

KLIPHUIS, E.: Chromosome numbers of some annual *Trifolium* species, occurring in the Netherlands.

The chromosome numbers of some of the annual species of the genus *Trifolium* occurring in the Netherlands were investigated.

In the summer of 1959 seeds were collected in Walcheren, province of Zeeland, which is rich in *Trifolium* species.

The seeds have been germinated and the seedlings cultivated in "Cantonspark", Baarn, the Botanical Garden of the State University of Utrecht.

Roottips taken from the plants were fixed in Karpechenko, embedded in paraffin, sectioned at 15 micron, and stained according to Heidenhain's haematoxylin method. Drawings were made with the aid of an Abbé camera lucida.

In the following species the chromosome numbers were counted:

<i>Trifolium ornithopodioides</i> L.	2n = 16
„ <i>subterraneum</i> L.	2n = 16
„ <i>arvense</i> L.	2n = 14
„ <i>striatum</i> L.	2n = 14
„ <i>scabrum</i> L.	2n = 10
„ <i>dubium</i> Sibth.	2n = 28
„ <i>micranthum</i> Viv.	2n = 16
„ <i>campestre</i> Schreb.	2n = 14

The chromosome numbers of *Trifolium ornithopodioides* and *Trifolium micranthum* had not been counted before; those of the others are in accordance with data in the literature, with the exception of those of *Trifolium scabrum*.

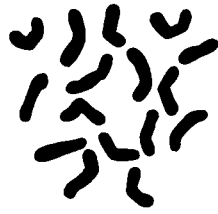
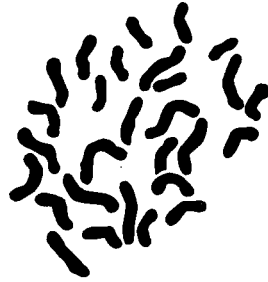
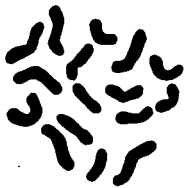
The chromosomes show some variation in size and shape. In general they are small; the centromere is subterminal, in some cases median. The species show a rather uniform chromosome portrait.

In *Trifolium scabrum* the chromosomes are bigger, and the differences in shape and size are more pronounced than in the other species investigated by us. The chromosome number $2n = 10$ was observed in several metaphase plates in a number of plants, which however, were all descended from the same motherplant. The plants show no morphological differences in comparison with the specimens present in the Utrecht herbarium.

Therefore, it might be worthwhile to make further investigations to ascertain whether the chromosome number $2n = 10$ is incidental or common to all plants of *Trifolium scabrum* growing in Walcheren.

KARPECHENKO (1925) thought the number of chromosomes in the genus *Trifolium* of minor importance, BLEIER (1925) was of the same opinion.

BROCK, R. D. (1953) counted different chromosome numbers in *Trifolium subterraneum* growing in Israel and other parts of the Mediterranean area and in England. ($2n = 12$ and $2n = 16$ respectively). He suggested that the difference in chromosome number might be the result of a rearrangement of the chromosome without loss of material. Whether this is correct, and whether the same holds true for *Trifolium scabrum*, can only be proved by further investigation.

a. *Trif. ornithopodioides* L.b. *Trif. subterraneum* L.c. *Trif. arvense* L.d. *Trif. striatum* L.e. *Trif. scabrum* L.f. *Trif. dubium* Sibth.g. *Trif. micranthum* Viv.h. *Trif. campestre* Schreb.

5 μ

Fig. 1.

ACKNOWLEDGEMENT

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