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A NEW SPECIES OF *PSYCHROGETON* (ASTEREAE - ASTERACEAE) FROM PAKISTAN

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Abstract

A new species *Psychrogeton alii* Anjum Perveen, M. Qaiser & S. Asma Omer is described and illustrated from Pakistan. The new species is related to *Psychrogeton aucheri* (DC) Grierson and *P. nigromontanus* (Boiss. & Buhse) Grierson, from these it can be distinguished by shape and size of female and bisexual florets, style length and cypsela morphology including carpopodium. This new species is known from type locality Swat, Khyber Pakhtun-Khwah, Pakistan.

Key words: *Asteraceae, Astereae, Psychrogeton*

Introduction

Asteraceae is the largest, most evolved and the most complicated family because of its wide range of attributes. It comprises of ± 1535 genera and 23,000 species distributed in 3 sub-families and 17 tribes. In Pakistan, the family is represented by nearly 650 species distributed in 15 tribes, (Qaiser, 2002). Tribe Astereae is one of the largest tribes in the family, currently with around 178 genera and approaching 2700 recognized species (Mabberley, 2008).

Psychrogeton belongs to the Sub-tribe Astereae, Sub-family Asteroidae, comprising of up to 20 species, occurring in Pamir-Hindukush Range and extending from there into Iran, Afghanistan, Turkey (Anatolia), Iraq, North west Himalayas (Grierson, 1967, 1982). The taxon is restricted to Northern hemisphere of Pakistan (Stewart, 1972).

During the preparation of the account of the genus *Psychrogeton* - Astereae for Flora of Pakistan, the authors came across several specimens, collected from Swat, which could not be identified or placed under any known species of *Psychrogeton.* In order to accommodate these specimens a new species *Psychrogeton alii* is described below:

Psychrogeton alii Anjum Perveen, M. Qaiser & S. Asma Omer *Sp. Nov***.** (Figs. 1, 2 & 3)

Holotype: Pakistan, Province Khyber-Pakhtun-Khwah, Swat, Madyan 5029 ft., 24.05.2016, *Anjum Perveen 2057*, (KUH).

Perennial, 15-20 (-26) cm tall herb, stem branched 1-5, slender, densely hairy, hairs adpressed, glandular, glands stalked. Leaves alternate, 5–20 x 2–4 mm, sessile to sub-sessile, oblanceolate, acute apex, margin entire–slightly wavy, leaf surface densely tomentose hairy, adpressed, base acute-obtuse. Capitulum solitary, disciform, heterogamous, 6–8 mm across, Phyllaries 7-seriate, 6-8 x 1-2 mm. Ray florets female in 1-2 whorls, tubular, 5-lobed, tube 2.0–2.5x 1mm, glandular, style shorter (up to 70 µm shorter than the corolla tube), Disc florets actinomorphic, bisexual, tubulo–campanulate, 5-lobed, c.4 x c. 0.5 mm, densely tomentose, hairy glandular, white, sparsely hairy below, glandular-papillate, anther ecalcarate, staminal tube 0.5 mm, style slightly shorter than corolla. Cypsela oblong, both fertile and sterile cypsela are more or less of same size, fertile cypsela ± 0.5 × 0.2 mm, densely hairy, carpopodium rounded, diameter upto 120µm, pappus biseriate, outer whorl consist of few hairs , ± 0.4 mm, inner whorl longer than the corolla, 2.5-2.8 um long , feathery lateral barbs, ± adpressed. Sterile cypsela 0.7–0.8 × 0.25–0.4 mm, densely hairy, carpopodium rounded diameter upto 140µm.

Paratype: Pakistan, Khyber Pakhtun-Khwah, Swat, Madyan, 5029 ft., 24–05–2016, *Anjum Perveen 2054, 2055, 2056, 2058,2059* (KUH).

Distribution: Only known from the type locality, Swat, Madyan, Pakistan.

Phenology: The flowering season in Pakistan remains from April-May and fruits may be found in May-June.

Habitat: On mountains and mountain slope up to 5029 ft., on rocky surface, hanging from there.

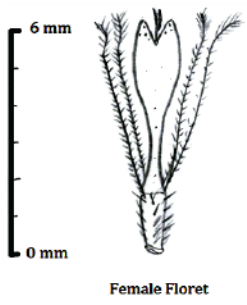
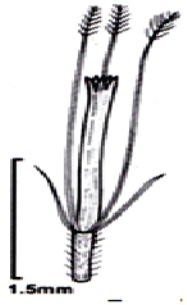
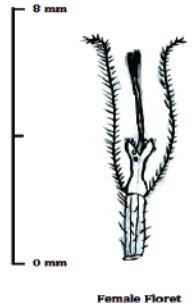
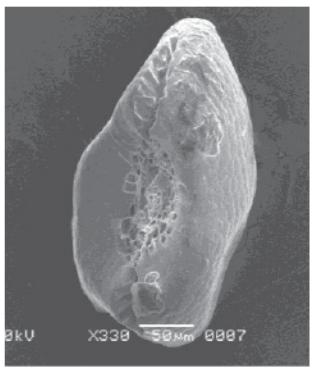
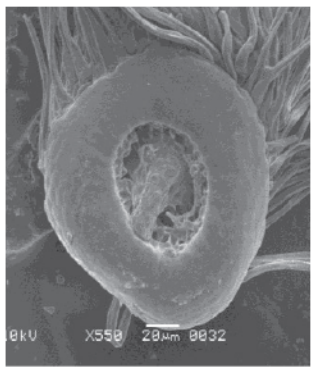
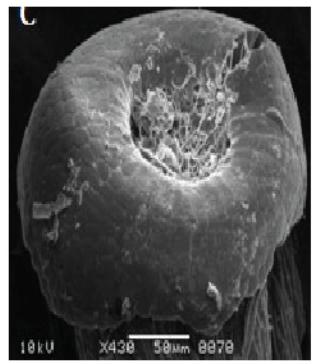
Affinity: *Psychrogeton alii* is closely related to *Psychrogeton aucheri* (DC.) Grierson and *P. nigromontanus* (Boiss. & Buhse) Grierson. All the three species are ascending and erect in habit, hairy numerous cauline leaves, actinomorphic female florets (without rays) and pappus apices with less compact barbs giving them appearance of a feather.

However these species differ from one another in floral and cypsela characters. *P. alii* differs in size, shape of female florets, style length and shape of carpopodium from that of *P. aucheri* and *P. nigromontanus.*

P. aucheri has tubule–campanulate corolla of female florets and uniseriate pappus, *P. nigromontanus* has very short and more or less tubular corolla with longer style almost double the length of corolla and uniseriate pappus; while in *P. alii* female florets are narrow tubular with style almost included in the corolla tube, pappus is biseriate. Shape of carpopodium is elliptical in *P. aucheri* while other two species have rounded carpopodiums. *P. alii* is tomentose sparsely glandular whereas, other two species are densely glandular. *P. alii* has 7-seriate, while other two species have 3-5 seriate involucres. A detailed comparison of all the three species is given in Table 1.

Etymology: This taxon is named after Prof. Dr. S.I. Ali whose contribution in the field of Plant Taxonomy/ Flora of Pakistan is outstanding.

Table 1. Comparative diagnostic characters of three closely related species *Psychrogeton alii* sp. nov., *P. aucheri* & *P. nigromontanus*.

Attribute	*Psychrogeton aucheri*	*Psychrogeton alii*	*Psychrogeton nigromontanus*
Cauline leaf	Lateral veins visible; leaf sparsely tomentose, glands basal, hair stiff, at right angle with the leaf surface	Lateral vein not visible; leaf surface densely tomentose, glands with stalk, branched; parallel with the leaf surface	Lateral veins not visible, almost entirely glandular, glands branched; midrib hairy
Involucre	Phyllaries 4-5 seriate, Phyllary not whole scarious; apex purple; Inner and outer phyllaries have same tomentum or sometimes inner slightly more tomentose than the outer ones	Phyllaries 7-seriate, Phyllary not whole scarious; apex dark green; inner most phyllaries densely tomentose, outer surface glandular	Phyllaries 3-4 seriate, Phyllary whole scarious; apex dark brown; surface glandular, margins hairy & fringed
Female floret	3.5-4.0 mm long, narrow in the middle, 500- 1000 µm wide at apex & base; style slightly longer than the corolla tube; pappus uniseriate, setae 4-5 mm long, sub equal to corolla, barbellate, more densely at the apex	2.0-2.5mm long, not narrow in the middle, ± 100µm wide; style shorter (up to 70 µ m less) than the corolla tube; pappus biseriate, outer whorl consists of few hair, ± 0.4 mm, setae of inner whorl 2.5-2.8 mm long, barbellate at the tip only	1.5-2.0 mm; Narrow in the middle; 100 µm wide at lobes; style longer than corolla, corolla ½ - 2/3rd of style; Pappus uniseriate, setae 5-7; 4 mm long, double in length than that of the corolla length, uniformly barbellate through its length
Shape & size of female florets			
Bisexual floret	6 mm long, 1 mm wide.	3.5 mm long, 0.5 mm wide.	4.5 mm long, 2 mm wide
Cypsella	Cypsela obovate or oblong; 1-1.5 × 0.5-0.8 mm	Cypsela oblong; 0.5--0.8 × 0.2-0.4 mm	Cypsela oblong; 1.7 × 0.5 mm
Carpopodium			
	Elliptical diameter 250 × 150 µ m.	Rounded diameter up to 120-140 µ m.	Rounded, diameter 79-160 µm;

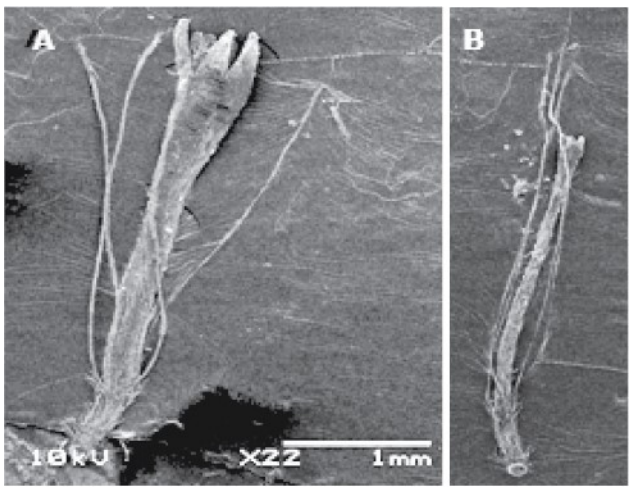


Fig. 1. *Psychrogeton alii*. Bisexual A; Female floret B.

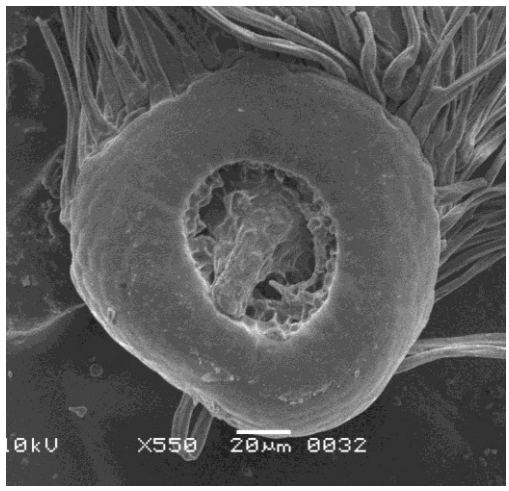


Fig. 2. Carpopodium of fertile cypsela.

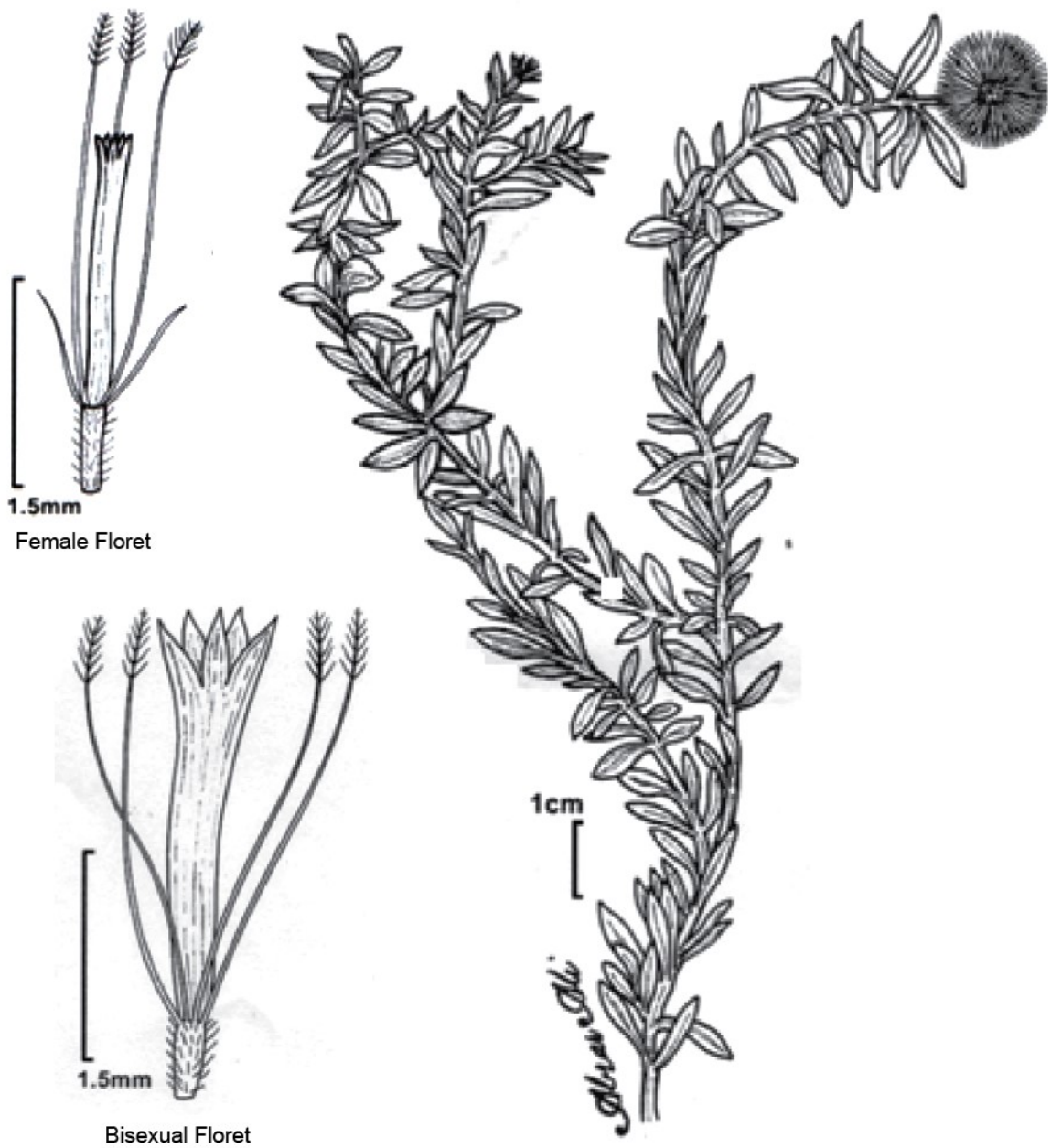


Fig. 3. *Psychrogeton alii* Perveen, Qaiser & S. Asma Omer.

References

Grierson, A.J.C. 1967. *Notes Royal Botanic Garden Edinburgh*, 27: 115-144.

Grierson, A.J.C. 1982. In: *Flora Iranica,* (Ed.): K.H. Rechinger *Compositae* V, 154. Akademischie Druck –U, Verlagsanstalt Graz. Austria. p. 37-42.

Mabberley, D.J. 2008. Mabberley's Plant-Book. Third Ed., Cambridge University Press, Cambridge. 1-1021.

Qaiser, M. 2002. Asteraceae (I)-Anthemideae In: *Flora of Pakistan*. (Eds.): S.I. Ali and M. Qaiser. Karachi & Missouri Botanical Press, Missouri Botanic Garden, Missouri, U.S.A. pp. 207: 1-8.

Stewart, R.R. 1972. In: *An Annotated Catalogue of Vascular Plants of West Pakistan and Kashmir*. (Eds.): S.I. Ali and E. Nasir. Karachi: Fakhri Printing Press. pp. 1028.

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