsp. *tibestica* *Quézel* in Univ. Alger Inst. Recherch. Sahar., Mém. 4: 173 (1958). Type: Chad, Tibesti, Emi Koussi, *nom. invalid., designat typi omitta.*

L. aegyptiaca subsp. *tibestica* forma *tibestica* *Quézel* & forma *minuta* *Quézel* in l. c. (1958), *designat typi omitta; descr. gallicus.* Based on specimens from Chad, Tibesti, Emi Koussi & Toussidé.

DISTRIBUTION: Chad (endemic to Tibesti).

subsp. **palaestina** (*Bornm.*) *Wickens*, comb. nov.

Linaria aegyptiaca subsp. *palaestina* *Bornm.* in Allg. Bot. Zeit. 15: 131 (1909); Post, Fl. Syria, Palest. & Sinai ed. 2, 2: 285 (1933). Types: Israel, Nazareth, 1895, *Post* s.n. (B, syntype); Judea, 1897, *Bornmüller* 1197 (B, syntype; K, isosyntype); Haifa, 1897, *Bornmüller* 1198 (B, syntype); & Jericho, 1897, *Bornmüller* 1199 (B, syntype).

DISTRIBUTION: Israel, Jordan, Syria.

subsp. **battandieri** (*Maire*) *Wickens*, comb. nov.

Linaria micromerioides *Batt. & Trab.* in Bull. Soc. Bot. France 60: 246 (1913). Type: Algeria, Tassili des Ajjer, *sine leg.* (P, holotype).

L. fruticosa *Desf.* forma *villosa* *Pamp.* in Bull. Soc. Bot. It. 1914: 16 (1914) & in Pl. Tripol.: 206 (1914). Type: Libya, Tahuna, *Pampanini* 2053 (FI, syntype), & Tripoli, *Pampanini* 4368 (FI, syntype).

L. aegyptiaca subsp. *battandieri* *Maire* var. *typica* *Maire* in Bull. Soc. Hist. Nat. Afr. Nord 16: 95 (1925), & in Mém. Soc. Hist. Nat. Afr. Nord 3: 193 (1933); Jahandiez & Maire, Cat. Pl. Maroc 3: 670 (1934); Monod, Phanérogames, Contrib. Étude Sahara Occ.: 111 (1939); Emberger & Maire, Cat. Pl. Maroc 4: 1122 (1941); *Quézel* in Univ. Alger Inst. Recherch. Sahar., Mém. 4: 173 (1958); *Quézel* & Santa, Nouvelle Fl. Algérie 2: 837 (1963). Types: Morocco, Figuig, *Battandier* s.n. (AL, here selected as lectotype), Tizi-n-Telghempt, *Nain* s.n. (AL, syntype) & Aguer gour, *Brives* s.n. (AL, syntype); Algeria, Ben Zireg, *Battandier* s.n. (AL, syntype), Ahaggar, *Laperrine* s.n. (AL, syntype), & Tidikelt, *Dautherville* s.n. (AL, syntype).

* Unfortunately the citation of the type of Professor *Quézel*'s *Linaria aegyptiaca* subsp. *tibestica* does not validate his name here treated in synonymy. The combination under *Kickxia aegyptiaca* must stand as a 'subsp. nov.', but using *Quézel*'s original description.

- L. aegyptiaca* subsp. *battandieri* var. *villosa* (Pamp.) Maire in Bull. Soc. Hist. Nat. Afr. Nord 16: 96 (1925).
- L. aegyptiaca* subsp. *battandieri* var. *dolichopoda* Maire in *l.c.* (1925) & in Mém. Soc. Hist. Nat. Afr. Nord 3: 195 (1933); Bruneau de Miré & Gillet in Journ. Agric. Trop. Bot. Appl. 3: 718 (1956). Type: 'Hab. in Sahara occidentali ubi vere floret' (AL, holotype).
- L. aegyptiaca* subsp. *battandieri* var. *micromeriodes* (Batt. & T.ab.) Maire in Mém. Soc. Hist. Nat. Afr. Nord 3: 194 (1933); Quézel in Univ. Alger Inst. Recherch. Sahar., Mém. 4: 173 (1958).
- L. aegyptiaca* subsp. *battandieri* var. *crassipes* Maire in Bull. Soc. Hist. Nat. Afr. Nord 29: 439 (1938). Type: Mauritania, Fort Gouraud, *Murat* 1422 (AL, holotype).
- L. aegyptiaca* subsp. *fruticosa* (Desf.) Maire var. *villosa* (Pamp.) Maire & Weiller in Bull. Soc. Hist. Nat. Afr. Nord 30: 294 (1939).
- L. aegyptiaca* sensu Hepper in Fl. W. Trop. Afr. ed. 2, 2: 354 (1963), *non* (L.) Dum.-Cours. sensu stricto.

DISTRIBUTION: MOROCCO, Algeria, Mauritania, Niger, Chad.

subsp. **fruticosa** (Desf.) Wickens, comb. nov.

- Linaria fruticosa* Desf., Fl. Atl. 2: 39, t. 133 (1798); Bonn. & Barr., Cat. Pl. Vasc. Tunisie: 315 (1846); Batt. & Trab., Fl. Algerie: 637 (1890); Pamp., Prodr. Fl. Cirenaica: 405 (1930). Type: Tunisia, mountains near Gafsa (Cafsam), *sine leg.* (P, holotype).
- Antirrhinum spinescens* Viv., Pl. Libycae: 32, t. 27, fig. 2 (1824); Illario in Arch. Bot. Beguinot 14: 137 (1938). Type: 'Hab. in montibus Cyrenaicus', *sine leg.* (GE, holotype†).
- Linaria spinescens* (Viv.) Spreng., Syst. Veg. 2: 789 (1825).
- L. fruticosa* forma *dentata* Pamp. in Bull. Soc. Bot. It. 1914: 15 (1914) & Pl. Tripolitanae: 205 (1914). Types: Libya, Tarhuna, *Pampanini* 713 & 1768 (FI, syntypes).
- L. fruticosa* forma *integrifolia* Pamp. in *l.c.* (1914) & Pl. Tripolitanae: 206 (1914). Types: Libya, Tarhuna, *Pampanini* 921 (FI, syntype); Garian, *Pampanini* 3862 & 4138 (FI, syntypes).
- L. fruticosa* forma *litoralis* Pamp. in Bull. Soc. Bot. It. 1914: 16 (1914) & Pl. Tripolitanae: 206 (1914). Types: Libya, Tripoli, *Pampanini* 25 & 179 (FI, syntypes).
- L. aegyptiaca* subsp. *fruticosa* (Desf.) Maire in Bull. Soc. Hist. Nat. Afr. Nord 16: 93 (1925) & in Mém. Soc. Hist. Nat. Afr. Nord 3: 194 (1933); Ozenda, Fl. Sahara: 386 (1958); Quézel & Santa, Nouvelle Fl. Algérie 2: 837 (1963).
- L. fruticosa* var. *desertorum* Buxb. in Verh. Zoo. Bot. Ges. Wien 76: 62, fig. 26 (1926). Type: Tunisia, Gafsa, *Buxbaum & Schussnig* s.n. (WU, holotype).
- L. aegyptiaca* subsp. *fruticosa* forma *integrifolia* (Pamp.) Maire & Weiller in Bull. Soc. Hist. Nat. Afr. Nord 30: 294 (1939).

DISTRIBUTION: Algeria, Tunisia, Libya.