



Journal of Medicinal Plants Studies

Taxonomic Revision of *Corydalis diphylla* Wall from Herbarium of Quaid-I Azam University, Islamabad (ISL), Pakistan.

Jehanzeb Khan^{1*}, Rizwana Aleem Qureshi²

1. Department of Botany Government Degree College Kakki Bannu, Khyber Pakhtunkhwa. [E-mail: jehan8bio@yahoo.com]
2. Department of Plant Sciences, Quaid-i-Azam University, Islamabad.

The available record of *Corydalis diphylla* Wall for Herbarium of Quaid-I Azam University, Islamabad (ISL), Pakistan has been revised and updated. The updating has been done in case of nomenclature with important synonyms, description of the taxa, specimen examined and their geographical distribution. For identification of the varieties, a key has been added in this paper.

Keyword: Taxonomic revision, *Corydalis diphylla*, *Fumariaceae*, Pakistan.

1. Introduction

As a result of reviewing representative of the species *Corydalis diphylla* Wall, within the limits of the Western Himalayas and adjoining regions, the species is described as an erect herb having glabrous, herbaceous, branches. Stem is rigid having furrows, glabrous, brown, having no radical leaves. Cauline leaves petiolate, compound, pinnatifid, lamina outline orbicular, pinnae lobes ovate, truncate, petiolule is long; lobule elliptic-oblong, oblong-entire-mucronate, attenuate; both surfaces of leaves are green and glabrous. Raceme more than 5-flowered, peduncle is having foliaceous bracts. Flowers yellow, spur is downwardly curved, petal is longer than spur. Sepals 2, caudocous, imbricate; petal imbricate, upper petal upcurved, emarginate, inner petal narrow. Stamen diadelphous, 3 on each side of carpel; middle anther dithecous and lateral monothealous. Carpel linear-elliptic,

glabrous. Capsule elliptic-oblong, glabrous; seeds rounded, shining black.

Hooker (1872) in his account of the family *Fumariaceae* dealt with 4 genera and 31 species. He raised *Fumariaceae* to the status of the order. He wrongly included the genus *Hypecoum* in this family. In his account of the genus *Corydalis* he included 24 species. Bailey (1975) stated that *Corydalis*, DC. Includes 100 species of the north temperature. Zone and S. Africa, a few used in gardens for the flowers or sometimes prostrate or climbing.

Jafri (1974) stated that *Fumariaceae* has about 14 genera and nearly 400 species, chiefly of the North Temperate Zone and S.E. Africa of which only 2 genera (*Corydalis* Medik. & *Fumaria* Linn.) and c. 30 species, occur in Pakistan mostly in the hilly regions.

Corydalis diphylla Wall, is a very difficult taxon. Therefore, it needs taxonomic

revision as the underground parts and the notes on the flower colour are lacking in the herbarium material.

2. Materials and Methods

Plant specimens were studied from the Herbarium of Quaid-I Azam University, Islamabad (ISL). Morphological studies were made with the help of ZEISS microscope which gives a magnification of 10x X 0.7-3x, thus enlarging the image by 7-30 times. After studying the taxonomic characters, key to the varieties of *Corydalis diphylla* was made for the identification and differentiation of the varieties.

3. Results and Observations

Corydalis diphylla Wall, Tent. Fl. Nep. 54. (1824). Prain in Journ. As. Soc. Beng. 65(2): 20. (1896); Fedde in Engl. & Prantl, l.c. 127; Kitam, Fl. W. Pak. & Afghan. 68. 1964; Stewart, Ann. Cat. Vasc. Pl. W. Pak & Kashm.289.(1972); Jafri, op.cit.6.(1974).

Syn. *C. rutifolia* sensu Hook.f., Fl. Brit. Ind.1:122.1872 non (Sibth. & Sm.) DC.; Blatter, Beaut. Pl. Kash. 33, t. 9, f.6. (1928); *C. pauciflora* auct, non (Steph. ex Wild.) Pers. Edgew in Trans. Linn. Soc. Bot. 20: 30. (1851). *C. hamiltonii* Don, Syst. Gard. 1: 142. (1831).

An erect herb ca. 11-23 cm tall, is having glabrous, herbaceous, branches. Stem is rigid having furrows, glabrous, brown. Radical leaves are not found. Cauline leaves petiolate, petiole is 1.5-2.8 cm long, compound, 2-3-ternate, pinnatifid, lamina outline orbicular, 2-5 x 1.5-4 cm; pinnae lobes ovate, truncate, petiolule is 5-10 mm long; lobule elliptic-oblong, 3-15 x 2-6 mm, oblong-entire-mucronate, attenuate; both surfaces of leaves are green and glabrous. Raceme 2-6 cm long, more than 5-flowered, peduncle is 2-4.3 cm long; bracts foliaceous, 4-6 x 1-2 mm, glabrous. Flowers yellow, 14-17 mm long including spur, downwardly curved, 6-7 x 1-3 mm, petal is longer than

spur (7-10 : 6-7 mm long). Sepals 2, caudocous, imbricate; petal 4, 7-10 x 1-2 mm, imbricate, upper petal upcurved, emarginate, inner petal narrow. Stamen 6, diadelphous, 3 on each side of carpel; filament 5-6 mm long, anther 0.5mm long, middle anther ditheous and lateral monotheous. Carpel linear-elliptic, glabrous, ovary 3-4 mm long, stigma 1mm long, style 3-4 mm long. Capsule elliptic-oblong, glabrous, 8-9 x 2.5-3mm; seeds rounded, shining black, 4-6 in number, 1.5 mm in diameter.

Key to the Varieties

C. diphylla

- 1a Leaves with petiole longer than petiolules _____ 1. var. *diphylla*
1b Leaves with petiole shorter than petiolules, subsessile or sessile _____ 2

1. var. **diphylla** Jafri, Flora of West Pakistan.73:6. (1974).

Leaves with petiole longer than petiolules

Distribution: Throughout the Himalaya, Pakistan

Specimens examined:

N.W.F.P: Hazara: Shogran, Kaghan valley, 24.4.1978, Muqarrab Shah and Dilawar Khan 89875 (ISL). **A.Kashmir:** M.Abad: Kuli Mandal to Kunth nur, 1.6.1978, Shahzad Iqbal and Nisar Abbasi 86942 (ISL). **Punjab:** Rawlpindi: Nathia trail at Lalazar, 12.4.1979, S.J.G. 5361 (PMNH).

2. var. **cyrtocentra** (Prain) Jafri, Flora of West Pakistan.73:7. (1974).

Cauline leaves and bracts pinnatisect (upper bracts dissected to entire); plants subglaucous

Type: Pakistan: Chitral, *Younghusband* (K).

Distribution: Endemic in Chitral.

Specimen examined:

N.W.F.P: Chitral, Toppin 16 and 60 (K) (vide R. R. Stewart, 1. c.)



Plate: *Corydalis diphylla* Wall: Flowering and fruiting plant

4. Discussion

Hook. f. & Thoms. (1872) misidentified *C. diphylla* Wall. as *C. rutaefolia* (Sibth. & Sm.) DC. In his account of the genus *Corydalis* Medik. The latter species is a European taxon and does not occur anywhere in the South Asian Subcontinent. The present author following the treatment of Jafri (1974) included *C. diphylla* Wall. as a valid taxon instead of *C. rutaefolia* (Sibth. & Sm.) DC. The author in this account studied the specimens of *C. diphylla* Wall. and concluded that it is a very variable taxon especially in the size of leaflets and flowers and the curvature of spur. One of the leaves often exceeds the other in size and very rarely a branch may be found in the axil of the large leaf and the main axis remains suppressed. *C. diphylla* Wall. differs from *C. rutaefolia* (Sibth. & Sm.) DC. by its racemes exceeding the leaves and the inflorescence more than 5-flowered, and the petioles are longer than the petiolules. The flower colour

must be noted at the time of collection as it changes in shade conditions.

4. References

1. Bailey, L.H. (1975). Manual of Cultivated Plants. rev. ed. 428-429.
2. Macmillan Publishing Co. Inc. New York. (3) .pp. 455-459.
3. Hooker, W. J. and T. Thomson. (1872). Flora of British India. (1). 124.
4. Jafri, S.M.H. (1974). Flora of West Pakistan. (73). 7.