

*Drechslera colocaseae* sp. nov. Tandon and Bhargava

Colonies on Asthana and Hawker's medium "A" effuse, first white and later turn to deep olive grey, stromata absent. Hyphae olive grey in colour, smooth, septate, 1-4.4  $\mu\text{m}$  thick, septa 13.2  $\mu\text{m}$ -19.8  $\mu\text{m}$  22.0  $\mu\text{m}$  apart. Conidiophores solitary, geniculate, septate, olive grey to deep olive grey 17.6  $\mu\text{m}$ -132.0  $\mu\text{m}$  long and 4.4  $\mu\text{m}$  thick, bearing 2-4 conidia. Conidia straight, oblong, rounded at the ends, hyaline when young, vetiver green when mature, 3-7 (usually 5-) pseudoseptate, 19.8  $\mu\text{m}$ -26.4  $\mu\text{m}$ -30.8  $\mu\text{m}$ -36.0  $\mu\text{m}$ -39.6  $\mu\text{m}$  (36.0  $\mu\text{m}$   $\times$  4.4  $\mu\text{m}$ -8.8  $\mu\text{m}$  (6.6  $\mu\text{m}$ ).



FIG. 1. Showing conidiophores and conidia of *Drechslera colocaseae* sp. nov. of Tandon and Bhargava.

Specimen collected from the Experimental Farm, Department of Botany, University of Allahabad, Allahabad (India).

From the above description it is noticed that the fungus differs from *Drechslera hawaiiensis* (Bugnicourt) Subram. & Jain ex M. B. Ellis, in the following: (i) Absence of stromata formation in culture, (ii) Hyphae are thicker, (iii) Conidiophores are longer, (iv) Conidia are larger and narrower. Obviously it is a new species and the same has been confirmed by C.M.I. (Kew), England, where its culture is deposited as IMI 172992.

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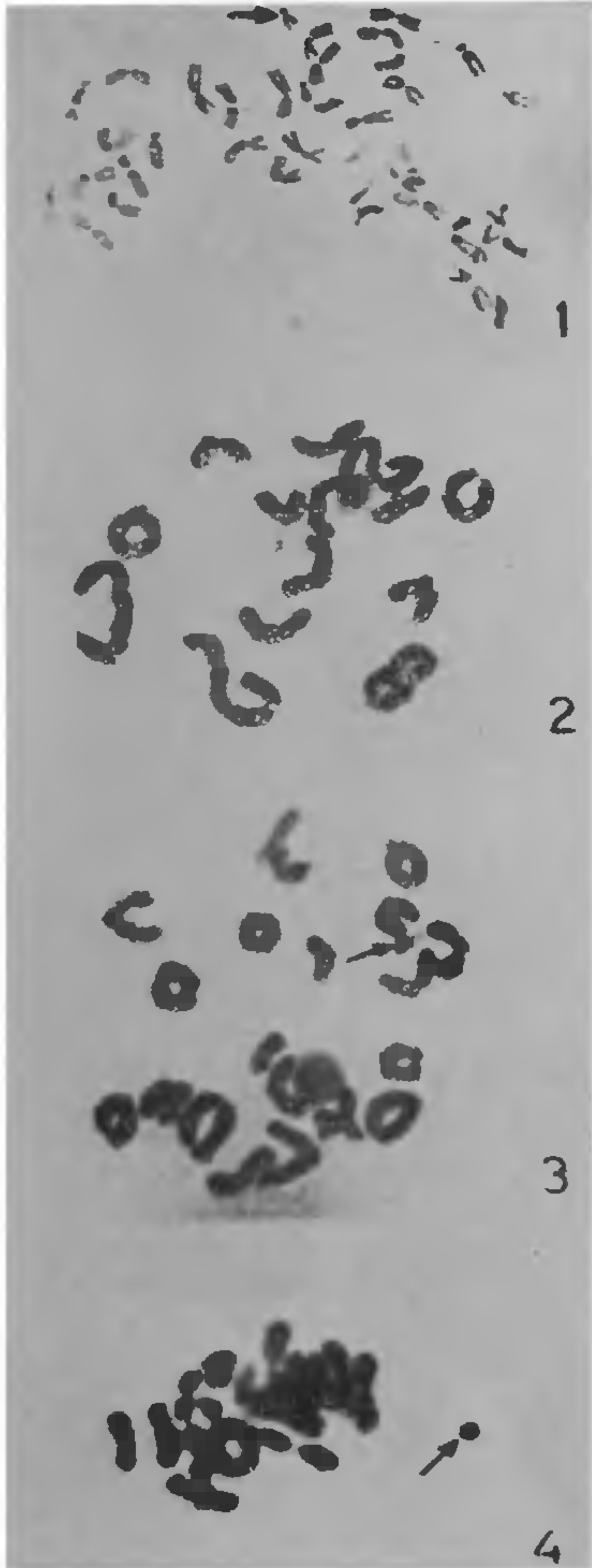
### B-CHROMOSOMES IN TETRAPLOID *MATRICARIA INODORA* L.

ACCESSORY, or B, chromosomes are not genetically inert, although the adaptive and functional significance of many of them is only rarely understood and their precise role in many plant populations is yet to be elucidated. These are conspicuously absent in the inbreeders, and compared to diploids are generally less frequent in polyploids<sup>1</sup>.

In one plant of a tetraploid race of *Matricaria inodora* L. introduced from France, an accessory chromosome is consistently present in the root meristem as well as in the pollen mother cells analysed. The individual plant possessing them exhibits no phenotypic effect. The supernumerary chromosome is euchromatic, approximately 3.8  $\mu$  in length, which is 71.43% of the smallest chromosome of the A set (Fig. 1). Similar to the normal diploid (Fig. 2), at diakinesis, this plant usually contains two nucleoli in a cell, one of which is markedly smaller than the other with chromosomes attached to both. The B-chromosome is nucleolar (Fig 3) and appears to share little or no synaptic homology with the members of the normal complement. The plants devoid of B chromosome have 36 A-chromosomes which in 95% of the cells form 1 to 4 quadrivalents. But, the plant with B-chromosome has mostly bivalents in its cells. However, its chiasma frequency is not affected, or is even favoured by the presence of such a chromosome. At metaphase I, the normal chromosomes exhibit a considerable amount of stickiness. Eventhough the B may not join the sticky A-chromosomes, it generally occupies the equatorial plate (Fig 4) that helps in its regular disjunction at Anaphase I. The pollen size and fertility remained unaltered from that of the normal plant.

Mulligan<sup>2</sup> observed an accessory chromosome (rarely two) in diploid *Matricaria maritima* var. *agrestis* found as a weed in Canada. None of the tetraploid plants cytologically screened by him had any accessory chromosomes. The *Matricaria* B-chromosome is conspicuous in being nucleolar. In fact, the absence of nucleolar organizer region in B chromosomes has been emphasized in the literature<sup>3</sup>. While comparing the meiotic behaviour of the normal plant with that of its sister

plant with the additional supernumerary chromosome it seems that the presence of B-chromosome is implicated in the partial suppression of multivalent formation. Such 'diploidizing' effect of B-chromosome is reported in *Triticum aestivum*<sup>4</sup> and also in amphidiploid of *Lolium perenne* × *L. temulentum*<sup>5</sup>. Stability and intraplant numerical uniformity of B-chromosome identified in *M. inodora* can be envisaged from the absence of non-disjunction or of lagging at anaphase.



The B-chromosome might have originated from A-chromosome due to misdivision of a nucleolar chromosome, and by structural modification conceals the pairing affinity with its progenitor<sup>1</sup>. No conclusive evidence is yet available to suggest that they confer any adaptive value in relation to environmental conditions.

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#### FEMALE GAMETOPHYTE IN *ANCHUSA OFFICINALIS* L.—A REINVESTIGATION

In most of the boraginaceous taxa a Polygonum type of female gametophyte development prevails (see Davis<sup>1</sup>, Fathima<sup>2,4</sup>; Nagaraj and Fathima<sup>5,8</sup>; Khaleel<sup>5,6</sup>; Sukhadani and Deshpande<sup>10</sup>; Deshpande and Sukhadani<sup>9</sup>), while in *Anchusa officinalis* and *Lycopsis arvensis* (Svensson<sup>11</sup>) a bisporic type is known. In *Ehretia laevis* (Johri and Vasil, 1956), *Cordia alba* and *C. obliqua* (Khaleel<sup>6</sup>) and *Ehretia acuminata* (Khaleel, 1977) both bisporic and monosporic developments coexist. As the bisporic embryo-sac is recorded in the aforesaid taxa only, it was felt desirable to reinvestigate some of these taxa with a view to verify the course of events described in the earlier literature. The present note on *Anchusa officinalis* L. is in the same context. Both the ontogenetic features of the female gametophyte as well as some interesting features not observed by Svensson<sup>11</sup> are recorded.

The tetralocular ovary is superior, bicarpellary and syncarpous and each loculus bears an anatropous, tenuinucellate and unitegmic ovule on axile placentae. The archesporium becomes discernible in the scanty nucellus earlier than the initiation of the integumentary primordia (Fig. 2). The hypodermal archesporium is single to three-celled (Figs. 1-4), but finally one of

FIGS. 1-4. Fig. 1. Somatic complement, 36 + 1B, × 800. Figs. 2-3. Diakinesis, 2IV + 14II and 17II + 2I + IB (former of normal plant; each contain 2 nucleoli). Fig. 4. Metaphase I (note the sticky A-chromosomes). Arrow indicates B-chromosome. 2-4 ca. × 1,150.