

***Anaphalis kashmiriana* P.C. Pant, R.R. Rao et G. Arti,
a New Species of Compositae from Kashmir, India**

P.C. PANT^a, R.R. RAO^b and G. ARTI^b

^aBotanical Survey of India, Dehra Dun-248195, INDIA;

^bNational Botanical Research Institute, Lucknow-226001, INDIA

(Received on October 21, 1993)

A new species, *Anaphalis kashmiriana* P.C. Pant, R.R. Rao et Arti is described from Kashmir, India. The pollen morphology of the new species is also worked out.

The genus *Anaphalis* DC. with about 40 species in Europe, Asia and America is represented in India by ca 30 species. During the course of a revisionary study of the genus *Anaphalis* (Compositae) the authors came across an interesting specimen at BSD which could not be matched with any of the known species. Further critical study and scrutiny of all specimens at BSD, DD and CAL, and the comment from Dr. C. Jeffrey on the present specimen concluded that this is a new species.

Anaphalis kashmiriana P.C. Pant, R.R. Rao et Arti, sp. nov. (Fig. 1).

Anaphalis contorta (D. Don) Hook. f. affinis sed foliis suboppositis vel alternatis, fere horizontalibus, bracteis involucribus externis purpureis, late cordato-ovatis, lacinitis et bracteis interioribus oblongo-lanceolatis, spathulatis differt.

Erect, feebly branched herbs, up to 30 cm high. Stem sparingly striate with cottony wool. Leaves 1–5×0.3–0.8 cm, alternate, rarely subopposite at the extreme end, oblong, horizontal to the ground, 1-nerved, laxly hairy above, densely woolly beneath, obtuse at apex, amplexicaul at base. Heads ca 2 mm across in terminal, much branched corymbs. Pedun-

cles 2 mm long, densely woolly tomentose. Involucral bracts many seriate; outermost bracts broadly ovate-cordate, densely white woolly, purplish at apex, margins usually lacinate, particularly towards the upper portion; middle bracts oblong-lanceolate, purplish tinged at either ends; innermost bracts spathulate. Marginal female florets filiform, corolla 2–3 mm long, narrowly 4-lobed; style linear. Achenes oblong, ca 0.5 mm long, pubescent. Central bisexual florets ca 2.2 mm long, 5-toothed. Pappus hairs white, minutely bristly.

Holotype: INDIA; Jammu and Kashmir, Pir Pass/Banihal Ridge, 3330–3835 m, 14-9-1958, T.A. Rao 7716 (CAL; isotype: BSD).

Anaphalis kashmiriana closely resembles the highly polymorphic *A. contorta* but can be segregated as follows:

1. Leaves linear, up to 4 mm broad; outer involucrial bracts white glistening, ovate-lanceolate, scarious, margin undulate or entire; inner bracts narrowly linear-oblong; pollen exine psilate*A. contorta*
1. Leaves linear – oblong, up to 10 mm broad; outer involucrial bracts purplish at apex, ovate-cordate, not scarious, margin lacinate, inner bracts lanceolate-spathulate; pollen exine punctate

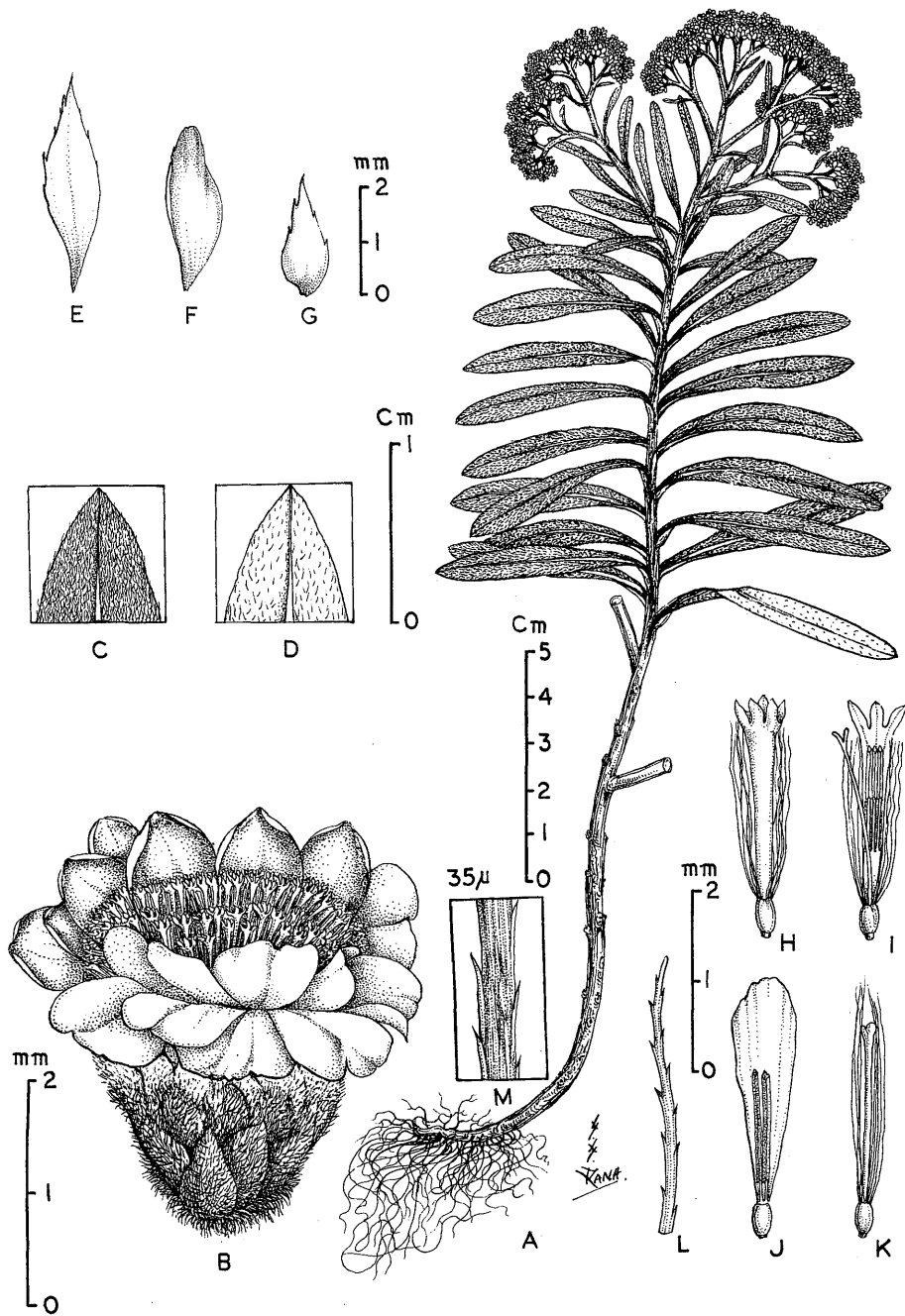


Fig. 1. *Anaphalis kashmiriana* P. C. Pant, R. R. Rao et Arti. Holotype. A. Habit. B. Involucre of bracts. C–D. Dorsal and ventral surface of the apical portion of leaf. E. Outer involucral bract. F. Middle involucral bract. G. Innermost involucral bract. H. Marginal female floret. I. Central bisexual floret. J. Male floret. K. Female floret. L. A portion of pappus. M. A portion of pappus (enlarged).

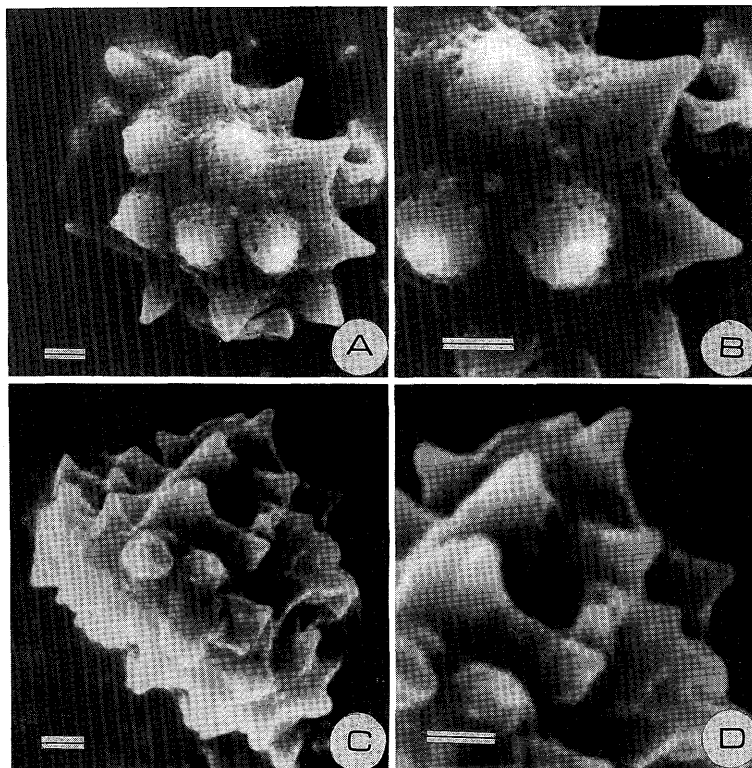


Fig. 2. Pollen grains of *Anaphalis kashmiriana* (A–B) and *A. contorta* (C–D). Bar indicates 2 μm .

.....*A. kashmiriana*

Pollen Morphology

Anaphalis contorta (D. Don) Hook. f. (Fig. 2, C, D)

Grains 3-zonocolporate, colpi $14 \times 1.5 \mu\text{m}$ ($13\text{--}15 \times 1.2 \mu\text{m}$), endocolpium circular, $2\text{--}4 \times 2\text{--}5 \mu\text{m}$. Exine $1 \mu\text{m}$ thick, surface spinulate, spinules closely packed, 5–6 per mesocolpium, $0.75 \mu\text{m}$ long, root zone not well demarcated from column zone, semiexposed, inter spinular curve shallow trough shaped, interspinular area psilate; cavum indistinct; columella indistinct; shape subspheroidal, $19 \times 20 \mu\text{m}$ (range $15\text{--}23 \times 17\text{--}23 \mu\text{m}$) AMB circular.

Anaphalis kashmiriana P.C. Pant, R.R. Rao et Arti (Fig. 2, A, B)

Grains 3-zonocolporate, colpi $9 \mu\text{m}$ ($8\text{--}9 \mu\text{m}$), endocolpium circular. Exine $1.5 \mu\text{m}$ thick, surface spinate, spines distant, 4 spines per mesocolpium, $1 \mu\text{m}$ long, root zone exposed, spinal column tapering, narrow. Interspinal curve broad 'V' shaped, interspinal area punctate, punctae extend up to the root zone, columella faint; thin cavum present. Grain size $12 \mu\text{m}$ diam.; shape spheroidal, AMB circular.

The authors are thankful to the Directors of CAL, BSD and LWG. Thanks are also due to Dr. V.J. Nair of the Botanical Survey of India, Shillong for Latin diagnosis. Special thanks are due to Dr. C. Jeffrey, Royal Botanic Garden, Kew, England for his critical comments on the specimen.

パント P. C., ラオ R. R., アーティ G.: インド・
カシミール産キク科の新種, *Anaphalis*
kashmiriana P. C. Pant, R. R. Rao et G. Arti

キク科ハハコグサ属はインドに約30種あり, この再検討を進めているが, カシミール地方で T. A. Rao が採集した個体は新種と断定され, 標記の学名を与え発表した. この種は *A. contorta* (D. Don) Hook. f. に近いが, 葉が線形から長円形,

幅10mmで, 総苞外片は膜質ではなく, 先が紫色を帯び, 内片はさじ状披針形で, 花粉のエキシンが *psilate* であり, 葉が線形, 幅 4 mm 以下で, 総苞外片は膜質で, 先が輝白色, 内片は線形で, エキシンが *punctate* となる後者と異なる.