

acryflavine treated cuttings and 3 days in cuttings treated by a combination of IBA, GA<sub>3</sub> and acryflavine. Since gibberellins have a function in regulating nucleic acid and protein synthesis, GA<sub>3</sub> may be suppressing root initiation by interfering with the aforesaid processes<sup>9</sup>.

February 13, 1981.

1. Went, F. W., *Proc. 6th Int. Bot. Cong.*, 1935, 2, 267.
2. Brian, P. W., Hemming, H. G. and Lowe, D., *Ann. Bot.*, 1960, 24, 407.
3. Janser, H., *Planta*, 1967, 74, 371.
4. Nanda, K. K., Purohit, A. N. and Mehrotra, K., *Plant and Cell Physiol.*, 1968, 9, 735.
5. —, Ananda, V. K. and Chibbar, R. N., *Planta*, 1972, 105, 369.
6. Bhattacharya, S., Bhattacharya, N. C. and Malic, C. P., *Ibid.*, 1978, 138, 111.
7. Adhikari, U. K. and Bajracharya, D., *Ibid.*, 1978, 143, 331.
8. Collocott, T. C. and Dobson, A. B., *Dictionary of Science and Technology*, Revised edition, W & R Chambers Ltd., 1974, p. 12.
9. Key, J. L., *Annu. Rev. Plant Physiol.*, 1969, 20, 449.

### *RUSSULA FOETENS* (PERS.) FR.— A NEW RECORD FOR INDIA

S. S. SAINI AND N. S. ATRI

Department of Botany, Punjabi University  
Patiala 147 002, India

FROM amongst the mushroom collection of North India, made in August 1979, one of the specimens was identified as *Russula foetens* (Pers.) Fr. Though 275 species of *Russula* Pers. ex Gray are known from world over<sup>4</sup>, only 7 species are reported from India<sup>1</sup>. The present one is a new addition to the list of Indian species. Colour terminology used is after *Methuen Handbook of Colour*<sup>2</sup>. The specimen has been deposited in the Herbarium of Botany Department, Punjabi University, Patiala and duplicate collection in the Herbarium of Field Museum of Natural History, Chicago, Illinois, U.S.A. The detailed description of the species is as follows:

*Russula foetens* (Pers.) Fr., *Epier. Syst. Myc.* p. 359, 1838. Fig. 1 (A-D).

Fructifications up to 12 cm in height; pileus up to 10 cm broad, convex when young, applanate with a depression in the centre at maturity, margin sulcate,

striate, pellucid, surface viscid, sticky when moist, glabrous, brown: 6B8 in the centre, light orange: 5A4 along the margin, flesh colour not changing when cut, latex absent, taste tardily acrid, odour oily. Lamellae subdecurrent, crowded, rarely forked, broad, lamellulae few, yellowish white: 1A2, no change when bruised, edges wavy. Stipe up to 10 × 2.2 cm, slightly tapering downwards, veined, pruinose, fleshy, solid, becoming hollow with age, yellowish white: 1A2, no change when cut. Spores 6-8.3 × 6-7.6 μm, globose to subglobose, verrucose, warts upto 1.5 μm, ornamentation type IV<sup>3</sup>, apiculus upto 1.5 μm long, deposit pale yellow: 4A3, amyloid. Basidia 38-47, × 7.6-10 μm, 2 and 4 spored, clavate, sterigmata upto 6 μm long; pleurocystidia 51-89.8 × 7.6-10.6 μm, almost fusoid, cylindrical, appendiculate, impregnated with contents towards the apex, abundant; cheilocystidia absent. Cap context heterogeneous, epicutis hyphal, subgelatious; dermatocystidia absent; gill trama and stipe context heterogeneous.

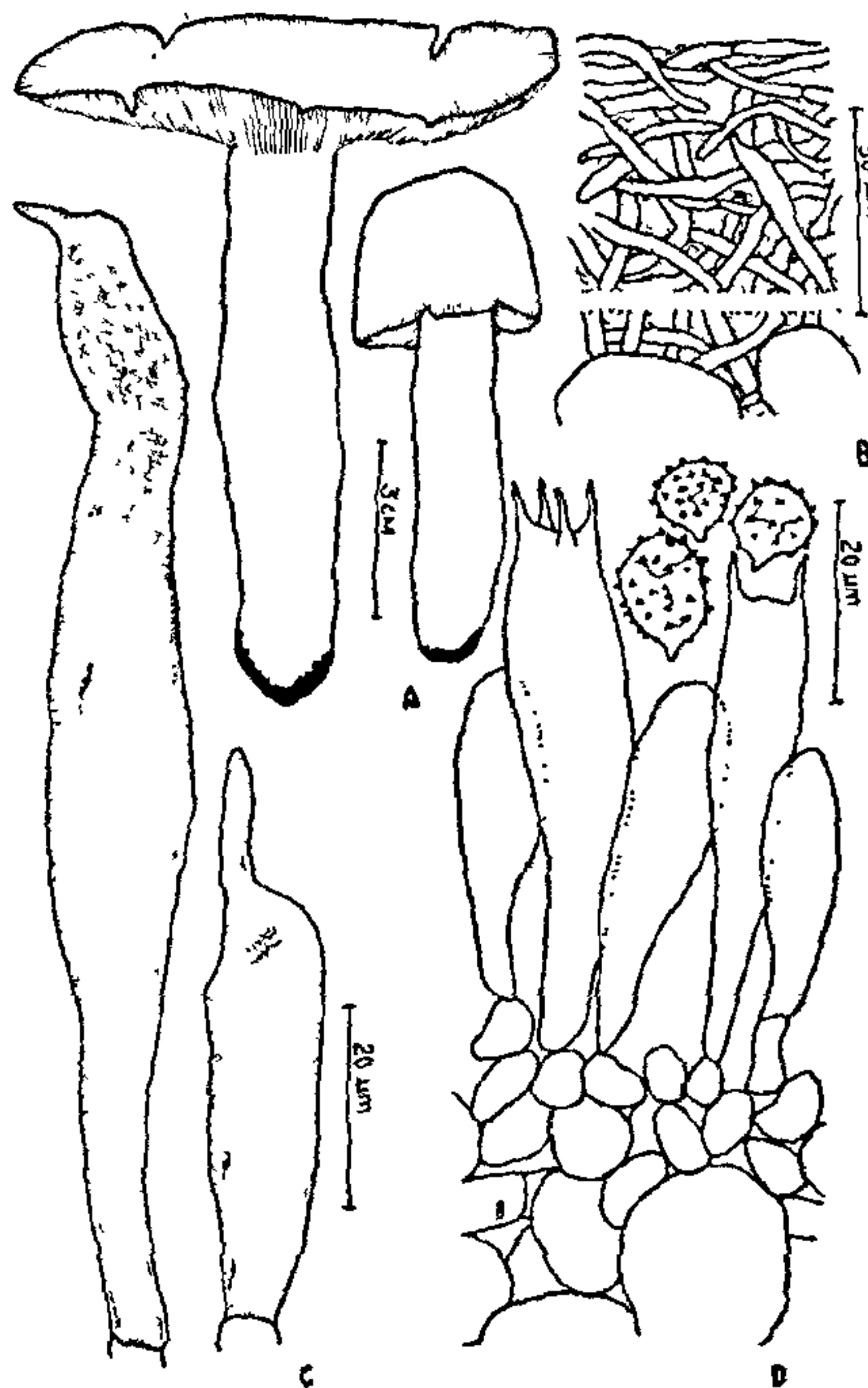


FIG. 1. (A-D). *Russula foetens* (Pers.) Fr. A, Carpophores; B, V.S. pileus showing heterogeneous context; C, Pleurocystidia; D, V.S. Hymenium showing basidia, basidiospores and heterogeneous trama.

Specimen examined: Himachal Pradesh, Simla, Summer Hill (1983 m), on humicolous soil under *Quercus incana* Roxb., N.S. Atri, PUN 265, July 31, 1979.

This collection resembles with the description given for *R. foetens* (Pers.) Fr. by Rayner<sup>3</sup> except for the absence of dermatocystidia in the present case.

Authors are thankful to Prof. S. S. Bir, Head of the Department for providing the laboratory facilities and to Dr. Rolf Singer for confirming the identification. Thanks are also due to CSIR for award of fellowship to N. S. Atri.

October 16, 1980.

1. Bilgrami, K. S., Jamaluddin and Rizwi, A. N., *Fungi of India*, Part I. Today and Tomorrow's Printers and Publishers, New Delhi, 1979.
2. Kornerup, A. and Wanscher, J. H., *Methuen Handbook of Colour*, 3rd Ed. Eyre Methuen, London, 1978.
3. Rayner, R. W., *Bull. Br. Mycol. Soc.*, 1970, 4, 19.
4. Singer, R., *The Agaricales in Modern Taxonomy*, 3rd Ed., J. Cramer, Germany, 1975.

## ACCESSORY CHROMOSOMES IN GARDEN CHRYSANTHEMUM

M. A. NAZEER\*

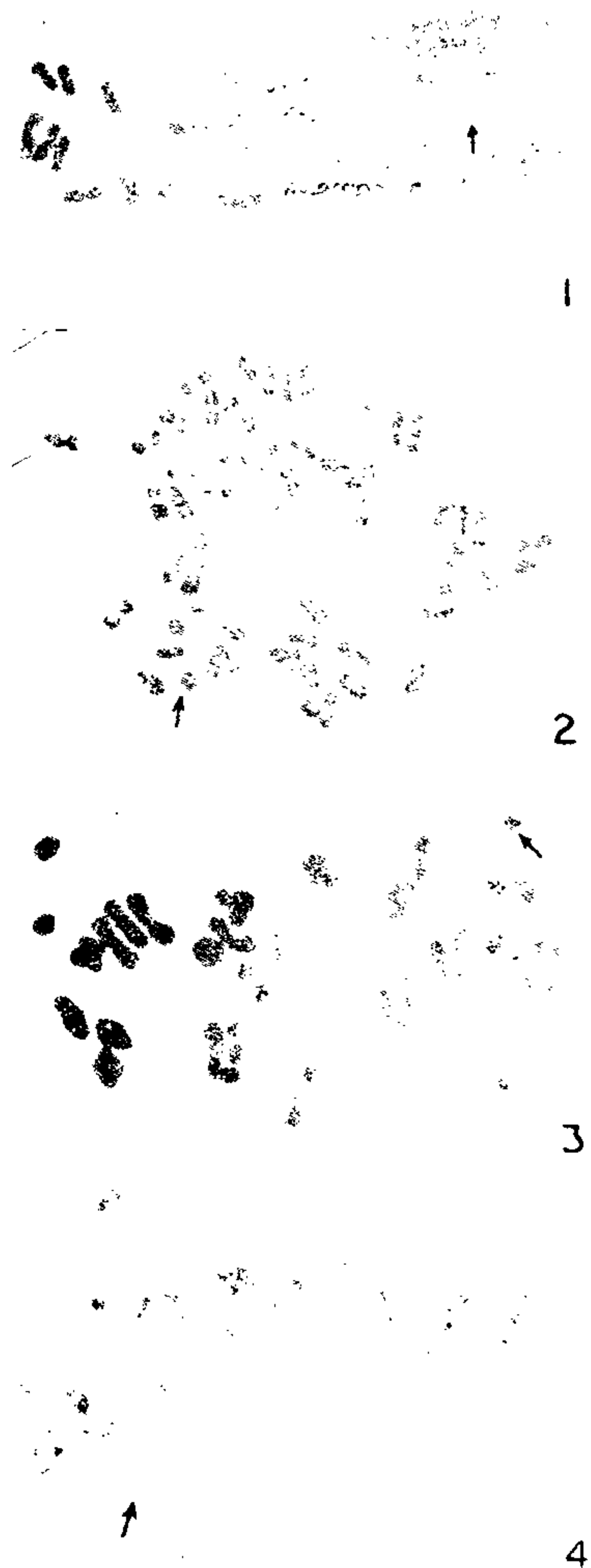
Cytogenetics Laboratory  
National Botanical Research Institute,  
Lucknow 226 001, India

CONTRARY to earlier observations that B-chromosomes are generally less frequent in polyploids<sup>1</sup>, recent studies have shown that they are equally prevalent in polyploid species as well<sup>2,3</sup>. This is also true of the garden chrysanthemum (*C. morifolium* Ramat.), which is an important ornamental and cytogenetically constitutes a poly-aneuploid complex, in which the majority of the taxa are hexaploid. Out of nearly 200 cultivars, 5 cultivars showed the presence of one B-chromosome each. The present communication gives a brief account of these taxa.

Karyotypic and meiotic studies were made following the usual Feulgen and iron-acetocarmine squash methods, respectively. Root tip mitosis in cultivars like "Nigeria", 'Red Princess Anne', Cv. W1 (all  $2n = 6x = 54$ ) and 'Innocence' ( $2n = 6x + 2 = 56$ ) revealed the presence of one small accessory chromosome (Figs. 1 and 2), whose size in all the cases was

\* Present address: Rubber Research Institute, Kottayam, Kerala.

nearly one half of the smallest chromosome in the complement. The centromere in B-chromosome of



FIGS. 1-4. Figs. 1 and 2. Somatic metaphase of *C. morifolium* cultivars. Fig. 1. cv. 'Red Princess Anne'— $2n = 54 + 1B$ . Fig. 2. cv. 'Innocence',  $2n = 56 + 1B$  (Note the telocentric B). Figs. 3 and 4. Meiotic metaphase. Fig. 3. MI in cv. 'Innocence',  $1IV + 24II + 4I + 1B$ . Fig. 4. MII in cv. 'Ghenghiskhan',  $1IV + 1III + 29II + 7I + 1B$ .