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ON THE OCCURRENCE OF TWO SPECIES OF *HYPOCHOERIS* LINN. IN NILGIRIS, SOUTH INDIA

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ABSTRACT

A chromosomal count of *Hypochoeris* plants collected at Ootacamund indicated the identity of those plants as *H. radicata* L., thus pointing to its presence in the Nilgiris, in addition to *H. glabra* L. reported in earlier works. This is confirmed by a detailed morphological study of living plants and herbarium specimens. A gradation in morphological characters between the two species leading to a possibility of interspecific hybridization is suggested. This may also account for the earlier misidentification of *H. radicata* with *H. glabra*. A table showing distinctive characters of the two species is provided.

In an earlier communication, Panigrahi and Kammathy (1960) recorded the occurrence of *Hypochoeris radicata* L. in Khasia Hills of Assam and briefly discussed its cytology. Consequently, during a botanical collection tour to Nilgiris, this author's attention was naturally drawn to several scattered *Hypochoeris* plants on the hill slopes, and along railway tracks in Ootacamund ; some of them were made into herbarium specimens and a few others were transplanted to the experimental garden of the Botanical Survey of India at Poona for further investigation.

A perusal of earlier literature showed that only one species of *Hypochoeris—H. glabra* L. —had been recorded from this region in South India. Further, an interesting inconsistency was noted in the spelling of the generic name. Linnaeus in the *Species Plantarum* ed. 1. 1753, has used *Hypochaeris* but in the *Genera Plantarum* ed. 5. 1754, as *Hypochoeris*. The relevant article of the *International Code of Botanical Nomenclature*, Paris (1956) states that when two different spellings are used by Linnaeus in his two works referred to above and if both are equally philologically correct, the one commonly used should be favoured. Accordingly, in this note the original spelling adopted by Linnaeus and the one commonly used is followed, although a few workers have favoured the second version.

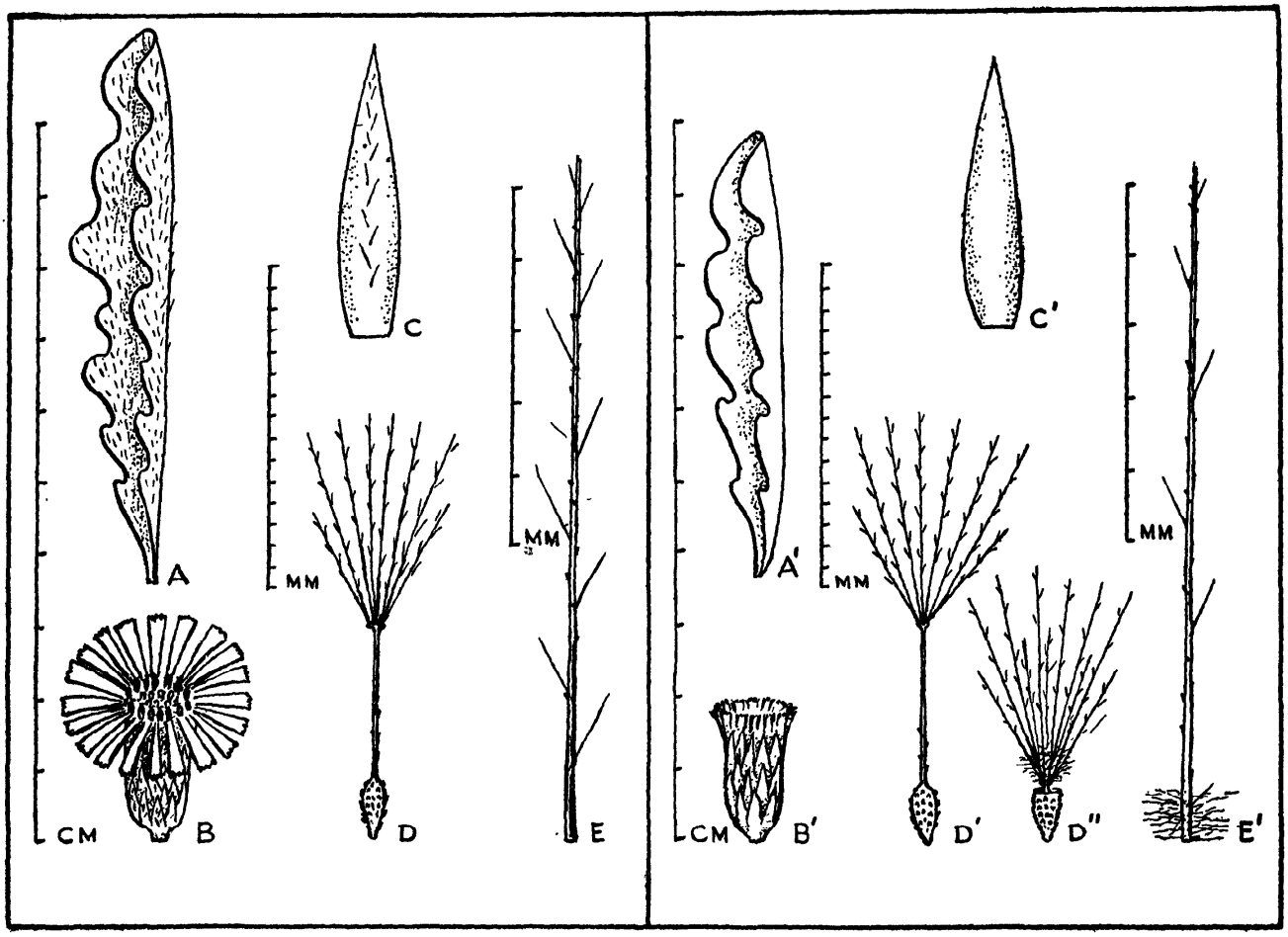
Following the usual aceto-carmine squash technique, the chromosome number of the transplanted plants was determined from root-tip smears as $2n=8$. This number, however, deviates from the chromosome number $2n=10$ and 12, reported for *H. glabra* by Stebbins *et al*, Negodi respectively (cf. Darlington & Wylie, 1955). On the contrary, it agrees with the chromosome number reported by Panigrahi and Kammathy (1960), Mulligan (1957), Stebbins *et al* (cf. Darlington & Wylie, 1955) for *H. radicata*, leading to the conclusion that the plants now investigated are *H. radicata*.

Accordingly, a comparative morphological study of both *H. glabra* and *H. radicata* was made. A comparison with a photograph of *H. radicata* in the microfisch reproductions of the Linnaean Herbarium indicated the identity of our plants as *H. radicata* only. Further, herbarium specimens of the genus from the Madras Herbarium at Coimbatore sent on loan through the kind courtesy of Dr. K. M. Sebastine were also studied. This collection really consisted of both the species. Although most of the specimens were identified as *H. glabra* a couple of sheets bore, and correctly, an annotation of *H. radicata* by Narayanaswami as early as in 1930. It is obvious, therefore, that until now *H. radicata* has been mistaken for *H. glabra* due to superficial similarity, thus implying the presence of *H. glabra* only in this area. The study of the herbarium specimens also showed a gradation of characters, in the size of the plant, degree of hairiness of leaves and involucral bracts, length of the beak of the achene etc., seemingly intermediate between *H. glabra* and *H. radicata*. Further, Panigrahi and Kammathy (1960) have reported considerable variation in the size of *H. radicata* in Khasia Hills and some 'trisomic' individuals with meiotic irregularities also. Dandy (1958) has recorded natural hybrids between *H. glabra* and *H. radicata* from British Isles. All these indicate strongly the possipility of interspecific hybridization amongst these plants in nature.

Voigt has recorded the presence of both *H. glabra* and *H. radicata* in the Calcutta Botanical Garden as early as 1845. Like many other introduced garden-plants these two species might have also been distributed to different hill stations of India, through this source, and Ootacamund being a famous hill station for retired and other European settlers, the occurrence of both the species at Nilgiris is not surprising.

Incidentally, it may be remarked that Caius (1939) has attributed certain medicinal properties to *H. glabra*; the powdered leaves being a good astringent in haemorrhage and the roots to be mildly laxative and diuretic. Due to the possibility of misidentification of *H. radicata* for *H. glabra* as indicated above, and due to unavailability of voucher specimens to verify the identity of the

plants referred to by Caius (1939), it is now difficult to attribute the medicinal properties to one species only. Hence it would be worthwhile to investigate *H. radicata* also for such medicinal properties.



Hypochoeris radicata L. *Hypochoeris glabra* L.

FIG. 1. Different parts of *H. radicata* and *H. glabra* compared. A-A′ Leaves ; B-B′ Heads ; C-C′ Involucral bracts ; D-D′-D″ Achenes ; E-E′ Pappus.

Table I summarises the distinctive taxonomical characters of *H. radicata* and *H. glabra*. In view of the possibilities of intermediate forms noted above, a combination of the following characters are to be considered in arriving at the identity of either species.

TABLE I

Difference between *H. radicata* and *H. glabra*

Characters	H. radicata	H. glabra
1. Habit	A perennial herb.	An annual herb.
2. Leaves	Conspicuously hairy on both surfaces (Fig. 1 A)	Glabrous on both surfaces (Fig. 1 A′)
3. Scapes	30-60 cm.	10-30 cm.
4. Heads	Flat	Cylindrical.
5. Ray florets	Much longer than the involucral bracts (Fig. 1 B)	Equal to or just longer than the involucral bracts (Fig. 1 B′).
6. Involucral bracts	Hairy in the middle on the outer surface (Fig. 1 C)	Glabrous on both the surfaces (Fig. 1.C′).
7. Achenes	One type only, long beaked (Fig. 1 D)	Two types : outer, short, truncate (Fig. 1 D′) ; inner, distinctly beaked (Fig. 1 D′).
8. Pappus	One type only, feathery, not cob-webby at the base (Fig. 1 E)	Two types : of outer achene feathery, cob- webby at the base (Fig. 1 E′) ; of inner not cob-webby at the base.
9. Somatic chromosome number	8	10, 12

Specimens examined:

Hypochoeris radicata L. MADRAS STATE: NILGIRI DIST.: Ootacamund, on hill slopes, *Kammathy* 73905 A-E and others under cultivation at Poona, (73905C is the voucher specimen for which chromosome number is reported) (B S I); *G. V. Narayana* et *S. R. Raju* 18429; *K. C. Jacob* on 1st November, 1942; Pudumund, *V. Narayanaswami* 4349 (MH).

Hypochoeris glabra L. MADRAS STATE: NILGIRI DIST.: Pykara, *Madras Herb.* Acc. No. 28814, 28815, 28817, 28818; way to Pykara Falls, *G. V. Narayana* et *S. R. Raju* 18447 (MH).

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