

TWO NEW SPECIES OF *GAGEA* SALISB. (LILIACEAE) FROM PAKISTAN

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Abstract

Two new species viz., *Gagea bashoensis* Ali and *G. rubinae* Ali are being described from Pakistan.

Introduction

While preparing the account of the family Liliaceae for Flora of Pakistan, some new species of the genus *Gagea* have come to light. Two new species of the genus *Gagea* are being described herein. The account of 7 new species is being published in a separate paper, in collaboration with Levichev. Tamura (1998) and Xinqi & Turland (2000) have reported about 90 species in *Gagea*, however according to Levichev (1999) the number of species in the genus is likely to be more than 250. Thus it is obvious that the genus is in need for thorough revision.

1. *Gagea bashoensis* Ali sp. nov. (sect. *Gagea*) (Fig. 1: D-F)

Affinitas. A *G. turkestanica* Pascher, *G. capusii* A. Terracc. et *G. pedata* Levichev habitatione in regione montana superiore, a *G. turkestanica* et *G. capusii* pedicellis candelabriforribus brevibus, a *G. pedata* et *G. capusii* folio radicali sectione canaliculato-anguloso (nec sectione fistuloso) differt.

Plantae graciles, 7-12(20) cm alt., solitariae. Bulbus 9-10 mm in diam., guttiformis, bulbillis nullis, tunicis tenuiter coriaceis brunneis tectus. Pedunculus sectione quadrangularis. Folium radicale solitarium, lineare, ca 1 mm lt., sectione canaliculato-angulosum. Folia pedunculo opposita, duo, quorum infimus anguste lanceolatum, 1.5-2 mm lt., inflorescentiae aequilongum. Inflorescentia umbelliformis, 2-3(5)-flora, fructificatione candelabriforribus. Pedicelli inaequilongi, 4-20 mm lg. Perianthii phylla lanceolata, 11-16 mm lg., sub anthesi elongata, 1-1.5(2) mm lt., lanceolato-lineariter, obtusiuscula, intus flava, extus viridia albo-marginata. Capsula 5-6 mm longa, glabra, obovoidea, apice retuso-emarginata; stylus c. 10 mm longus; stigma capitatum. Semina teretia.

Differs from *G. turkestanica* Pascher, *G. capusii* A. Terracc., *G. pedata* Levichev as it occurs in the top belt of the mountains, from *G. turkestanica* and *G. capusii* it differs in having short candelabrum-like pedicles, from *G. pedata* and *G. capusii* it differs in having the basal leaf grooved-angular in section (instead of being fistular in section).

Plant single, slender, 7-12 (20) cm in height. Bulb 9-10 mm in diameter, $\pm$ ovate, without bulbils, outer tunic thin, coriaceous, brown. Peduncle in section quadrangular. Basal leaf single, linear, c. 1 mm broad, in T. S. grooved-angular. Bracts 2, narrowly lanceolate, 12-20 mm long, up to 1.5-2 mm broad. Inflorescence umbrella-shaped, 2-3 (5)-flowered, in fruiting stage candelabrum-like. Pedicels unequal, 4-20 mm long. Tepals lanceolate, 11-16 mm long, get extended during flowering, 1-1.5 (2) mm broad, yellow inside, green outside, whitish along the margin. Capsule 5-6 mm long, glabrous, obovate, retuse-emarginate above, style c. 10 mm long, stigma capitate. Seeds terete.

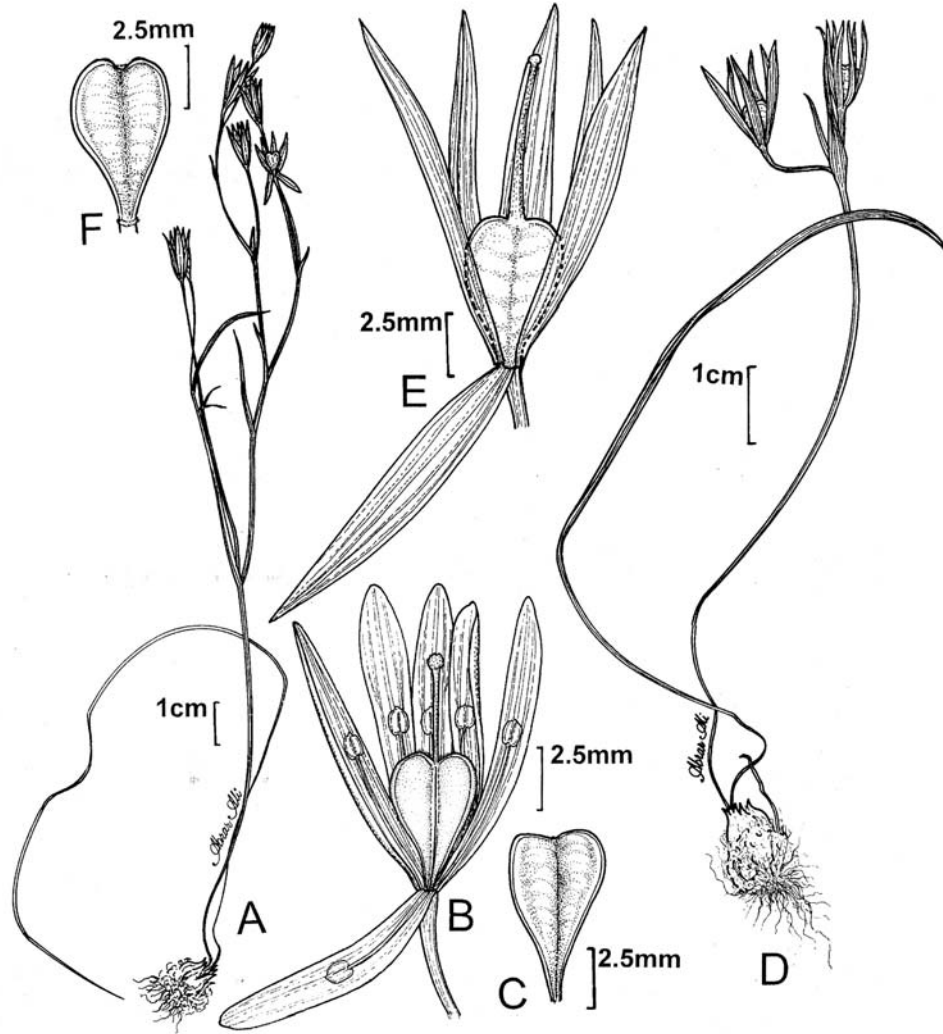


Fig. 1. *Gagea rubinae* (Rubina Akhtar 12495, RAW): A. habit; B. flower; C. fruit. *G. bashoensis* (Jawad Ali 2d-2-2, RAW): D. habit; E. old flower with perianth and pistil; F. fruit.

Holotype: Bondopiri, Basho Valley, Skardu, 3710 m, Juniper high slope, 6.7.1998, Kathrin Hofmann, Ulrik. A. Motzfeldt, Wazir Shabbir & Jawad Ali 2d-2-2 (RAW!).

Other specimens seen: 10 km from Chaprot on way to Bar valley, 3150 m, 27.7.1989, A. Bosshard, F. Kloetzi & R. Schaffner (K!); Kashmir: M. Haramosh (Baltistan) 9000', 1.5.1928 F. Ludlow 251 (BM!, BM000821437); Kashmir: Baltistan, Gondhokoro glacier, 13500' 7.7.1955, E. Nasir & G. L. Webster 6021 (RAW!); Chitral: Lowari Pass, 9500-11000' 15.5.1895, Harris 16699 *pro parte* (K!); Gilgit: Rana Valley, S.W. of Astor, 13000' 35°.20'N, 75°.50'E, 4.8.1967, T.E. Lankester & T.A.S. Pearson (BM!, BM000821438); NW Himal.: Kumaon, 6-10000' 20.6.1848, Col.: J. J. *pro min. parte* (K!, K000400121).

Distribution: Pakistan (Chitral, Gilgit), Kashmir and India (Kumaon).

2. *Gagea rubinae* Ali, sp. nov. (sect. *Stipitatae* (Pascher) Davlianidze) (Fig. 1: A-C)

Affinitas. A *G. stipitata* Merckl. ex Bunge et *G. x turanica* Levichev, bulbillis vegetativis magno alveolatis, a *G. ova* Stapf perianthii phyllis aureis (nec lacteo et pallido flavescenti) et area insertionis bulbillorum vegetativorum late lacuniformi (nec area insertionis stria angusta) differt.

Plantae graciles tenues, solitariae, 9-22 cm alt. Bulbus 7-9 mm in diam., elongato-guttiformis, tunicis tenuiter coriaceis brunneis tectus. Bulbilli vegetativi in grege pauco, 1.5-2 mm lg., bulbiformes, alveolato-lacunos, apice affixi, facie insertionis lacunam verticalem latam praebentes. Pedunculus 5-10 cm lg., sectione rotundatus ca 1 mm in diam. Folium radicale soitarium, filiforme, teres, ca 0.6 mm in diam. inflorescentiam attingens. Folia pedunculo alterna, quorum inferius inflorescentiam fere attingens, anguste lanceolato-lineare, ca 2 mm lt., in cuspidem longam cylindricam attenuatum. Inflorescentia multiflora, ramosa. Perianthii phylla anguste lanceolata, apice acutata, 6-12 mm lg., sub anthesi elongata, 0.8-1.5 mm lt., intus aurea, extus viridia, interiora exterioribus longiora. Antherae flavae, oblongae, dehiscentes sphaericae ca 0.8 mm in diam. Capsula obovoidea, perianthio subduplo minor, in stipitem brevem (ca 1 mm lg.) angustatum.

Differs from *G. stipitata* Merckl. ex Bunge and *G. x turanica* Levichev in large-cellular sculpture of bulbils, from *G. ova* Stapf in having yellow (instead of milky-white and faintly yellowish) tepals and with an attachment of vegetative bulbils in the form of a wide lacuna (instead of an attachment in the form of a narrow strip).

Plant single, slender, 9-22 cm in height. Bulb 7-9 mm in diameter, elongated-ovate, tunic thin coriaceous brown. Vegetative bulbils few, 1.5-2 mm long, pitted, attached in the form of a wide vertical lacuna. Peduncle 5-10 cm long, in section roundish, c. 1 mm in diameter. Basal leaf single, filiform, up to c. 21 cm long, 0.75-1.0 mm broad, cauline leaves up to 10.5 cm, linear to linear-lanceolate, acute to acuminate. Inflorescence many flowered monochasial cyme, cincinnus. Bract 4-10 mm. Pedicel 1.1-3.4 cm. Tepals narrowly-lanceolate, 6-12 mm long, elongating to c. 12 mm in fruit, 0.8-1.5 mm broad, yellow inside, green outside. Anthers yellow, oblong, dehiscence pore roundish, c. 0.8 mm in diameter. Ovary c. 1.5 mm, glabrous, style c. 2 mm, stigma capitate. Fruit stipe 0.5 mm, capsule 6 mm glabrous, obcordate, retuse above.

Holotype: Near Hanna lake, bulbous rootstock, flowers yellow, 21.4.1987, *Rubina Akhtar* 12495 (RAW!).

Other specimens seen: Baluchistan, Quetta, near Hanna lake area, herb, flowers yellow, 1.4.1987, Y. Nasir 12392 (RAW). Baluchistan, Hanna, 5800 ft, 2-10 May, 1957, R. R. Stewart 28357 (RAW). Quetta, Ziaret, 7000', May 4, 1962, Zaffar Ali 25 (KAR). Hanna, 7 miles from Quetta, fls yellow, gravel sandy clay, 8.4.1970, Sultanul Abedin 4606 (RAW).

Distribution: Presently known only from Baluchistan.

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