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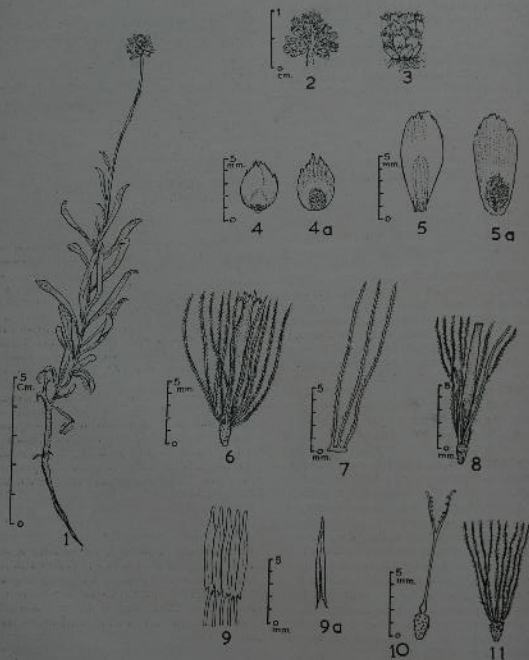
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HELICHRYSUM CUTCHICUM (C. B. CL.) R. RAO ET DESH—AN INTERESTING SPECIES FROM WESTERN INDIA

C. B. Clarke, while working on the Asteraceae (Compositae) of India (*Conspectus Ind.*, 112, 1876) described *Anaphalis cutchica* on the basis of a single specimen collected by Dr. Szaizicka from Kutch, which forms the semi-arid tract of India. Hooker in *Flora of British India* 13, 284, (1881) retained *Anaphalis cutchica* C. B. Cl. as a distinct species with a note, however, expressing his doubts about the retention of the species under the genus *Anaphalis* DC. Though he could make out the difference in the involucre of this taxon in comparison to that of other species of *Anaphalis*, due to insufficient material available for his study (in fact only one specimen as indicated above) no final opinion could be given by him on this issue. Since Dr. Szaizicka's collection during 1862-1868 (during which period he made botanical collections in India as indicated in *Flora Malabarica* 1, No. 1: 208, 1950), no collections of this taxon were made by any other workers until the field parties of Botanical Survey of India started exploration work in Kutch area from 1956. There is, however, one specimen collected by J. Indraj in early to 1918 from Bhuj area, but the specimen was identified as *Gnaphalium luteoalbum* Linn. Now on the basis of profuse collections from different parts of Kutch and from Northern Saurashtra coast, the study on the taxon has been taken up with a view to examine the correct identity of the genus. While analysing the characters in relation to those of closely allied genera like *Gnaphalium*, *Leontopodium* and *Helichrysum*, a few species of the respective genera have been examined and the co-operation of the Kew Herbarium was sought for clarifying certain ambiguous points connected with the characteristic features of the genera concerned. There is, however, consider-

able difference of opinion with regard to generic disposition of the sub-tribe Gnaphalinae of the Asteraceae whose genera are very indistinctly separated, the limits being often more or less arbitrary.

For further details, capitula of a few species belonging to *Anaphalis*, *Gnaphalium* and *Helichrysum* were examined both at BSI Herbarium, Poona and by Mr. W. C. Jeffrey in 1963 at Kew and subsequently by the senior author in 1964 at Kew and the taxon concerned agrees to some extent with *Gnaphalium luteoalbum* Linn., *G. rhynchatum* Linn., *Leontopodium alpinum* Cass., *Helichrysum orientale* (Linn.) Gaertn., *H. buddleianum* DC. and *H. speciosum* L. Don. However, *Leontopodium* is only doubtfully separate from *Gnaphalium* on mainly vegetative characters. *Gnaphalium* is, however, considered distinct from *Helichrysum* on the basis of containing more female flowers than bisexual ones per capitulum. But, as Hedberg (*Afroplitis vascular plants*, 366, 1937) has indicated, this distinction is unreliable and it may be quite appropriate that the two genera are united after a thorough revision based on wide range of material. However, *Helichrysum* and *Gnaphalium* could be separated at present on general morphological characters. Further analysis of *Anaphalis cutchica*, covering the form, disposition, colour and texture of its involucre bracts besides other characters, indicates that this taxon seems to be closely allied to some species of *Helichrysum* than with any species of *Gnaphalium*. It also appears to be somewhat allied to tropical African species *Helichrysum glumaceum* DC. and also to a few Middle-east species but clearly distinct from them as verified at the Kew Herbarium.



Helichrysum subticum (C. B. Cl.) R. Rai et Debn.

Figs. 1-11: 1. Entire plant. 2. Inflorescence with several heads. 3. Single head with series of bracts. 4. Outer bract (inside). 4a. Outer bract (outside). 5. Inner bract (inside). 5a. Inner bract (outside). 6. Bisexual flower. 7. A few hairs of pappus united at base. 8. Female flower. 9. Androecium. 9a. Anther with lower part truncate. 10. Gynoecium. 11. Achene.

The distinction among the three genera *Anaphalis*, *Helichrysum* and *Gnaphalium* are presented below briefly:

<i>Anaphalis</i> DC.	<i>Helichrysum</i> Mill. corr. Persoon	<i>Gnaphalium</i> Linn.
1. All bisexual flowers—sterile	All bisexual flowers—fertile	Less than half bisexual flowers—fertile
2. Female flowers—uniserial	Female flowers—uniserial, rarely two-seriate	Female flowers—two multi-seriate
3. Style with slightly inflated stigma	Style with two arms of stigma	Style with two short arms of stigma
4. Pappus hairs—scabrous, free at the base	Pappus hairs—barbellate or plumose, connate at the base	Pappus hairs—subuloid, slightly thickened at the base, free or connate at the base

The various characters found in *Anaphalis cutchica* C. B. Cl. are identical with those of the genus *Helichrysum*. It would, therefore, be most appropriate that *Anaphalis cutchica* C. B. Cl. with the present taxonomic understanding of Gnaphalaceae should be transferred from *Anaphalis* DC. to *Helichrysum* Mill. corr. Persoon, a conserved generic name [vide: *Int. Code Bot. Nomenclature*, 318, 1961—*Helichrysum* P. Miller, *Gard. Dict. Abr. ed.* 4: 1754 (original spelling "*Helichrysum*," the first orthographic variant based on the same type) corr. Persoon, *Syn. Pl.* 2: 424, Sep. 1807].

Helichrysum cutchicum (C. B. Cl.) R. Rao et Desh. comb. nov.

Anaphalis cutchica C. B. Cl. *Comp. Ind.* 121: 1876; Hooker f. in *Fl. Br. Ind.* 3: 284, 1881.

Plant diffuse herb, about 40 cm high, clothed with white, cottony, adpressed hairs. Roots with tap root prominent, about 10-15 cm long. Leaves sessile, oblanceolate or linear, white-tomentose beneath but with loose, cottony hairs on upper surface, 2-5 cm long, 1-10 cm broad. Inflorescence multiple head, terminal, very rarely axillary, very sparsely branched at tip in cymose pattern with heads grouped in cluster; peduncle 2-15 cm long, rarely up to 25 cm. Heads white, glistening, heterogametic; involucrel bracts, many seriate, scarious, outer smaller, ovate, irregularly toothed at tip, inner

ovate-oblong, slightly longer than the outer, both outer and inner transparent, glabrous inside and with small, oval, white-cottony hairy patch at the bottom on outside. Female flowers on periphery only, papillate, fertile, few, usually 6-7; corolla smaller, fragile, saliform, minutely toothed; style uniform with two arms at stigma at top; ovary luely hairy. Bisexual flowers at the centre only, papillate, fertile, slightly more in number, usually 8-10; corolla larger, 5-toothed, trumpet-shaped; stamens 5, synergous, anthers sagittate, lower part of lobe slightly caudate; style slender with two arms of stigma at top and slightly swollen at base; ovary tuncy hairy. Achenes oblong, verrucose; pappus hairs uniseriate, barbellate, connate at base.

Specimens examined: Kutch: On the bank of river Khatrod, near Jandaria hill, Bhuj, *J. Indragi* s.n. on 1-10-1918; Mundra Mandvi, *Jain* 11744, on 3-2-1957; Dhandhar, *Jain* 26954, on 20-10-1958; Kala Dungar, *Jain* 61328, on 7-4-1960; near lake Bhorasai, Bhuj, *Rolla Rao* 103097, on 28-9-1964; *Stowers* s.n. in 1958. Saurashtra: Byer island, off the northern coast of Saurashtra, near Okha, *Anvari* 54365, on 20-12-1959; Bet Dwarka, off the northern coast of Saurashtra, near Okha, *Rolla Rao* 102892, on 23-9-1964.

Distribution: From the material so far available it is evident that the species is mostly confined to the semi-arid region of Gujarat State, particularly Kutch and northern coast of Saurashtra adjoining Kutch. It would be of considerable interest if the species is recorded further north and south of the present range of distribution along the arid zone of India and Pakistan.

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