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Lotus corniculatus L. agg. growing wild in Hungary and in the Carpathian
Basin

The native taxa of L. corniculatus L. agg. are widespread in the regions of Hungary and the Carpathian Basin, and of extremely varied habit, both from the morphological and ecological-phytocenological point of view. The principal aim of my research is a monographic analysis of these taxa based on microsystematical, exomorphological, anatomical, ecological-phytocenological, cytotaxonomical and--in part--germination-physiological investigations. I have made my observations and experiments from a large collection of specimens collected from numerous habitats in Hungary and the Carpathian Basin, and have examined considerable herbarium material for the microsystematical determinations.

The principal lines of my research work can be summed up as follows:

I. Microsystematical studies

About 73 taxa of L. corniculatus L. agg. occur in Hungary and in the Carpathian basin; among these, the number of new taxa described by me is 53. During the detailed systematical analysis of morphology, the morphological characteristics and the range of the taxa were defined and taxonomic keys prepared. For details, see Borsos: Acta Botan. Acad. Sci. Hung. 12: 225-283, 1966.

A number of problems presented themselves during the exomorphological

analyses, and these made necessary endomorphological and histological studies. I should like to mention the following:

II. Anatomical studies

The quantitative and qualitative anatomical studies of the vegetative parts of the L. corniculatus taxa, of the stalk and leaves first of all, yield extremely important results concerning both the individual taxa, in the various stages of development within the individual, and the comparison of the numerous taxa.

A. Detailed investigations were made within the individuals, in the epidermis of the leaves of taxa, including studies of the epidermis cells, the stomatal apparatus, their dimensions, numerical determination, proportions and quantitative distribution. All these made possible the establishment of correlations such as the relationship between circumstances of the habitat and the structure of the leaf epidermis, development of the xeromorphic characters, etc. A paper will be published on this subject by the author in Acta Botan. Acad. Sci. Hung. 15: 1969.

B. The anatomical examination of the stalk of L. corniculatus within the individuals, and the development of the supporting tissues of the various taxa show very interesting results. A correlation can be established between the ecological character (arid, humid, etc.) of the habitat, and the appearance of the supporting tissues, and--in the case of the cultivated L. corniculatus--the development of supporting tissues in the upright and procumbent types. Development of the supporting edges shows not so much the difference between small taxa,

(not a taxonomical character) as ecological differences. Studies on this aspect are under way.

III. Cytotaxonomical-cytogenetic studies

We carry out the chromosome analysis of the various taxa of L. corniculatus L. agg. on the basis of material collected from numerous habitats, and with the conventional methods. The taxa with $2n = 24$ (L. corn. s. str.) and $2n = 12$ chromosome number (L. tenuis, L. borbasii, etc.) described in the literature, occur in the area of Hungary and the Carpathian Basin.

IV. The problem of corticousness

The kernel of L. corniculatus is commonly known as hard-shelled. To study this problem we conducted germination experiments in 1963-1964. Employment of the scarification method proved to be successful in the acceleration and intensification of germination. In connection with this subject see Borsos: Acta Botan. Acad. Sci. Hung. 10: 27-41, 1964.