Ascostramatae dispersae, botryosae, nigri, usque
300 μm diam., neck elongata, lenteu ostiolata; ascis
octo-sporae, fusiformia, sessulis, magnit. 41.6–
45 x 8 μm. bitunicatae, evanascenatae; ascopora
unisepata, guttulata. acutae ad apices, 9.9–11.6
x 3.3 μm.

Matrix: In fucus vivis Aregela spectabilis Mez., (F.
Bromelaceae), 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 orna-
mental 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

pure culture, J. Cramer, Vaduz, (Germany, 1974,
p. 315).

2. Sutton, B. C., The Coelomycetes, C.M.I. Publ.,

ULTRASTRUCTURE OF SPERMS OF HEAT
STERILIZED DYSDERCUS KOENIGII F

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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 pro-
duced by these sterile males were examined using
electron microscope.

Testes were dissected out and fixed in 2.5% glutaral-
dehyde 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
dererens 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 back-
ground 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 but the associated accessory bodies are absent, contrary to previous reports. 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 and Afzelius. The 'syncytium' referred to by Bawa prior to the separation of individual spermatids is not frequent in the normal males. A plausible explanation of the common ensheathment of the two spores is their inability to get completely separated at the last stage of spermatid development. This is not "conjugation" described for Dytiscus marginalis and certain lepisomatid insects as 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


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

<table>
<thead>
<tr>
<th>Developmental stages</th>
<th>CR.1018</th>
<th>CN.540</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults with eggmasses</td>
<td>32.5</td>
<td>45.3</td>
</tr>
<tr>
<td>Adults</td>
<td>15.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Juveniles</td>
<td>35.2</td>
<td>49.8</td>
</tr>
</tbody>
</table>