plants were incubated in polyethylene bags for 3 days. Suitable control was also maintained. The uredia were covered with a light purplish coating, producing abundant conidia in sorus within 5 days. Reisolations yielded identical culture of the organism. The uredinicolous nature of the fungus with smooth sporodochia, hyaline, amerospores confirm the genus *Tuberculina*[5] Sacc. The detailed characters are as follows:

Sporodochia light purplish, flat, extensive; conidiophores simple, nonseptate, hyaline; conidia produced acrogenously, single hyaline, smooth, thin-walled, 1-celled, slightly ellipsoid to elongate-fusiform or obovate, 7·2–10·7 × 5–5·8 μ (Fig. 1).

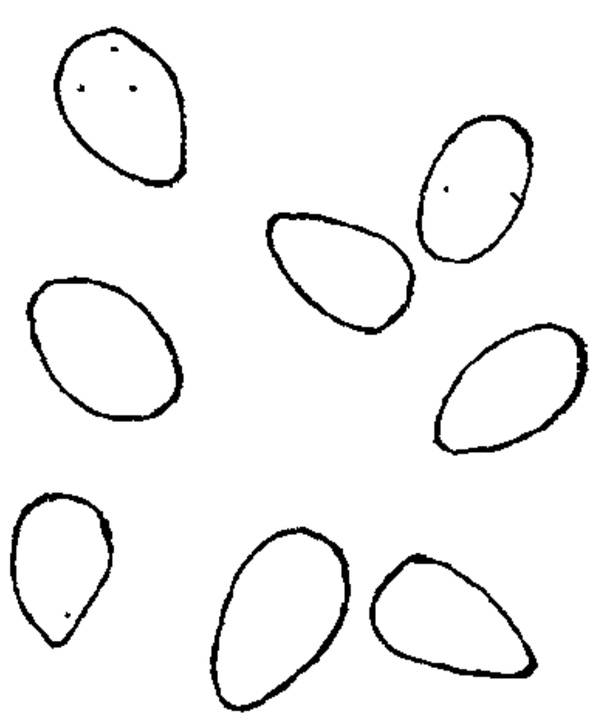

FIG. 1. Mature conidia of *T. costaricana* Syd.

On the basis of the above morphological characters of the fungus, it is identified as *T. costaricana* Sydow (*Ann. mycol. Berl.* 1927, **25**, 154). Of the two species of *Tuberculina* recorded in India[1–3,6–8], on various rusts, genus like *Phakopsora, Uromyces, Aecidium* and *Ravenelia*, only *T. persicina* (Ditm.) Sacc. parasitizes the genus *Puccinia*[1] (*P. heterospora* Berk. and Curt.). No record of *T. costaricana* on *Puccinia arachidis* is available in the literature. It is the first record of this species of hyperparasite on the genus *Puccinia* (*P. arachidis* Speg.).

The specimen has been deposited in Herb. IMI, Kew, No. 207774 and in the herbarium, Department of Plant Pathology, J.N. Agricultural University, Jabalpur.

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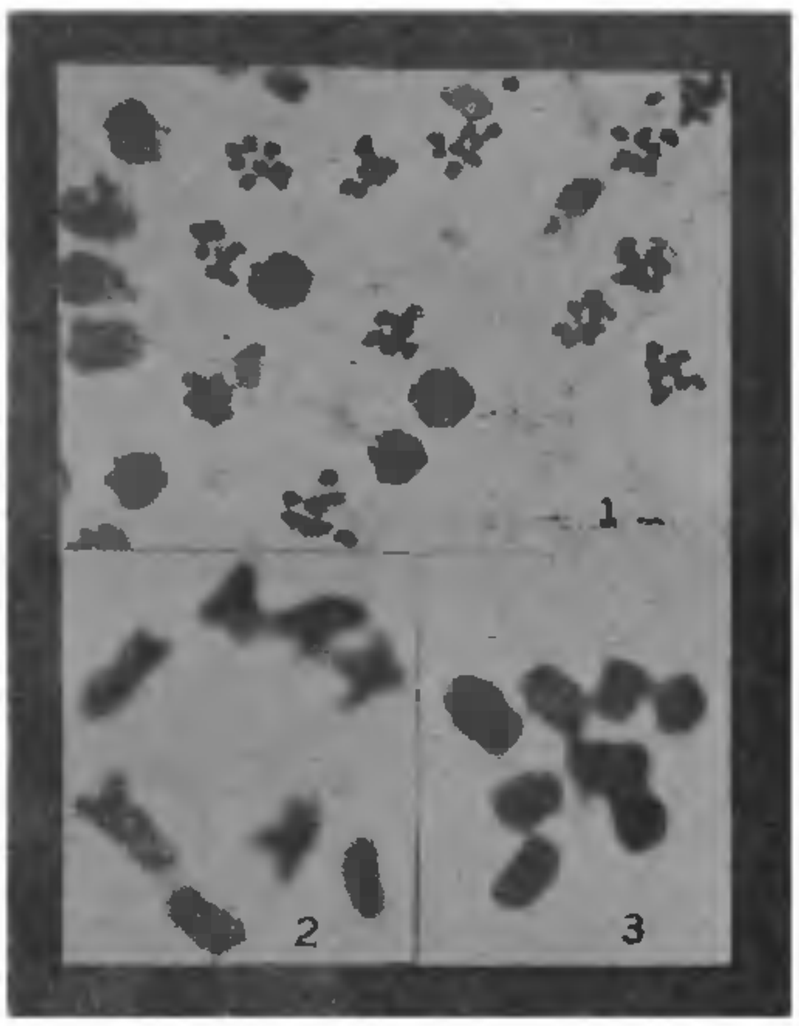
CHROMOSOME NUMBER OF THE CESTODE *LYTOCESTUS INDICUS*

THE pausity of knowledge on the cytology of Cestodes has been traced to the technical difficulties like the small sizes of their cells and chromosomes, short duration of stages, presence of tough cuticle, powerful muscles and the syncytial nature of parenchymatous cells rendering the material arduous for squashing[1]. Among the 37 genera and 89 species of Caryophyllidea only few a members such as *Archigetes sp.*[2], *Hunterella nodulosa*[3], *Atractolytocestus huronensis*[4] and *Glaridacris laruei*[5] have been studied for their chromosome numbers. The genus *Lytocestus* belonging to the subfamily Lytocestinae and possessing seven species[6,7] has not been investigated for its cytology. The chromosome number of *Lytocestus indicus* is reported here.

The parasites collected from the fresh water fish *Clarias batrachus* were washed in Ringer's A solution[8] and treated for 2 hours at room temperature in the same solution containing 1 part of 0·05% colchicine to 5 parts of the former. Material was fixed in acetic alcohol and processed by the haematoxylin squash method described elsewhere[9] by a slight variation of using the mid regions of parasites containing the testes instead of the entire parasites for processing. The testes were teased before squashing in a drop of 45% acetic acid on a slide employing a binocular microscope.

A lack of divisional figures in sufficient numbers was noticed in the material collected from the hosts at different time intervals. It has been shown in *Diphyllobothrium dendriticum*[10] that starvation of the host reduces the mitotic activity, and that nutrients keep the same at a higher level. It is not known whether the absence of divisions described here is due to a similar situation. In instances where divisions were found, they were seen in abundance. Diffi-

culty was also experienced in getting good spreads of chromosomes enabling accurate counts. Hence a large number of cells were scored for the purpose. Figure 1 shows a group of cells in meiotic division.That sixteen chromosomes constitute the diploid number of *L. indicus* is evident from the presence of eight bivalents in diakinesis (Fig. 2) and metaphase I (Fig. 3). Detailed analysis of mitotic chromosomes from this as well as other species of these otherwise fastidious parasites is being envisaged with a view to constructing caryotypes and idiograms by standard methods and discuss their interrelationships from systematic and evolutionary points of view.



FIGS. 1–3. Haematoxylin squashes of testes of *L. indicus*. Fig. 1. A group of cells in meiotic division. × ca. 700, Fig. 2. Diakinesis, × ca. 2,500. Fig. 3. Metaphase I. × ca. 2,500.

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SUPERNUMERARY SPIKELETS IN BREAD WHEAT

ONE spikelet at a point on the rachis is a normal condition in wheat. Varieties like NP 863 may have two spikelets at some points[1]. Genes for suppression of spikelet reduplication are already known to be associated with the left arm of chromosome 2A and the right arm of chromosome 2D[2].

Eleven F_2 populations monosomic for chromosomes; 1A, 1B, 1D, 2D, 3D, 4A, 4D, 5D, 6A, 6D and 7B, were compared with normal, disomic F_2 population of Red Bobs × Sharbati Sonora. 19 plants with supernumerary spikelets and (or) additional leathery florets (Fig. 1) were found in the F_2 population derived

FIG. 1. (i) Spike with supernumerary spikelet and florets. (ii) Normal spike. (iii) Spike with supernumerary spikelets.

from monosomic F_1 for chromosome 7B which consisted 203 individuals. These were the only plants affected in a total of 1,800 plants observed from all the populations. The number of positions, at which these spikelets appear, varied within and between the