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TWO NEW AQUATIC PLANT SPECIES FROM KASHMIR HIMALAYAS¹

A. MAJEED KAK² AND G. N. JAVEID³
(With two text-figures)

During the study of the aquatic and wetland plants of the north western Himalayas (Kashmir) for the last five years, we collected the following two species, which are markedly different from all other allied species so far reported from India and the world.

Scirpus dialgamensis sp. nov.

The species is allied to *Scirpus fluitans* L. but differs from it in having stems 3-5 cm long, erect, ribbed, branched and leafy at the base; bracts usually longer than the spikelets; glumes longer than nuts; nut reticulation prominent.

Scirpus dialgamensis sp. nov.

Annum herba, erecta, 3-5 cm alta, inferioribus radicantes. Culmi paucus, costatus; ter-

minus inflorescentia acicularis, obtusa, 1-costa, basis vaginans, 2-3 mm diam. Spiculae isolitariae, ovatus, ovoideus, 5-7 × 3-7 mm, rubro-brunneus; bractea 1-2, acicularis, 10-15 mm longa. Glumae distichus, inferiora steriles, superior navicularis, 3 × 2 mm, acuminata, 1-costa; stamina 2, filamenta postea elongata; styli aequans vel breviores quam ovaribus; stigmata bifidus, exertus. Nux ovoideus, plano-convexus, cum manifeste reticulum.

Holotypus: *Dialgamensis* (Anantnagensis), 1700 m super mare planus, 15.7.1976. In herbario Universtatus, Kashmirensis Conservatur, AMK 3736.

Paratypus: *Anantnagensis* (Kashmirensis); 1700 m, AMK 4018.

Scirpus dialgamensis sp. nov.

Diffused, erect annual 3-5 cm long, rooting at the base. Culms few, ribbed, terminating in a spike. Leaves equal or slightly shorter than spike, acicular, obtuse, 1-nerved, base sheathing, 2-3 mm dia., parallel veined. Spikelets

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NEW DESCRIPTIONS

single, ovate, ovoid, $5-7 \times 3-4$ mm, reddish brown; bracts 1-2, acicular, 10-15 mm long; glumes distichous lower few sterile, upper navicular, 3×2 mm, acuminate, 1-nerved; stamens 2, filaments elongate later; style equalling or slightly shorter than ovary; stigma bifid,

exserted. Bristles and buttons totally lacking. Nuts ovoid, plano-convex, 2×1 mm, reticulations prominent.

Near wet and swampy areas on the margins of slow moving streams.

Holotype: Dialgam, opposite to the Agricul-

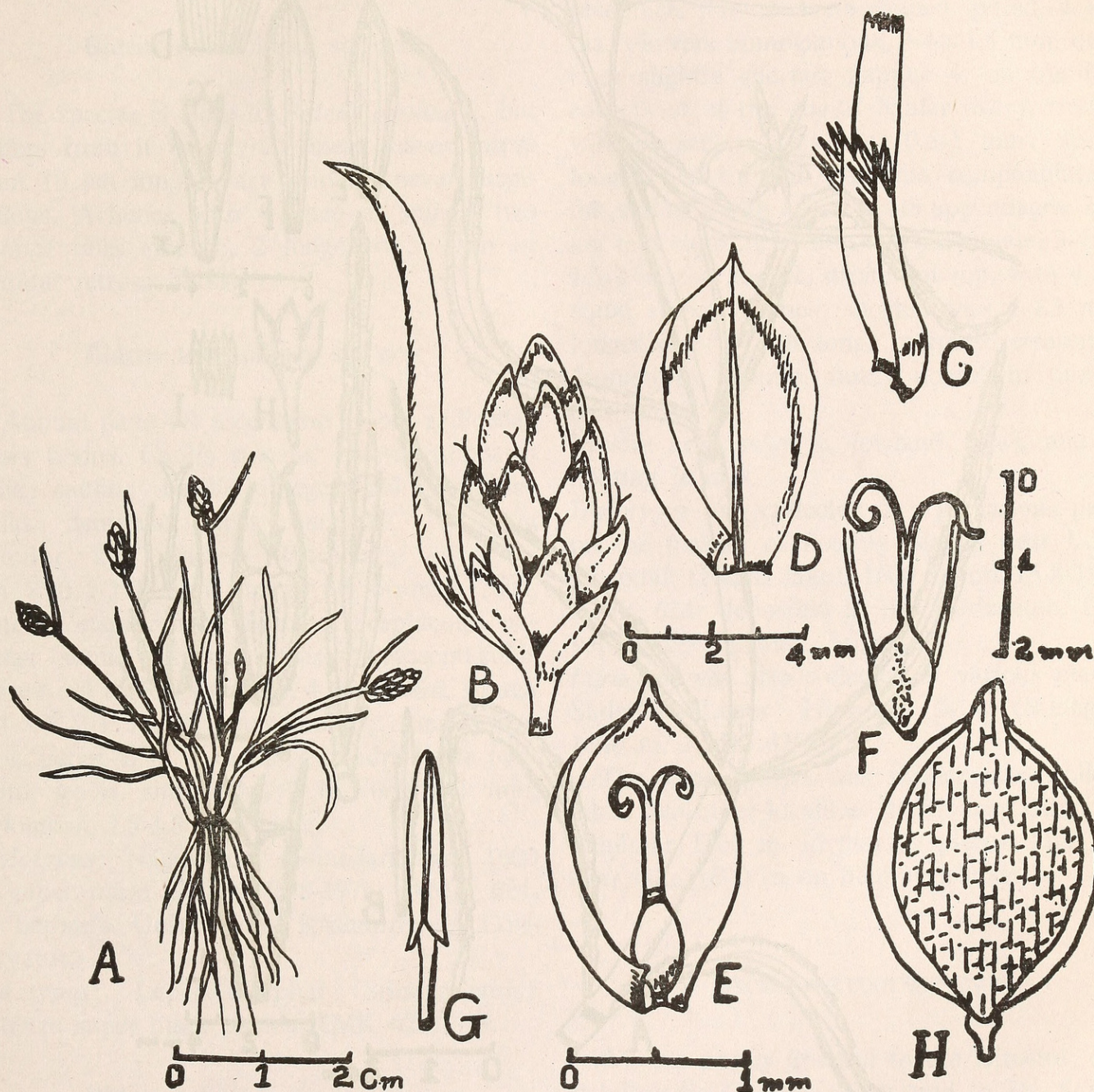


Fig. 1. *Scirpus dialgamensis* sp. nov.

A. Habit; B. Spike; C. Leaf sheath with cilia; D. Glume; E. Carpel enclosed in the glume; F. Pistil; G. Stamen; H. Mature Nut.

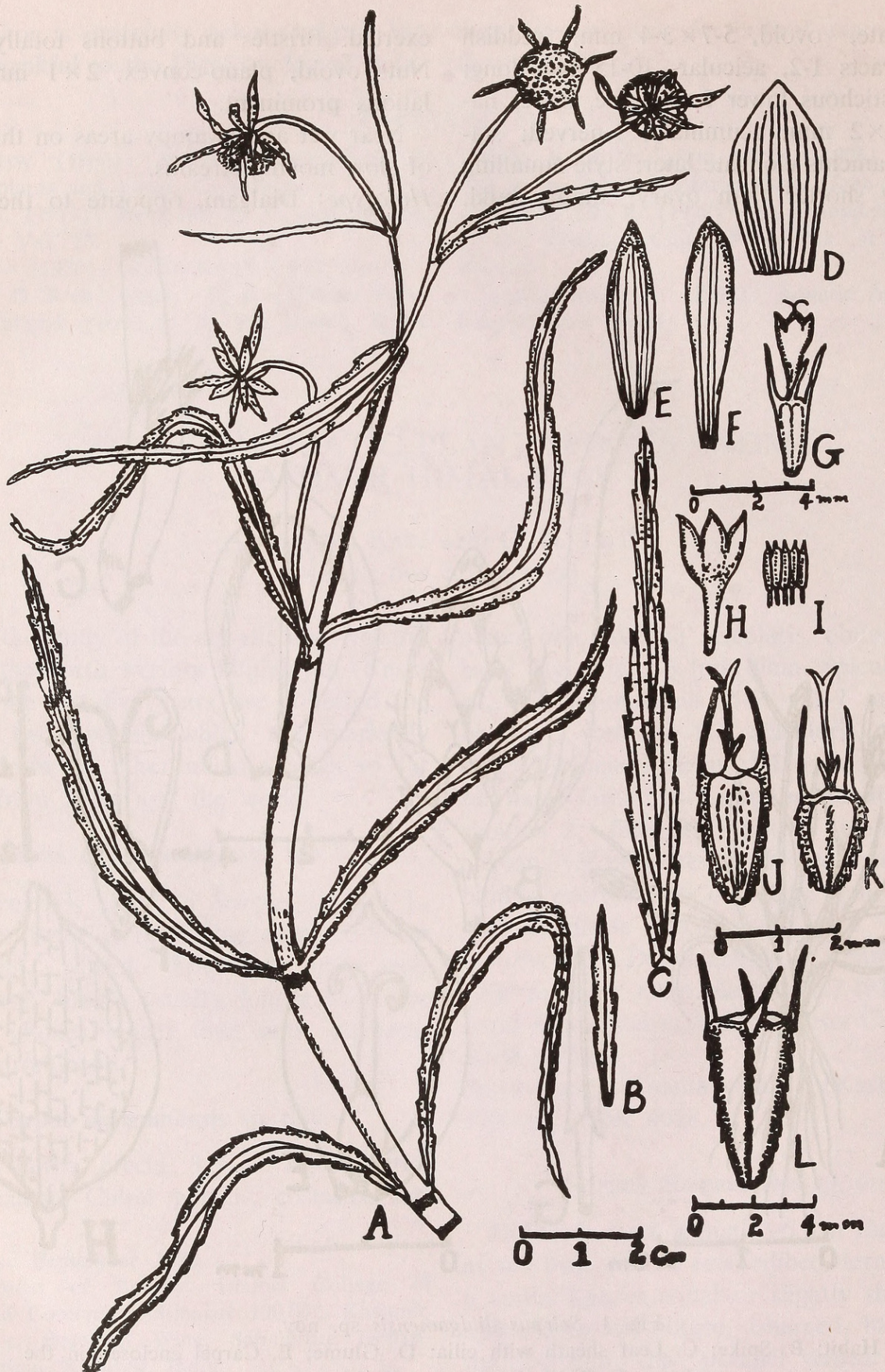


Fig. 2. *Bidens tetraspinosa* sp. nov.

A. Habit; B-C. Leaves (variations); D-F. Outer and inner phylleries; G. Flower; H. Corolla tube; I. Stamen; J, K. Young achene; L. Mature achene.

ture farm (Anantnag) 1700 m, AMK 3746.

Paratype: Anantnag (Kashmir), AMK 4018.

The holotype was collected wet and marshy places under complete shade of *Salix* and *Populus* and has been deposited in the Herbarium of the University of Kashmir, Srinagar.

***Bidens tetraspinosa* sp. nov.**

The species is close to *Bidens cernua* L. but differs from it in having linear leaves, more than 10 cm long; ovary smooth, never hispidulous. Achenes with 4 unequal spines, two shorter ones smooth, 2 longer ones with or without retrose barbs.

***Bidens tetraspinosa* sp. nov.**

Annum paxe vel ascendene herba; radicellae basis nodus. Caulis sulcata, glabra, ramosus; folia cauline basalis integer vel ramoluisculus dentatus, basis cuneatus. Phyllaria exterior 2-6, linearia lanceolata c. 0.6-2 cm \times 0.5-1.8 mm, lutens ad bruneus stria, obtusus membraneus; bractea receptaculas oblonga similis bractea exterior. Receptaculus planus vel tholus, foveatus, 4 mm diam. Florea 3-4 \times 1.2-1.5 mm, homogamous; exterior brevior, pappi 4, in 4 angulo e quadriangule ovarium, leavis, sine serra, 2 brevis 0.5-1 mm, 2 longior, 1.5-1.8 mm longa.

Holotypus: Nagin lake (Srinagariensis) 1600 m super mare planus, 15-8-1976: AMK 624, in herbario Universtatus Kashmiriensis Conservatur.

Paratypus: Leper Hospital (Srinagariensis) 1600 m super mare planus AMK 625, 627.

***Bidens tetraspinosa* sp. nov.**

Diffused or ascending annual herbs. Roots also arising from the lower nodes. Stems sul-

cate, much branched; upper leaves linear, 7-10 cm long, acute, irregularly serrate; lower leaves entire or remotely toothed, base cuneate or subsessile; outer phylleries 2-6, linear lanceolate 6 \times 3 mm, yellow with brown streaks, obtuse, membranous; receptacular bracts oblong, receptacle flat or dome shaped, pitted, 4 mm dia. Flowers homogamous, 3-4 \times 1.5 mm, outer ones slightly shorter; pappus 4, on the four corners of the quadriangular ovary, smooth without serra, 2 shorter (0.5-1 mm) and 2 longer (1.5-1.8 mm); corolla companulate, 5 fid; stamens with apical acute appendages; stigma rays shorter, linear. Achenes cunate, 3-4.2 \times 1.5-2 mm. 4 angled, striate flat top, with 4 unequal smooth spines; shorter ones 1-1.2 mm; longer ones 2 mm long; margins retroserrate (sometimes serrate, rarely absent in one or two margins).

Mostly near swamps, lowland areas, and on floating islands.

Holotype: was collected in a gregarious patch on the margin of floating islands near Leper Hospital (Nagin lake) 1600 m on 15-8-1976, AMK 624; deposited in the Herbarium, University of Kashmir, Srinagar.

Paratype was also collected at various places; Suderbal—Leper Hospital side (Srinagar) 1600 m, AMK 625, 627.

The same species was subsequently collected in two other localities in Srinagar District—Shalimar 1700 m, in marshy places; and Anchar lake 1600 m on floating islands.

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