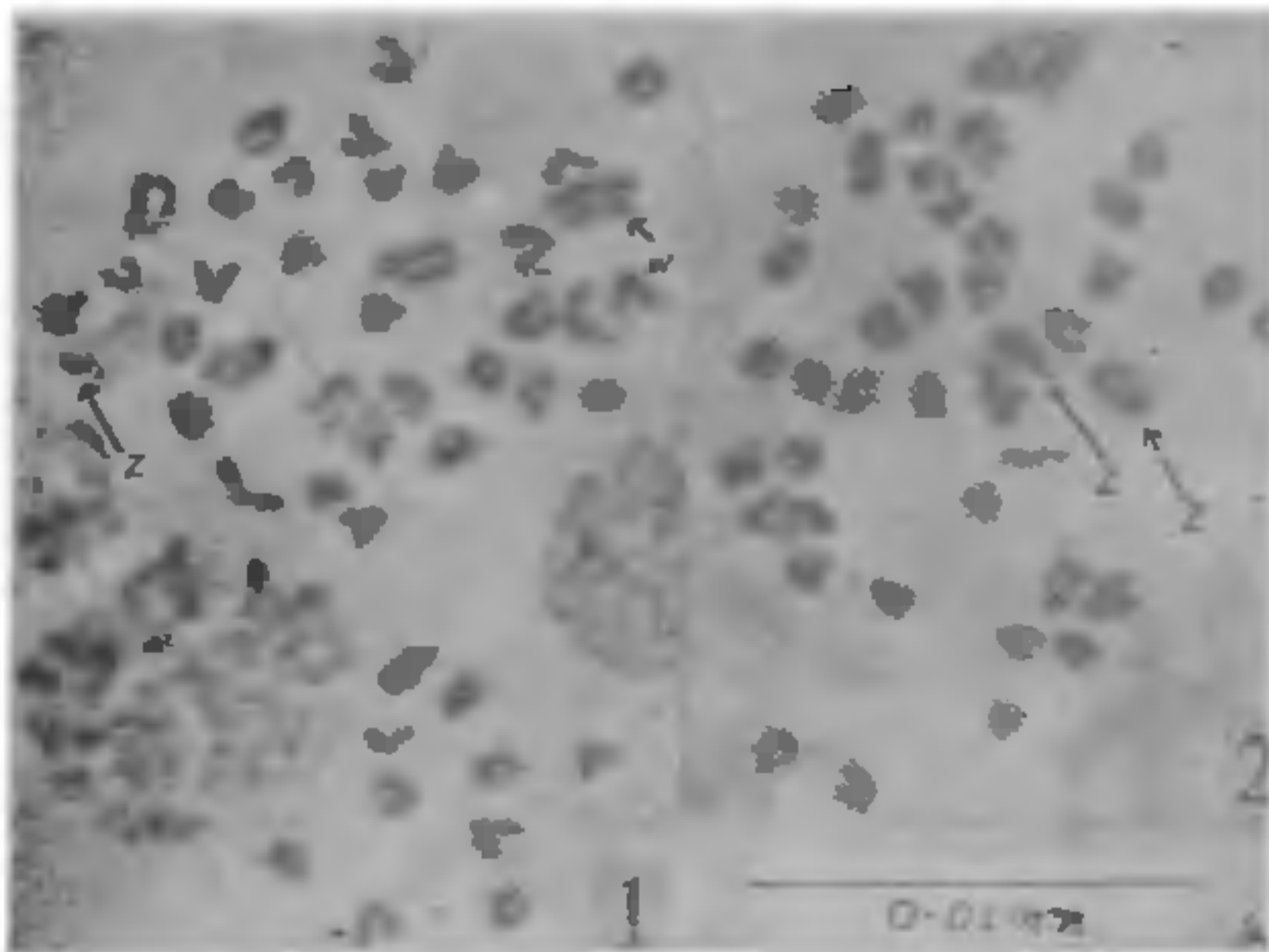


in 1:3 acetic alcohol for 30 minutes. The gill arches were stained in Gomori's haematoxylin after Melander and Wingstrand¹¹. After differentiation in 45% acetic acid, the gill epithelium was taken in small bits and squashed. Permanent slides were prepared by freezing the slides in a refrigerator. Similarly, squash preparations were also made from the spleen and kidneys.

After the scrutiny of a number of metaphases from the three somatic tissues, it is found that the karyotype of this fish in both the sexes comprises of 46 chromosomes. However, the female complement has 45 acrocentric elements and one large metacentric (Fig. 1) whereas the male complement is marked by all acrocentric chromosomes (Fig. 2). The occurrence of the large metacentric



FIGS. 1-2. Fig. 1. Female metaphase from gill epithelium. Fig. 2. Male metaphase from kidney. is confirmed in a number of female specimens and in all the three tissues. This, therefore, eliminates the possibility of this being a case of usual karyotypic polymorphism, so commonly found in teleosts¹²⁻¹⁵. In the female metaphases, in addition to the lone big metacentric, there is a lone acrocentric (the smallest). We, therefore, propose these two elements to comprise the WZ pair of sex elements. On the other hand, in the male complement there is a pair of small acrocentrics (the smallest), which have been labelled as ZZ sex elements. These sex elements in the female as well as in the male can be recognized even without resorting to karyotyping. Hence, the female sex in *M. sphenops* is clearly heterogametic. Due to the undeveloped gonads in our specimens (due to non-breeding season), we could not confirm the behaviour of the sex chromosomes during meiosis. There was, however, no difficulty in recognizing the sexes because of sexual dimorphism.

The cyprinodontids show a clear sexual dimorphism and are well reputed for the genetic analyses of their sex chromosomes (cf. Kallman)¹⁶. A

well-authenticated report about the cytological confirmation of the presence of sex chromosomes is also on record by Chen and Ebeling³. They have found in the mosquito fish, *Gambusia affinis*, a similar cytological heterogamety as in our present material. In view of these observations, a more thorough cytological survey of the family Cyprinodontidae as a whole is well warranted.

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RECORD OF *PTEROLOPHIA ANNULATA* CHEVR.
AND *DIBOMA PROCERA* PASC. (LAMIINAE;
CERAMBYCIDAE: COLEOPTERA) AS NEW
PESTS OF PEPPER (*PIPER NIGRUM* L.)
FROM INDIA

In black pepper (*Piper nigrum* L.) about 20 species of insects have been reported as pests so far. Of these 'Pollu' beetle (*Longitarsus nigripennis* Mots.)¹ is the most important one. During a routine survey of the pepper growing tracts of the northern parts of Kerala in the summer months of 1975, some pepper vines in the Alakode area were found severely affected by stem 'borer' pests causing the death of the affected vines. Similar infestations were noticed in pepper plantations in other

localities of Cannanore and Calicut Districts. The incidence of the pests was as high as 50% on vines in some gardens. Preliminary observations are reported in this note.

Grubs of the longicorn beetles bore into the stem causing damage to the vines. They tunnel into and feed on the central core of the stem. The tunnels are tightly packed with frass as the grub progresses forward. A fully developed grub is 12-18 mm long and has a dull yellow colour. It has a swollen anterior end and a tapering posterior end. Before pupation, the grub makes an exit hole on the stem and then pupates inside a pupal chamber and the adult beetle makes its way out easily. The grubs were often found in the older and dead vines. They were also noticed tunnelling into the living vines at the collar region or slightly below. However, the grubs have preference to the dead and dried tissues.

The beetles reared from the affected pepper vines have been identified by the Commonwealth Institute of Entomology, London, as *Pterolophia annulata* Chev. and *Diboma procera* Pasc. (Lamiinae; Cerambycidae: Coleoptera).

From the symptoms of the affected vines in Travancore and Coorg areas, Krishna Menon⁴ reported that a borer is involved in the damage though he did not observe the presence of grubs and adults in the affected vines. Blacklock³ recorded grubs of the beetle pest *Pelargoderus bipunctatus* Dalm. infesting the stems of unhealthy pepper vines in Sarawak.

This is the first record of the above insects as pests of pepper. Another recorded host of *D. procera* Pasc. is *Acacia gageana*², *P. annulata* Chev. has not been recorded from India so far. However, allied species like *P. tuberculata* and *P. maculata* have been recorded from *Tectona grandis* and *Michelia champaka* respectively².

We express our sincere thanks to Drs. Y. R. Sarma and K. K. N. Nambiar, for drawing our attention to these pests. We are also grateful to Dr. A. H. Parker, Ag. Director, Commonwealth Institute of Entomology, London, for identification of pests.

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AN UNDESCRIBED SPECIES OF *CERCOSPORA*
CAUSING LEAF SPOT OF *MITRAGYNA*
PARVIFOLIA (ROXB.) KORTH.

INFECTED leaves of *Mitragyna parvifolia* (Rubiaceae) were seen having reddish brown to tan brown spots during winter. The spots were seen occurring on the upper surface of the leaf and had a tendency to coalesce with each other to form bigger spots of different shapes and sizes specially towards the margins of the leaf. The material was also examined and confirmed by Dr. Mulder of C.M.I., Kew, to whom our thanks are due.

Cercospora mitragynae sp. nov. Bhargava and Nath.

Leaf spots chiefly circular, 2-3 mm. in diameter, chocolate in colour, epiphyllous on the upper surface. Greenish brown areas are visible on the lower surface of the leaves, corresponding with the leaf spots above. Fruiting epiphyllous. Stroma subglobose composed of dark brown cells, 30 μ in diameter. Fascicles dense, fairly compact. Conidiophores pale to medium olivaceous brown, arising in fascicles of 9-10, non septate occasionally branched, sinuate towards apex, tip hyaline with small spore scar, 15-50 \times 2.5-3.5 μ . Conidia olivaceous brown, obclavate or subcylindric, sometimes vermiform, slightly curved at the centre, 6-14 septate, 25-75 \times 2.5-3.3 μ (Fig. 1).

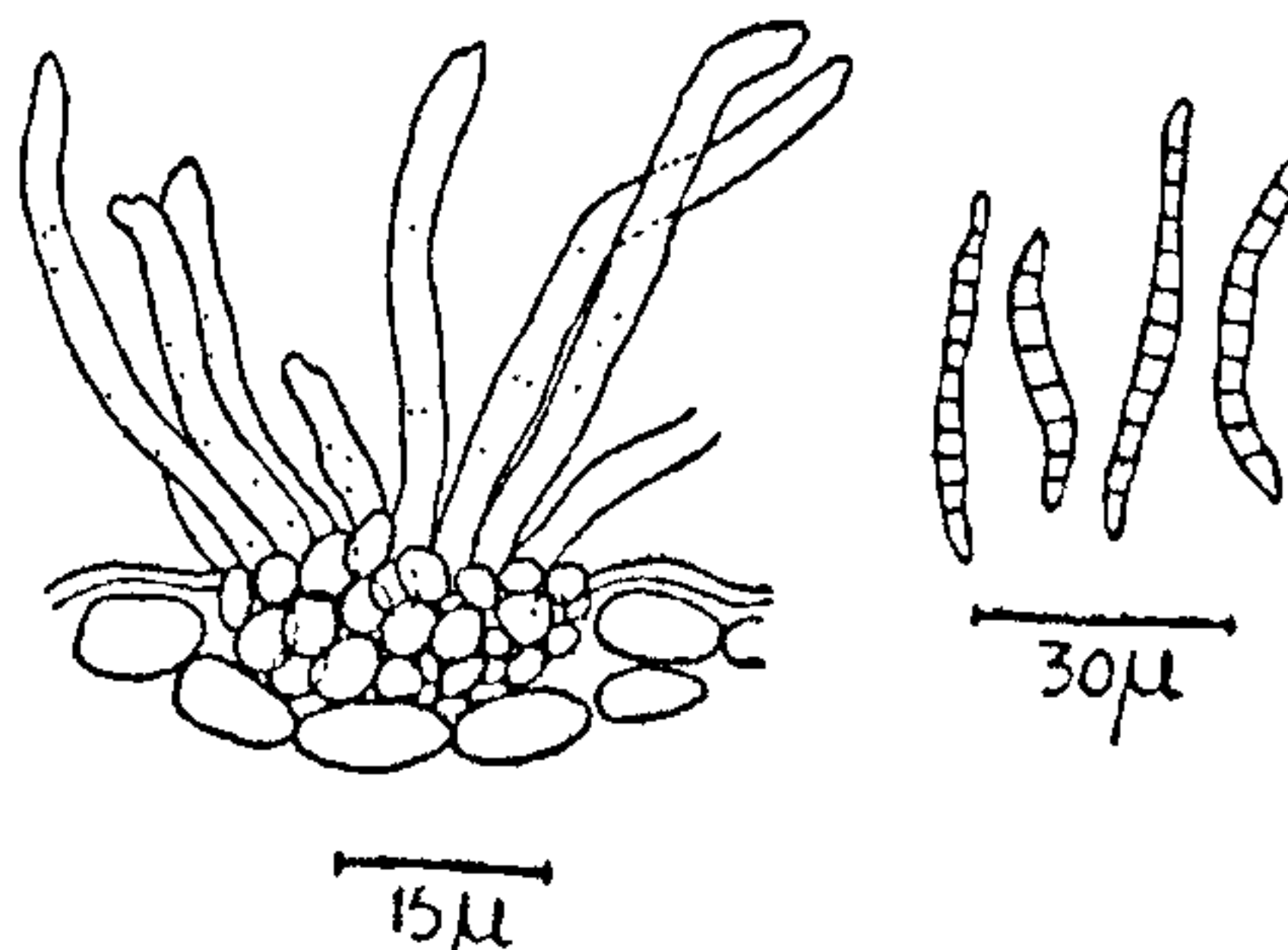


FIG. 1. *Cercospora mitragynae* sp. nov. on *Mitragyna parvifolia*, Sporodochia, Conidiophores and Conidia.