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1. Introduction

The genus *Leontodon* covers a group of morphologically and genetically closely allied species. According to the taxonomical system of WIDDER (1931, 1975), *L. hispidus* L. belongs to the section *Leontodon* of the subgenus *Leontodon*, characterized by the nodding flower buds and a virtual absence of squamiform scapus leaves. Hairs, when present, are stellate, carrying 2 - 6 rays. The presence of a pappus with normally developed, partly feathery setae at all achenes, differentiates the section *Leontodon* from the section *Thrincia* (Roth) Benth et Hooker. Main characters of *L. hispidus* are a more or less horizontal, knotted rhizome and a diploid somatic chromosome number $2n=14$.

Early attempts to cope with the remarkable variation within the species, mainly by means of a straight description of the physiognomical variation, seem unsatisfactory (HEGI 1929).

Distinct karyotype descriptions of specimens from various European localities suggest some differentiation of chromosomes of *L. hispidus* (Table 8). A first contribution to the study of the relations between morphological, cytological and ecological variation was made by FINCH (1967).

Acknowledgements

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2. Material and methods

Populations from phytosociologically distinct vegetation units, sampled at various, mainly Swiss habitats were studied (Table 1). Part of the material was cultivated in a climatic chamber; the following conditions were applied: dry temperature at day 17°C, at night 10°C; day length 16 hrs.; light intensity 13000 Lux, relative air humidity 70 %. Methods used for morphological and cytological studies as well as those applied in experimental crosses are given in the respective chapters.

3. Morphology

3.1. *Leaf shape*

Leaf shape was described by means of the characters "width/length ratio", defined as the ratio of maximal leaf width to leaf length, "relative incision depth", defined as the ratio of isthmus width in the middle of the leaf, and "number of teeth", defined as one half of the total number of teeth per leaf. For each character, average values and standard deviations were determined from five leaves per individual.

For the assessment of the extent of phenotypical variation in leaf shape, samples from populations E and M were measured for the first time after a period of growth in a climatic chamber (see above) and, subsequently, after a period of growth in the garden. The characters "width/length ratio"