Ascostramatae dispersae, botryosae, nigri, usque 300 μm diam., neck elongata, leniter ostiolata; asci octo-sporae, fusiformia, sessilis, magnit. 41.6–45 × 8 μm. bitunicatae, evanascentate; ascosporae uniseptata, guttulata, acutae ad apices, 9.9–11.6 × 3.3 μm.

Matrix: In foliis vivis *Aregelia spectabilis* Mez., (F. Bromeliaceae), leg. B. R. D. Yadav, in Oct. 1977, ad Pune, AMH 4082 (Holotypus).

Remarks: Both the perfect and imperfect stages were encountered in one and the same infection spot. This forms a new host record since both the fungi are reported herein for the first time on the said ornamental plant.

Grateful thanks are due to Dr V. P. Bhide for the interest in this study and to the Director of the Institute for facilities.

7 January 1985

1. Arx, von, J. A., *The genera of fungi sporulating in pure culture*, J. Cramer. Vaduz. (Germany, 1974, p. 315).
2. Sutton, B. C., *The Coelomycetes*, C.M.I. Publ., Kew, England, 1980, p. 696.

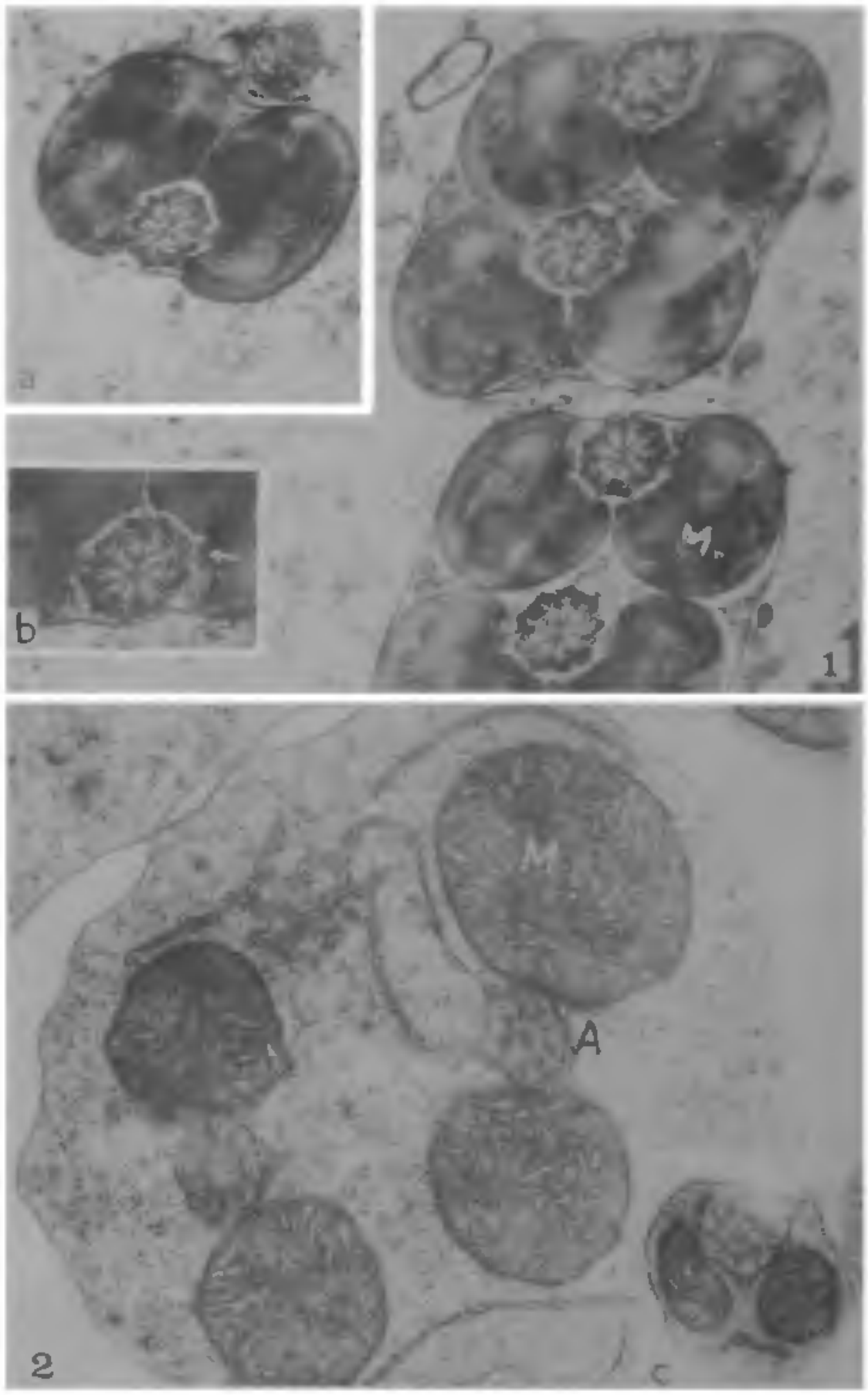
ULTRASTRUCTURE OF SPERMS OF HEAT STERILIZED *DYSDERCUS KOENIGII F*

K. TIKKU and B. P. SAXENA*
Division of Insecticides and Insect Physiology, Regional Research Laboratory, Jammu 180001, India.

IN laboratory cultures of the Red Cotton Bug (*Dysdercus koenigii* F) almost 100% sterility was noticed when temperature of the culture room was increased to between 35° and 40°C. Females laid what looked like normal eggs after normal copulation, but the eggs failed to hatch. Their colour also did not change from pale yellow to orange which normally indicates the developmental process of normal eggs. To determine the cause of sterility, the sperms produced by these sterile males were examined using electron microscope.

Testes were dissected out and fixed in 2.5% glutaraldehyde in phosphate buffer (pH 7.2) along with the vas deferens (testis cut into 3 portions: upper, middle & lower; vas deferens kept as whole), post-fixed in 1% osmium tetroxide in the same buffer, dehydrated in acetone grades and embedded in Epon 812. Ultrathin sections were stained with uranyl acetate and lead citrate and examined in electron microscope (JEOL 100 CX-II).

Figure 1 shows a T.S. of mature sperms in the vas deferens of sterile adult male. Figure 2 shows the T.S.



Figures 1–2. 1. Two mature sperms (in vas deferens) having common plasma membrane ensheathment. Mitochondrial derivatives (M), each with 3 crystalline bodies, are seen surrounding the axoneme; the background has precipitated semen, × 29000. **2.** Two spermatids developing in the cytoplasmic matrix. Mitochondrial derivatives (M) with prominent cristae and axoneme (A) getting formed. Initial formation of plasma membrane and the free ribosomes (dark granules) can also be seen, × 19000. [Insets: (a) Normal mature sperm, × 29000 (b) Curved end feet (arrow) of mitochondrial bridges, × 36000 (c) Tail end of a normal spermatid, × 19000

of the developing spermatids in the testis of a similar male. Both figures clearly show the enclosure of two sperms in a common membrane, a feature which we presume to be responsible for their inability to fertilize the eggs. Axoneme of each sperm comprises $9+9$ (doublet) $+2$ tubules[1] but the associated accessory bodies are absent, contrary to previous reports[2]. The two mitochondrial derivatives surrounding the axoneme have three crystalline bodies each. Characteristic feature of two bridges present between the mitochondrial derivatives and the axonemal microtubules, and ending in typical curved end feet, can be seen in conformation with the observations of Dallai[3] and Afzelius[4]. The 'syncytium' referred to by Bawa[5] prior to the separation of individual spermatids, is not frequent in the normal males. A plausible explanation of the common ensheathment of the two sperms is their inability to get completely separated at the last stage of spermatid development. This is not "conjugation" described for *Dytiscus marginalis*[5] and certain lepismatid insects[5,6] as in these insects the 'conjugating spermatozoa' do not have the common outer membrane. This unusual feature, presumably responsible for sterility, is being reported for the first time in *D. koenigii*.

19 September 1984

1. Bawa, S. R. and Kanwar, K. C., *J. Submicr. Cytol.*, 1975, **7**, 71.
2. Phillips, D. M., *J. Cell Biol.*, 1970, **44**, 243.
3. Dallai, R. and Afzelius, B. A., *J. Morphol.*, 1980, **164**, 301.
4. Afzelius, B. A., Baccetti, B. and Dallai, R., *J. Submicr. Cytol.*, 1976, **8**, 149.
5. Bawa, S. R., In: *The Functional Anatomy of the Spermatozoon* (ed.) B. A. Afzelius, Pergamon Press, 1974, p. 259.
6. Werner, G., *Z. Zellforsch. Mikrosk. Anat.*, 1964, **63**, 880.

OCCURRENCE OF ROOT-KNOT NEMATODE, *MELOIDOGYNE GRAMINICOLA* IN SEMI-DEEP WATER RICE

J. S. PRASAD, M. S. PANWAR and Y. S. RAO
Central Rice Research Institute, Cuttack 753006, India.

THE root-knot nematode, *Meloidogyne graminicola* is a serious pest of nurseries and upland rice[1] resulting in yield losses upto 30%[2]. Besides chemotherapy, water-logging as one of the methods of control for this pest has been recommended[2]. The occurrence of this nematode has been reported from lowland rice[3,4]. During the years 1980–82 kharif seasons, the root-knot nematode damage was observed in semi-deep water rice on this farm.

Based on these observations investigations were conducted on the prevalence and build-up of this nematode in semi-deep water rice under field conditions. Semi-deep water tanks (30 x 30 m) were used for the experimentation. Thirty-day-old seedlings of rice cultures CR.1018 and CN.540 grown in a nursery with a history of root-knot nematode infestation were transplanted. During transplanting, 15 seedlings were randomly sampled and the endoparasitic stages of the nematode were enumerated[5]. The number of adults with eggmasses, adults and other juvenile stages were recorded as 5, 10, and 16.2 in cult. CR.1018 and 10.5, 17 and 22.5 in the cult. CN 540 respectively.

Results indicated a five-fold increase in the nematode population (eggmasses) in both the rice cultures at tillering stage (table 1). However, the build-up of the nematodes was higher in Cult.CN.540 than in CR.1018.

The survival and multiplication of *M. graminicola* either in infected seedlings or in infections from field soil in direct seeded rice under semi-deep water condition was investigated in another experiment. Seeds of rice culture CN.540 (80 kg/ha) were directly sown in the field (24 m^2) sub-plots in four replicates. The initial soil population of *M. graminicola* larvae

Table 1. *Nematode numbers recorded in two rice cultures at maximum tillering stage.*

Developmental stages	CR.1018	CN.540
Adults with eggmasses	32.5	45.3
Adults	15 0	17.0
Juveniles	35.2	49 8