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journal homepage: www.elsevier.com/locate/apjtbOriginal article <http://dx.doi.org/10.1016/j.apjtb.2014.06.006>*Prenanthes violaefolia* Decne. (Asteraceae)-a new report from Kashmir Himalaya, India

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ABSTRACT

Objective: To enumerate the diversity of important medicinal plants used traditionally by the local populace in biodiversity rich temperate Himalayan ranges of Bandipora district, Jammu and Kashmir, India.

Methods: Methods used to explore the plants with medicinal value and to record associated ethnomedicinal knowledge included semi-structured interviews, focus group discussions and walk-in-the-woods with local knowledgeable persons, traditional practitioners called “*Bhoeris*” and tribals (*Gujjars* and *Bakkerwals*).

Results: During plant exploration in this floristically rich Himalayan region, a very interesting and less-known species of the genus *Prenanthes* L., (Asteraceae) was recorded. On examination, the species was identified as *Prenanthes violaefolia* Decne., which represents a first report from Kashmir Himalaya, India.

Conclusions: *Prenanthes violaefolia* could serve as an important source of new potent compounds provided that it is subjected to thorough phytochemical and pharmacological investigations.

1. Introduction

Genus *Prenanthes* was established by Linnaeus who later described its eight species [1,2]. Out of these eight species, only three are retained [3]. The generic name is derived from two Greek words “*prenes*” meaning often inclined forward and “*anthos*” meaning flower, indicating the weak inflorescence inclining forward [4]. Depending on the source consulted, the number of species can range between 8 to 30 species [5–7]. The genus is widely distributed in Asia, Africa, North America, Central and Southern Europe. In Pakistan, this genus is widely distributed in Chitral, Swat, Hazara, Abbottabad, Murree and is represented by four taxa (three species and one variety). The genus has also been reported from Indian states of Uttarakhand, Jammu and Kashmir, and Himachal Pradesh. So far, a total of six species of the genus have been reported from India while only two species in Jammu Division of Jammu and Kashmir State [8].

The genus *Prenanthes* is different from its allied genera by having nodding capitula, florets 3 per capitulum, involucre calyculate, phyllaries 6–8 and being biseriate; cypsela 5–7 mm long, truncate or rounded at the apex and narrow towards the base, beakless and fragile pappus [9]. This paper presents the first taxonomic details along with ethnomedicinal uses of one of its rare species *Prenanthes violaefolia* Decne. (*P. violaefolia*) reported for the first time from the Kashmir Himalaya, India.

2. Materials and methods

The district of Bandipora is located in the northern part of the Kashmir region, and is about 398 km² in size. The district is located on the northern bank of Wular Lake-the largest fresh water lake in Asia. It lies at 34°64' N latitude and 74°96' E longitude and is situated at an average height of 1701 m above sea level. Topographically, the district is mainly hilly and mountainous with stretches of plains and is full of natural beauty with thick forests. The area under forests in the district is about 199 396 ha. The climate of the district is moderate and has its own peculiarities, divided into six “seasons” of the two months each. These seasons include Spring (16 March to 15 May), Summer (16 May to 15 July), Rainy Season (16 July to 15 September), Autumn (16 September to 15 November), Winter (16 November to 15 January) and Ice Cold (16 January 15

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March). All these “seasons” are locally called “*Sont*”, “*Retkol*”, “*Waharat*”, “*Harud*”, “*Wandh*” and “*Shishur*”, respectively. The winter is usually harsh due to the heavy snowfall and low temperatures. During the months of December, January, February and March, precipitation occurs mainly in the form of snow, which starts melting in March. Each part of the district encounters snowfall during winter.

During the month of September 2012, the authors collected one of the less-known species (*P. violaefolia*) from the study area. Methods used to record the local ethnomedicinal uses of the said plant included semi-structured interviews, focus group discussions and walk-in-the-woods with local knowledgeable persons (who themselves had used these plant-based therapies for health treatments), herbal healers called “*Bhoeris*” and tribals (*Gujjars* and *Bakkerwals*). Collected plant species were dried, pressed, preserved (poisoned) and finally mounted on herbarium sheets following standard herbarium technique [10]. The plant specimen was identified by consulting various floras at the Department of Botany, Government Narmada Post Graduate College Hoshangabad (M.P.), India [11–13]. Finally, one of the identified plant specimens was accessioned and deposited in Kashmir University Herbarium, Srinagar (Jammu & Kashmir) for authenticity and future use.

3. Results

To facilitate the identification of *P. violaefolia* in field, a brief description of this plant along with the reported ethnomedicinal uses has been given below.

3.1. Taxonomic details

Botanical name: *P. violaefolia*
 Local name: “Kodi Jadi”
 Family: Asteraceae
 Habit: Perennial herb
 Habitat: In coniferous forests at an altitude of 2500–3000 m amsl
 Flowering period: July–September
 Date of collection: 03/9/2012
 Collection number: 233
 Accession number: KASH-39279
 Place of collection: Krysal Bandipora
 Status: Very rare

Botanical diagnosis: taprooted, 50–70 cm tall. Stem solitary, erect, branched apically, sparsely strigose. Basal, lower and middle stem, leaves with petiole 5–6 cm, slender, more or less broadly winged toward base; leaf blade lyrate pinnatisect, margin sparsely sinuate-dentate; lateral lobes 1 pair, sessile, lanceolate to elliptic, to 2 cm × 1 cm; terminal lobe triangular-ovate, 3–8 cm × 3–7 cm, base hastate, cordate, sagittate, or truncate, apex obtuse to rounded. Upper stem leaves with shorter winged basally narrow to clasping petiole and smaller blade with a basally cuneate terminal lobe. Synflorescence paniculiform, with several to 30 capitula and slender branches. Capitula with 4–6 bluish to reddish purple florets; peduncle capillaceous. Involucre narrowly cylindrical, 1.2–1.4 cm × circa 0.3 cm. Phyllaries glabrous, apex acute to obtuse; outer phyllaries lanceolate, longest 4–5 mm; inner phyllaries 5 (or 6). Achene dark brown, narrowly ellipsoid, 6–7 mm, subcompressed, lateral ribs weakly broadened, apex truncate, pappus white (Figure 1).



Figure 1. *P. violaefolia* Decne. showing habit.

3.2. Ethnomedicinal uses

The collected information regarding the ethnomedicinal uses of the plant showed that the roots of the plant are sundried and crushed to obtain powder which is then administered orally with lukewarm water early in the morning on empty stomach to cure ailments like bleeding with stools, drying of mouth and stomach heat up. The dosage is one teaspoon of powder with a glass of lukewarm water for 3–4 days. The informers who provided the information of the ethnomedicinal uses are Gh. Quadir Gojar (male, 75 years old, Aragam), Mohd Dooda Seer (male, 57 years old, Chittibandi) and Molvi Jamal-u-din Khatana (male, 66 years old, Gujjarpati Malangam).

4. Discussion

Although *P. violaefolia* has been earlier reported by various authors during their ethnobotanical investigations [14–17], there are no data available on the taxonomic accounts of this species in the published format. Bano and Qaiser reported a new species (*Prenanthes stewartii* Roohi Bano & Qaiser) from Kashmir and Pakistan [9], but the written records of *P. violaefolia* from Kashmir are still lacking. Perusal of floristic literature reveals that the species has never been reported from Kashmir Valley of Jammu and Kashmir State [18–25]. Therefore, this species represents a new record and hence a further contribution to the flora of Kashmir. The report of *P. violaefolia* also contributes to the efforts that have been already initiated for the documentation of ethnobotanical knowledge from all parts of Kashmir. Moreover, *P. violaefolia* was reported to be frequently collected by the local populace for medicinal purposes. Hence, on account of its demand as a potential medicinal plant, and its rare growth on the Himalayan ranges of the study area, efforts need to be made for its conservation. Besides, it is well known that drug discovery from medicinal plants continues to provide new and important leads against various pharmacological targets. This plant could also serve as an important source of new potent compounds provided that it is subjected to thorough phytochemical and pharmacological investigations as there is no doubt that botanic gems are still found in the world [26].

Conflict of interest

We declare that we have no conflict of interest.

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