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A new species of *Lalldhwojia* Farille (*Umbelliferae*) from Nepal

Abstract

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Lalldhwojia pastinacifolia from Nepal is described as a species new to science of this small, little-known genus endemic to the Himalaya from Nepal to Bhutan. Another species, *L. cooperi*, is newly recorded from Nepal. Carpo-anatomical studies in *L. pastinacifolia* and *L. cooperi* indicate affinities of *Lalldhwojia* with *Peucedanum* s. ampl.

Introduction

Plants collected by us in the in central Nepalese Himalaya near the lake of Gossain Kund (or Gossain Than), a well-known place in botanical history as locus classicus of numerous species, are without doubt referable to the recently described genus *Lalldhwojia* Farille (Farille 1984, Mukherjee & Constance 1993, Watson 1998, 1999). *Lalldhwojia* is endemic to the Himalaya from Nepal to Bhutan and considered by Farille (1984) as a member of the *Peucedaneae-Ferulinae*. Our material is not conspecific with the only two species, *L. cooperi* Farille and *L. staintonii* Farille, previously described.

Watson (1998) considered *Lalldhwojia cooperi* synonymous with *L. staintonii*, assuming that the first name is merely based on a depauperate individual of the latter species. He also identified *Peucedanum acronemifolium* H. Wolff with this single *Lalldhwojia* species, which he thus correctly named for priority reasons *L. acronemifolia* (H. Wolff) M. F. Watson (in Long 1999). We are, however, neither convinced that *L. cooperi* nor that *P. acronemifolium* is identical with *L. staintonii*.

Lalldhwojia pastinacifolia Pimenov & Kljuykov, **sp. nova**

Holotypus: E Himalaya, central Nepal, Langtang National Park, basin of Trisuli Khola, between Cholang Pati and Lauribina Yak, 28°05'N, 85°25'E, 4000 m, among dwarf *Rhododendron* scrub and on stony slopes, 1.11.1999, Pimenov & Kljuykov 46 (MW; isotypi: B, KATH) – Fig. 1-2.

A speciebus ceteris generis caudicibus ramosis, radicibus incrassatis, caulibus aphyllis, foliis pinnatis 4-6-jugatis (non ternatis), pedicellis brevibus 4-5 (non 5-20) mm longis, mericarpiis obovatis vel ellipticis, basi cuneatis differt.



Fig. 1. *Lalldhwojia pastinacifolia* Pimenov & Kljuykov (holotype specimen at MW).

Plantae perennes, polycarpicae, caudicibus pauciramosis vel integris, vix incrassatis, a collo residuis fibrosis petiolorum foliorum tectis, radicibus principalibus verticalibus, lateralibus funiformibus. *Caules solitarii*, eramosi, aphylli, fructificatione paene glabri, tenues, sulculati. *Folia* radicalia plus minusve numerosi, rosulantia, petiolis 1-3 cm longis, laminis pinnatis, 4-6-jugatis, 3-5 × 1-2 cm, ambitu lanceolatis vel lanceolato-linearibus, segmentis sessilibus, late

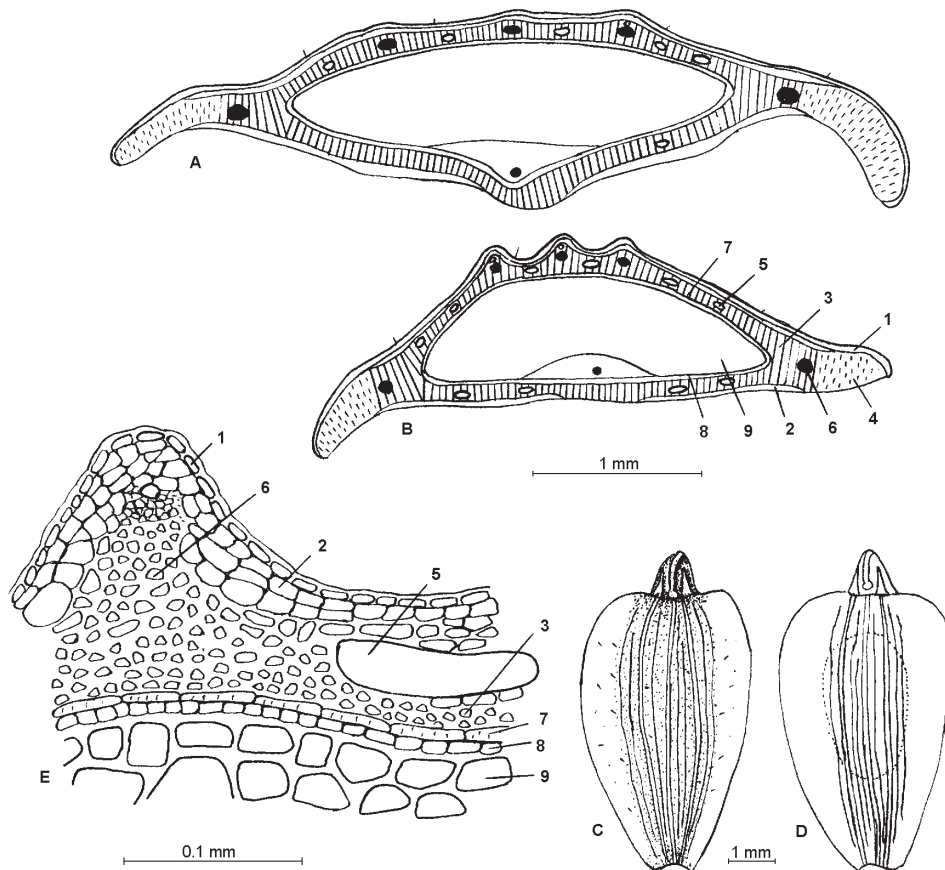


Fig. 2. *Lalldhwojia pastinacifolia* Pimenov & Kljuykov – A,B: transect of mericarps; C: dorsal view of mericarp; D: scheme of a mericarp indicating the position of the seed; E: anatomy of a dorsal rib and furrow of a mericarp. – 1 = exocarp, 2 = parenchyma cells of mesocarp, 3 = sclerenchyma cells of mesocarp, 4 = parenchyma cells with lignified pitted walls (aerenchyma), 5 = secretory ducts, 6 = vascular bundles, 7 = endocarp, 8 = spermoderm, 9 = endosperm. – After the type material.

ovatis vel subrotundatis, 5-13 × 4-10 mm, margine non profunde lobatis vel dentatis, supra subtusque pilis albis adpressis plus minusve dense tectis. *Umbellae* terminales solitariae, involucris nullis vel monophyllis, bracteis pinnatis, radiis 2-4, vix inaequilongis, 3-10 cm longis, plus minusve teretibus, glabris. *Umbellulae* involucellis nullis, radiolis 5-11 (3-7 cum floribus fertilibus), subaequilongis, 4-6 mm longis, teretibus, pilis tenuibus raro tectis. *Dentes calycis* lanceolato-lineares. *Fructus* pilis rarius tecti, carpophoris a basi bifidis. *Mericarpia* dorso compressa, 5-8 × 2-4.3 mm, obovata vel elliptica, basi cuneata, stylopodiis conicis, stylodiis reflexis, 0.8-1 mm longis, jugis marginalibus alatis, dorsalibus subinconspicuis vel brevecarinatis. *Exocarpium* unistratosum, e cellulis minutis compositum, prope extremitatem jugorum marginalium interruptum; commissura lata. *Mesocarpium* bistratosum, stratum externum e cellulis leptodermaticis, stratum internum e cellulis prosenchymaticis, verticaliter versis, membranis lignescentibus, in jugis marginalibus e cellulis aerenchymis compositum. *Vittae* tenues, valleculares 1-2(3), commissurales 1-4(7), jugales solitariae, subinconspicui. *Endocarpium* et spermoderma e cellulis minutis composita. *Endospermium* ventre paene planum vel vix sinuatum.

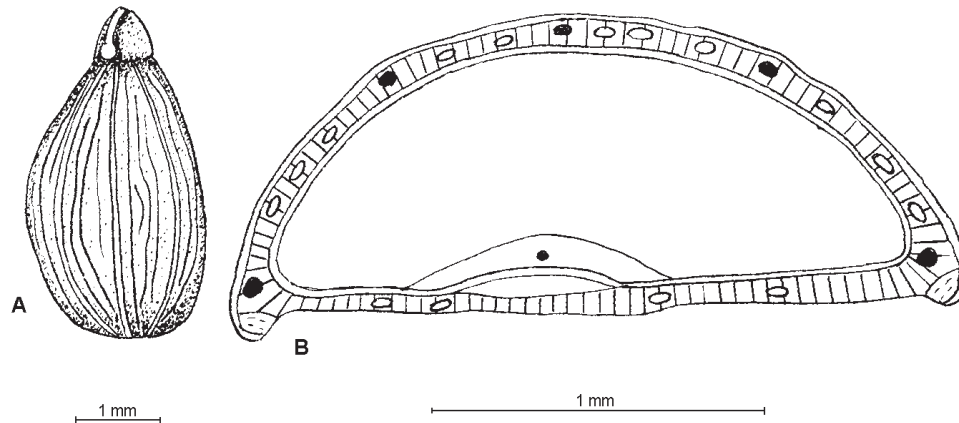


Fig. 3. *Lalldhwojia cooperi* Farille – A: dorsal view of mericarp; B: transect of mericarp. – After Pimenov & Kljuykov 53.

Additional specimen seen. – Nepal, Gorkha district, Uhiya VDC. 3990 m, 29.8.1994, *Bhattachai* 237 (KATH).

***Lalldhwojia cooperi* Farille new to Nepal**

In the same locality in Langtang, but at slightly lower altitude (3800 m), we found in an *Abies spectabilis*-*Tsuga dumosa* forest plants of another *Lalldhwojia* species, which perfectly match *L. cooperi* Farille (Farille 1984: photo II). *L. cooperi* was known previously only from Sikkim, and our collection (2.11.1999, Pimenov & Kljuykov 53) is a novelty for the Nepalese flora. The plants grow in wet moss cushions, which cover stones and logs. They have slightly thickened roots, which are submerged in the moss but apparently do not reach the soil. Thus, they are more or less epiphytes, such as they occur frequently in these forests near the upper forest-line. Their radical leaves with entire round leaflets distinguish our gatherings from *L. acronemifolia* pictured by Watson (1999: fig. 52 h-i).

The fruit anatomy of *L. cooperi* is shown in Fig. 3. It is similar to that of *L. pastinacifolia*, but in some details the two species differ: *L. cooperi* has 2-3 vallecular vittae, its mericarp is not cuneate at the base, the mericarp ribs are almost equal, and at least the marginal ones are not aliform.

The affinities of *Lalldhwojia* as inferred from carpo-anatomical data

The affinities of *Lalldhwojia* were not fully evident for Farille (1984); among the genera, supposedly closely related to it, Farille named *Anethum*, *Pastinaca*, *Tetrataenium* and *Chuanminshen*, but finally stated that “nous plaçons ce taxon chez les *Peucedaneae-Ferulinae*”. On the basis of our fruit anatomical studies of two species of *Lalldhwojia* and published data on the third one (Farille 1984: fig. 1) it seems that the fruit structure of *Lalldhwojia* is more or less similar to that of *Peucedanum* s.ampl. A bistratous mesocarp with lignified inner layers does also exist in *Ferula* and *Heracleum* (including *Tetrataenium*), but in both the inner layer is composed mainly of horizontally oriented fibres (plus vertical ones in the case of *Heracleum*). Still *Lalldhwojia* remains a poorly investigated genus, requiring further studies.

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