inhibitory actions induced by stimulation of vagal and aortic afferents[5–7].

Résumé. La stimulation électrique des fibres afférentes vagales et aortiques les plus excitables issues des presso-récepteurs pulmonaires et artériels, augmente l'excitabilité des terminaisons du nerf laryngé supérieur dans le noyau du tractus solitaire. Des changements d'excitabilité des terminaisons afférentes furent également obtenus pendant l'activation physiologique des récepteurs vagaux sensibles aux variations de pression intrapulmonaire.

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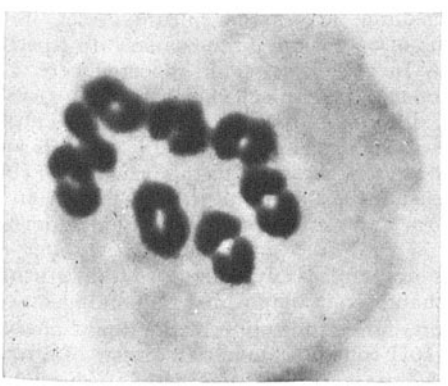
A Nullisomic Plant in Diploid *Chrysanthemum*

Chrysanthemum carinatum Schousb., distinguished from other species of this group by its carinated involucral bracts, is a common garden annual and has 18 as its diploid chromosome number. Following observations of spontaneous chromosomal interchanges in many of its geographically isolated populations, interchange heterozygotes from several populations were intercrossed with a view to finding whether the interchanges present in these samples involved common chromosome pairs[1]. A monosomic plant having 17 chromosomes, and a chimeral plant having pollen mother cells with 18 and 16 chromosomes, were discovered when F_1 hybrids from one of these crosses were analysed cytologically for meiotic chromosomal associations[2,3]. Among the progeny of a cross involving these 2 abnormal plants, 1 plant was marked out from the others by its dwarf stature and stunted growth. This plant was found to have 16 chromosomes, forming regularly 8 bivalents in pollen mother cells (Figure), instead of a normal complement of 18 chromosomes. Meiotic process and microsporogenesis in the nullisomic were normal and the pollen grains appeared fertile as judged by the carmine-stainability test. Since this species is self-incompatible, the nullisomic plant was crossed to disomics in reciprocal crosses. None of these crosses yielded viable seeds, indicating that the deficient gametes did not function.

In addition to the genera *Prunus* and *Morus*, *Chrysanthemum* shows the highest known level of naturally occurring polyploidy with a wide range of somatic chromosome numbers extending from 18–198 (i.e. 22 *X*)[4]. Spectrum of aneuploid chromosome variation exhibited by the vegetatively propagated, more common garden forms of this genus is indeed striking[5,6]. In the species *indicum*, *rubellum* and *maximum*, for example, most of the phenotypic variations that exist are through whole chromosomes being lost and giving cytologically unbalanced progeny which survive. Equally interesting are the genetic mechanisms to promote fitness and adaptability discovered in sexually propagated diploid forms of this genus and the inherent capacity of the diploid genome to withstand extensive interchromosomal rearrangements[7,8]. The present report of a nullisomic plant in a basically diploid species is also significant, since such gross chromosome deficiencies are expected to be viable only in organisms evolved through polyploidy and having consequent duplication of whole chromosomes or parts thereof. Similar situations may possibly lead to a decrease in the basic number of chromosomes in this genus, as appears to have occurred in the genus *Crepis*. Undoubtedly, evolutionary development in the genus *Chrysanthemum* is of considerable cytogenetic interest, since such a method of evolution as that of the ornamental chrysanthemums is not yet known in any other plant[9].



Photomicrograph of a pollen mother cell from the nullisomic plant showing 8 bivalents. × 2040.

Zusammenfassung. Bei *Chrysanthemum carinatum* wurde eine nullosome Form während Kreuzungsversuchen entdeckt.

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