ellipsoidea vel fusformia finibus cum rotundatis, laevigata, 0–1 septate, 4·0–22·0 × 2·0–5·0 μm.

In folii vividis de *Cyperi alternifolii* L. var *gracilii* Hort, Bhubaneswar, 22–11–1977, Durga Gupta, HCIO 32895.

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A NEW SEEDLING BLIGHT OF *SOLANUM KHASIANUM* IN INDIA

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Recently, a seedling blight was observed on *Solanum khasianum* Clarke var. *chatterjeauum* Sengupta which is a rich source of solasodine. Affected seedlings of the plant exhibit infection from root to petiole of the leaves. In the early stages of the disease, symtpoms appear on the roots as irregular water soaked, light brown lesions which soon enlarge and extend to the collar region. Slowly leaves and stems of diseased seedlings develop chlorosis and roots develop severe necrosis. The affected seedlings wither away in about a fortnight. Black, dot-like pycnidia can be seen on the affected tissues of the collar region and stalks.

The fungus was isolated and examined on Asthana and Hawker's medium. Pycnidia were submerged round to oval, ostiolate measuring 78·0 to 425·0 μ. Pycnidiospores were hyaline, and ovate to oblong, ranging in size from 2·50 × 3·07 μ to 5·0 × 7·25 μ. The fungus was identified as *Phoma sacchari* Gutner and the identity was confirmed by the Commonwealth Mycological Institute, Kew, England (IMI 215946).

The pathogenicity of the fungus was tested on potted plants raised in steam-sterilized soil in the glass house. Twenty-day old culture multiplied on sand maize meal were used for infesting the soil in pots in the proportion of 1 : 20. Surface-sterilized seeds were inoculated by mixing with the inoculum before sowing. Inoculations were also made by spraying spore suspension of the test fungus prepared in sterile water, on the foliage of two-month old potted plants. Appropriate uninoculated checks were maintained for each teatment. Test plants were covered with bell jars to maintain high humidity for the first 24 hours. Typical symptoms of seedling blight were descernible after 15 days in the case of soil and seed inoculations. Seedling mortality was recorded up to 30 days after the germination of seeds. Results of the pathogenicity tests are summarized in Table I.

Table I

Seed germination and seedling mortality of S. khasianum

Treatment	Seed germination*	Seedling mortality* (%)
Seed inoculation	31·91	90·00
Soil inoculation	48·48	54·15
Uninoculated control	70·91	0·00
C.D. at 5%	*11·95*	*12·90*

* Data transformed as $\sin^{-1}\sqrt{\%\text{ Germination or }\%\text{ Mortality}}$

Results indicate that both pre- and post-emergence seedling infections appeared in soil and seed inoculations. In spray treatment no seedling mortality was observed except a few local lesions on the foliage. In seed inoculation disease development was more rapid resulting into higher seedling mortality than soil inoculation. Reisolations were made from the diseased tissues collected from each treatment which invariably yielded the colonies of the test fungus.

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TAPETAL ENDOPOLYPLOIDY IN SAFFLOWER (*CARTHAMUS TINCTORIUS* L.) CULTIVARS

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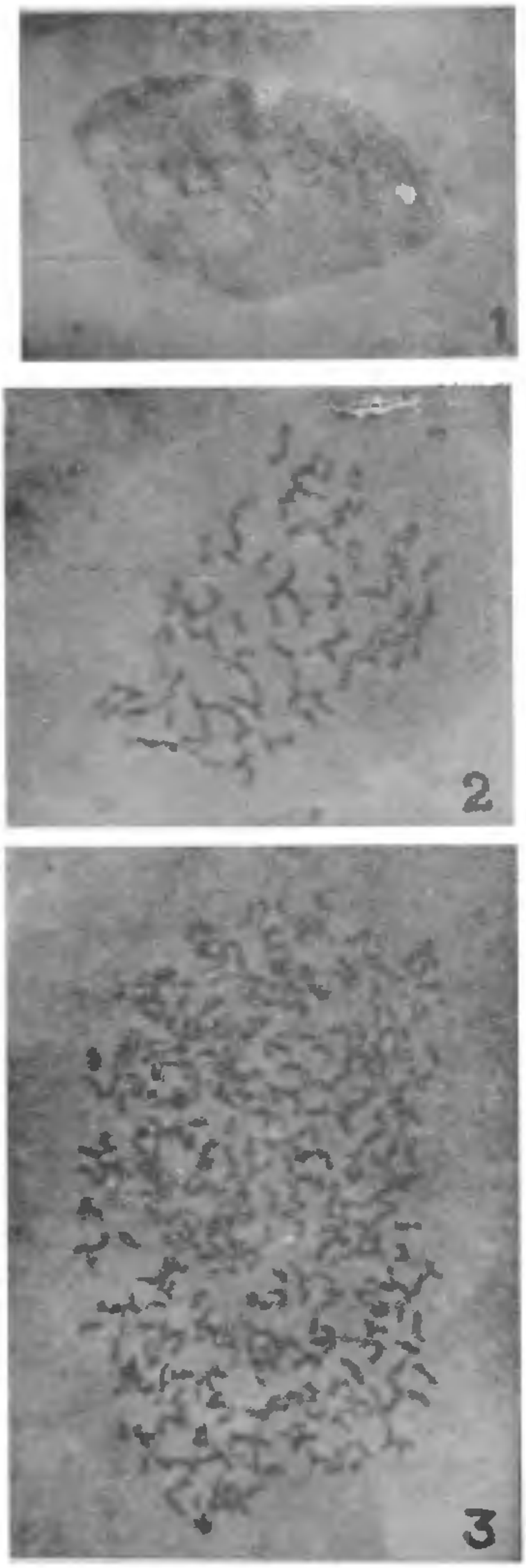
The phenomenon of endopolyploidy is of frequent occurrence among the eukaryotes and is randomly scattered in the plant and animal kingdoms[5,6,10]. But its tissue specific patterns of distribution have led one to assume its vital role in development and differentiation[1,3]. In plants many nutritive tissues like endosperm, suspensors, antipodals and tapetum have been found to be characterized by this mode of development[3,8,9]. Endopolyploidy in tapetal cells was first reported in spinach[12] and tomato[1]. Brown[1] considered it to be associated with the feeding of



FIGS. 1–3. Tapetal cells showing 24, 96 and 336 chromosomes with magnifications of × 780, × 960, × 960, respectively.

developing microsporocytes through the distintegration of these cells and formation of tapetal periplasmodium. Maheswari[7] also held the same view. The family Asteraceae (Compositae), to which the safflower plant belongs, however, shows endopolyploid nuclei only rarely[10]. Here the phenomenon has been observed only in two species so far and that too in tissues other than tapetum[1,11].

Thus, the present observation of tapetal endopolyploidy in four safflower cultivars (namely Anigeri-I, Star 143–20, Talwada Local, and Berhampore Local) is significant showing different levels of endopolyploid conditions. The presence of 24, 96 and 336 chromosomes in different tapetal cells (Figs. 1–3) indicates the ploidy level of $2n$, $8n$ and $28n$, respectively. Besides, the tissue also includes cells with nuclei of different size gradients, perhaps concealing other levels of ploidy. The occurrence of as high as $28n$ level of ploidy in such a tissue substantiates their role in pollen development. This is perhaps the first report of tapetal endopolyploidy not only in safflower but in the family Asteraceae as a whole[10].

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IN VIVO PRODUCTION OF DIHAPLOID *SORGHUM BICOLOR* (L.) MOENCH

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IN *Sorghum bicolor* (L.) Moench, the occurrence and mechanism of apomixis has been intensively studied by Rao and Murty and their colleagues[5–12]. These studies reveal that apomixis in sorghum has been