recognition of three genera in Secamonoideae of India is open to question.

The pollinial apparatus in the two subfamilies of Asclepiadaceae reveal marked taxonomic differences. The corpusculum in Secamonoideae is light-brown and membranous as against that of Asclepiadoideae which is dark-brown and hard. Further, there is a single caudicle connecting all the four pollinia in the former, while each pollinium is connected by an independent caudicle in the latter. Moreover, the point of attachment of caudicle to corpusculum is indistinct in Secamonoideae while it is clearly distinct in Asclepiadoideae. The delimitations of the two subfamilies is strongly supported by the pollinial study.

The pollinial apparatus of Asclepiadoideae appears to be more specialized than that of Secamonoideae. The presence of four pollinia in the latter is more or less similar to that of Periplocaceae. Therefore, Secamonoideae forms a bridge between Periplocaceae on the one hand and Asclepiadoideae on the other.

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1. Airy Shaw, H. K., *Willis's Dictionary of Flowering Plants and Ferns*, The University Press, Cambridge, 1973, p. 98.
2. Frye, T. C., *Bot. Gaz.*, 1901, **32**, 325.
3. Gager, C. S., *Ann. Bot.*, 1902, **16**, 123.
4. Richharia, R. H., *Curr. Sci.*, 1934, **2**, 340.
5. Safwat, F. M., *Ann. Missouri bot Gard.*, 1962, **49**, 95.
6. Gamble, J. S., *Flora of the Presidency of Madras*, Botanical Survey of India, Calcutta, Rep. Eds., 1969, **2**, 578.
7. Santapau, H. and Irani, N. A., *The Asclepiadaceae and Periplocaceae of Bombay*, Bot. Mem. Univ. Bombay, 1962, **4**, 24.
8. Stevens, W. D., "Asclepiadaceae", In: *Flora of Hassan District*, by C. J. Saldanah and D. H. Nicolson, Amerind Publ., New Delhi, 1976, p. 452.
9. El-Gazzar, A. and Hamza, M. K., *Pollen et Spores*, 1973, **15**, 450.
10. —, — and Badawi, A. A., *Ibid.*, 1974, **16**, 227.
11. Arekal, G. D. and Ramakrishna, T. M., *Curr. Sci.*, 1978, **47**, 636.

## *CHLOROLEPIOTA*—A NEW GENUS OF AGARICALES (MUSHROOMS) FROM INDIA

DURING the survey of mushrooms of South-west India, the authors came across a lepiotoid specimen (field No. M-31) on the plateau of Mahabaleshwar—a hill station (c. 1,375 m high above the mean sea level) 120 km from Poona. Further studies on this specimen revealed that it could not be accommodated under the existing mushroom genera, for the reasons discussed below. A new genus, namely, CHLOROLEPIOTA with its new species namely MAHABALESHWARENSIS, is, therefore, proposed to accommodate the present specimen. The description alongwith the required latin diagnoses is given below.

*CHLOROLEPIOTA* gen. nov. Sathe and Deshpande.

Habit lepiotoid; annulus complex, fixed becoming mobile; surface not turning red or black with alkali; pileal surface an epicutis, trichodermal fasciculate over seales; spores with green tones in masses and under microscope, porate with refringent poral plug (callus), staining freely in alkaline congo red, endosporium staining metachromatically in cresyl and cotton blue; capitate cystidioles present on the lamellar surface and clavate cheilocystidia on edge; clamp connections absent, spores dextrinoid in Melzer.

*Latin Diagnosis* :

Habitus lepiotoideus; annulus complexus, certus vel mobilisascens; paginae non invicem rubra vel atra ad solute alcalina applicata; pilei cuticularis epicutis trichodermalis fascicularis super squamae; sporae viridis, poratae cum obturamentii porii refringenus, coloratibus copiosae in alcalinus congo rubrae, endosporae metachromatae coloratibus in kresylblau vel cotton blau; cystidiolae capitatae praesentia super lamellaris paginae et clavate cheilocystidia super marginae; fibulae nullae; sporae dextrinoidae in Melzer.

*Chlorolepiota MAHABALESHWARENSIS* sp. nov. Sathe and Deshpande (Mahabaleshwar: a place of collection, 120 km from Poona, India) (Fig. 1).

HABIT : Lepiotoid.

PILEUS : 5-8 cm broad (in exsiccatus); conic to convex, umbonate; buffish yellow to straw coloured, umber coloured scales crowded at centre becoming sparse towards *margin*; smooth; fleshy; rarely marginally striated; margin: entire; *pileal surface*: an epicutis of thin walled, hyaline, repent parallel hyphae, (5·72–) 8·6 (–10·00) μm broad, trichodermal over scales, pileal hairs agglutinating in conical structures;

LAMELLAE : Free, with collarium (sensu Singer[1]); equal; primrose-yellow, becoming brownish on drying; 100–114 μm at base, 71·5–85·8 μm at edge; spaced at 138–143 μm interval; *hymenophoral trama*: irregular to snbirregular; *lamellar*

*surface*; cuhymenial – *subhymenium* distingushed, cellular, 11·44–14·3 μm wide; *pleurocystidia* nill; *cystidioles* present, 17·3 × 10 μm; *lamellar edge*: sterile with cheilocystidia, 17·16–20·00 × 5·72–14·30 μm.

STIPE : 9·5–14·8 mm (in exsiccatus); central; concolourous with pileus; hollow; cylindrical with bulbous base; *caulocystidia*: absent; *annulus*: complex, fixed becoming mobile.

HYPHAL SYSTEM : Monomitic with thin-walled generative hyphae, 5·38–10 μm broad, inamyloid, weakly cyanophilous, clamp connections absent.

BASIDIA : (28·6–) 34·34·32 (–45·76) × 14·30 (–16) μm, Q = upto 3·2; bi or tetra sporic; capitate; sterigmata upto 3·125 μm in length.

SPORE PRINT : Prime rose yellow (sheet No. 5, 66, CMI Colour Chart).

BASIDIOSPORES : (11·44–) 14·30 (–15·73) × (5·72–) 8·58 (–9·3) μm, Q = 1·67; ellipsoidal; porate with refringent poral plug (callus) and lateral apicule; wall: smooth, greyish-yellow-green (sheet No. 5, 68, CMI Colour Chart) in ammonia solution; strongly dextrinoid; cyanophilous; endosporium metachromatic in cresyl blue or cotton blue; staining strongly in congo red (alkaline).

HABIT : On ground.

MATERIAL EXAMINED : AMH 4023 (field No. M–31) HOLOTYPUS.

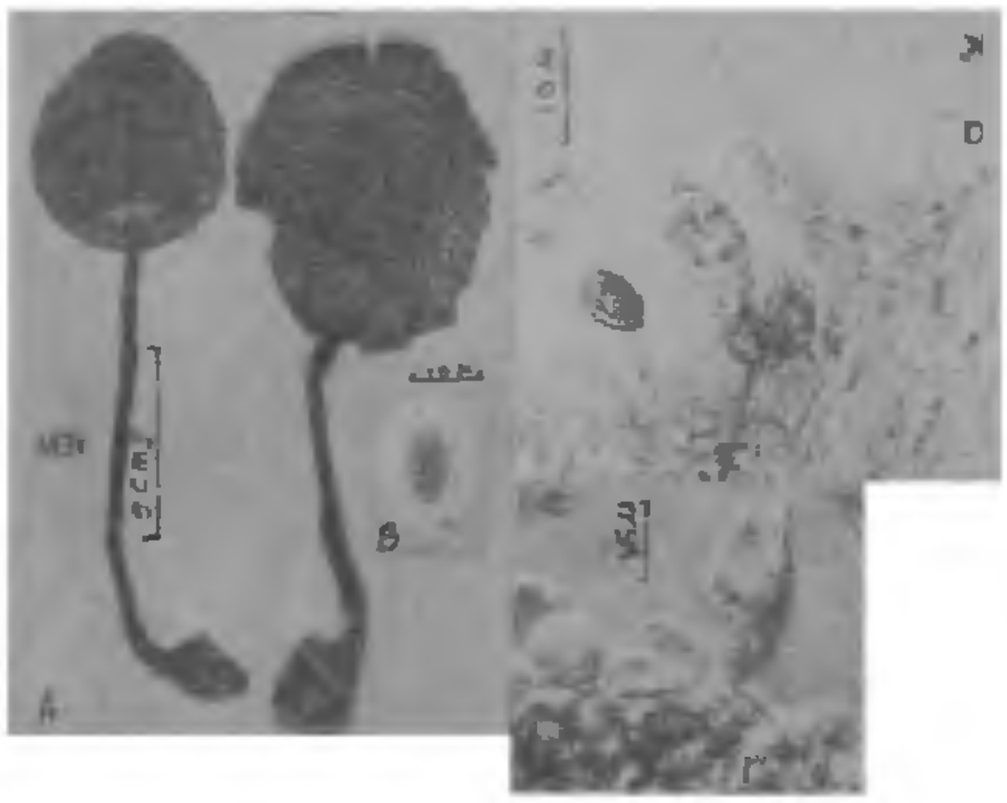

FIG. 1. A—Habit photograph. B—Basidiospore (photomicregraph). C—Bisterigmatic basidum (holographic photomicrograph). D—Tetrasterigmatic basidium, cystidiole, hypha without clamp connection and a basidiospore at side

*Latin Diagnosis* :

*Chlorolepiota MAHABALESHWARENSIS* sp. nov. Sathe and Deshpande,

Habitus lepiotoidius, pileus 5–8 cm latus specimene exsiccate, conicus, convexus aetate provectus, umbonatus, luteus–bubalinus ad stramineus, atro umbrinum squamae congestae ad centrum, sparsae marginae, glabrous, carnosus, raro margine striatus, margine integre, pagina apicuti trichodermate super squamae, agglutinato in fasciculo conico squamuli formae.

Lamellae librae cum collarium (sensu Singer[1]); aequilongae; primulinae; 100–114 μm lato ad basem, 71·6–85·8 μm lato ad apicem; disposita 138–143 μm intervallo; trama irregularem vel subirregularem; paginae cystidiolae capitatae, 17·3 × 10 μm; cheilocystidia marginis clavati, 17·16–20·00 × 5·72–14·30 μm.

Stipes 9·5–14·8 mm in diam.; centralis; pilei concolore; basi bulbosum, cylindracem; carvum; caulocystidia nulla. Systema hyphae : hypis monomitibus, generatibus, fibulis nullis, inamyloidea, pallide cyanophilea, (5·38–) 8·6 (–10) μm lato. Besidia (28·6–) 34·32 (–45·76) × 14·30 (–15) μm, bi vel tetraspora, capitata, sterigmatibus 3·125 μm longus. Sporae in massae primulinae coloratae, (11·44–) 14·30 (–15·73) × (5·72–) 8·58 (–9·3) μm, Q = 1·67 ; ellipsoidis, porogerminali obturamento refringenti et apiculo latero, spora pariete glabro, griseo-primulino, dextrinoido, cyanophilo, endospora metachromato, rubrocolorato in congorubro (alcalinus). Habitato in solum. Holotypus AMH 4023 (M–31). Typus locus : Mahabaleshwara, 120 km proximo Pune, in parte regionis austro-occidentali Indiae.

The genus *Chlorolepiota*, on account of its green spore print appears to be closer to *Chlorophyllum* Massee, but differs significantly from it with respect of non-truncate germ pore with a poral plug, distinct metachromasy of endosporium, strong liking for congo red (alkaline), and plant surfaces not turning dark red to black with alakali. The present genus appears to be closer to *Macrolepiota* Sing. On account of strong affinity of spores for alkaline congored and distinct metachromasy of endosporium, but differs significantly from it on account of the presence of almost rudimentary germ pore with poral plug, absence of clamp connections, and more important, the green colour of spore wall (and in masses). The present genus i. e. *Chlorolepiota* could be very well keyed out in the tribus *Leucocoprineae* Sing.[1], where it enjoys a position intermediate between *Chlorophyllum* and *Macrolepiota*, and the suggested name, in the authors' opinion depicts this position well. In the subsequent trips to the type locality, specimens with pileii as large as 20 cm have been observed, the coloured photographs of which are well preserved.

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*March* 26, 1979.

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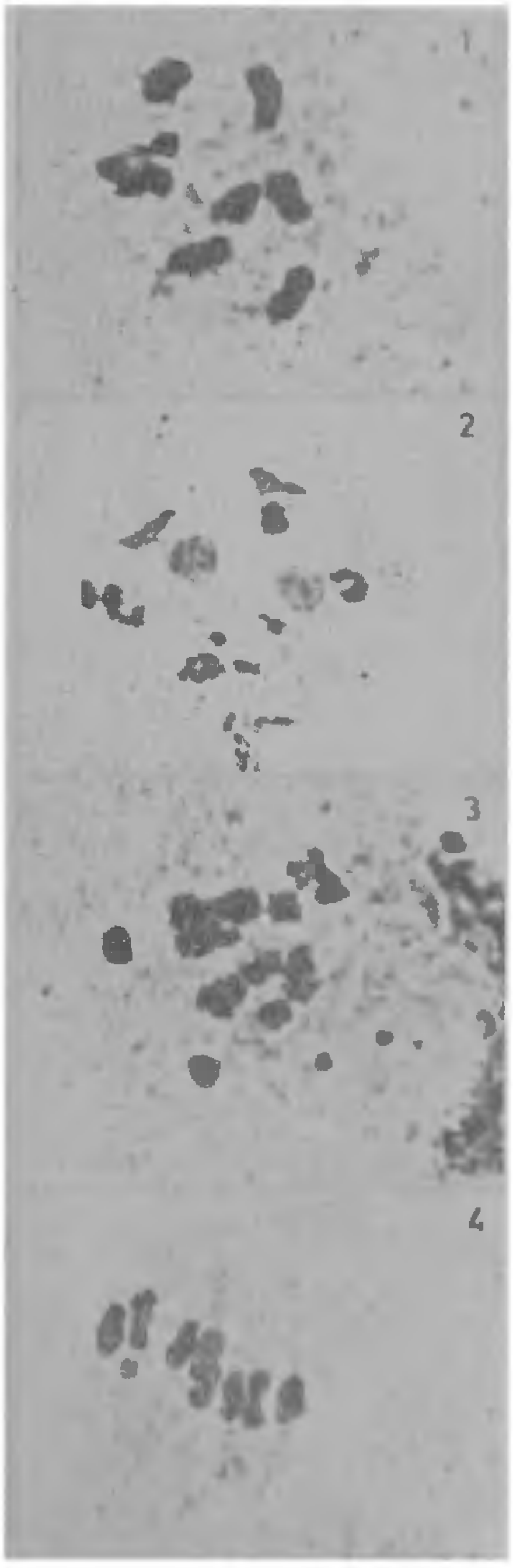
1. Singer, R., *The Agaricales in Modern Taxonomy*, J. Cramer Publication, 1975, pp. 912, pl. 84.

## ACCESSORY CHROMOSOMES IN *TRIGONELLA CORNICULATA* L.

A NUMBER of plant species is known to contain supernumerary B-chromosomes in addition to the standard complement of A-chromosomes[1,4]. The frequencies of plants with B-s, vary over a wide range (0–100%) according to the species and/or to populations of one and the same species. Occurrence of accessory chromosomes in *Trigonella corniculata* has not been reported so far, although they are recorded in the related species *T. foenum-graceum*[5,6]. In the present communication, the occurrence and cytological behaviour of accessory B-chromosomes observed in *T. corniculata* have been reported for the first time.

*T. corniculata* was found to be diploid with $n = 8$ (Fig. 1). Out of 60 plants analysed cytologically, 2 were found to be carriers of B-chromsomes. The carrier plants have two types of PMCs, one having 16 chromosomes and the other 16 + B-chromosomes. The B-chromosomes range in number from 1–4 (Figs. 2, 3 and 4). The frequency of PMCs having B-chromsomes is nearly 50%. The behaviour of B-chromosomes in PMCs has been studied in detail. They differ in size, shape and stainability and can be distinguished from the normal chromosomes. They appear to be polymorphic in nature. Two of the B-s have centric constrictions while the other seems to be telocentric. However, this observation has to be confirmed from pachytene studies. At anaphase I some of the B-s were observed to be lagging and others showed no signs of lagging. Morphologically there exists no distinction between the individuals possessing the accessory chromosomes and the plants without them. Hence the B-s appear to be genetically inert. Their mode of origin could not be studied.

Studies of Lewis[3] and Frost[2] revealed that B-chromosomes exhibit marked variation in their frequency with their ecological conditions. This geographical difference largely coincided with difference in humidity and temperature, the accessory chromosomes being higher in the arid regions. Although, *T. corniculata* plants have been studied in detail by Singh[7] and Singh and




FIGS. 1–4. Meiotic stages in *Trigonella corniculata* L. Fig. 1. Metaphase I with 8 bivalents, × 8,550. Fig. 2. Diakinesis showing two nucleoli and 3 B-chromosomes, × 5,625. Fig. 3. Metaphase I with 2B-s, × 8,602. Fig. 4. Metaphase I with 1B, × 6,750.