IRRADIATION-INDUCED STERILITY IN THE MALES AND FEMALES OF *TRIBOLIUM CASTANEUM* HERBST. (TENEBRIONIDAE : COLEOPTERA)

AFTER the control of screw-worm fly through the release of sterile males in the natural population[1], several attempts have been made to induce sterility in the males and females of different pests of stored grains by the use of different electromagnetic waves. Erdman[2–5] used very high doses of X-rays for the production of such sterility in the males and females of *T. castaneum*.

The pupal stage of *T. castaneum* lasts for 5 days at 30° C and 50% R.H. The pupae of different ages (1, 2, 3 and 4 days), reared under these conditions, were exposed to four different doses of gamma-rays *viz.*, 1000 r, 1500 r, 2500 r, and 3000 r under a Cobalt^{60} source in the local Post-Graduate Institute of Medical Education and Research. The treated pupae were allowed to develop into adults and the males and the females so produced were crossed with the normal individuals of their opposite sex in order to note the morality of the eggs laid by the crossed females. The mortality of the pupae in the different treatments was also recorded and compared with the control.

The results of the above trials show that the treatment of 1-day and 2-day old pupae with all the four doses did not produce 100% mortality in the eggs laid by the resulting adults, yet, the adults emerged included a large percentage of abnormal males and females with expanded elytra and unfolded hind wings, These were accordingly not considered fit for the desired type of sterility. The 3-day old pupae, likewise, produced more or less similar results with low doses of 1000 r and 1500 r although no abnormal individuals were produced in these cases. With higher doses (2500 r, and 3000 r) the 3-day old pupae produced completely sterile males as the normal females crossed with the irradiated males did not lay viable eggs. In the case of females, hwoever, only partial sterility was induced as a few eggs laid by them hatched normally. Moreover, the fecundity of these females was also greatly reduced.

Exposure of the 4-day old pupae to 3000 r reduced the mortality of the pupae without the abnormal adults and the resulting males and females were rendered completely sterile. It is thus evident that in order to have completely sterile males and females of *T. castaneum* the 4-day old pupae should be exposed to a dose of 3000 r of gamma-rays. The previous trials with *T. castaneum* have been conducted with X-rays and the doses ranging from 5000 r–8400 r were required for the treatment of the old pupae and the adult insects for the induction of complete sterility.

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LOPHOSQUILLA TIWARII BLUMSTEIN FROM THE COAST OF PORTO NOVO

KEMP[1] came across one stomatopod specimen from Burmese coast showing slight differences to *Squilla costata* de Haan. Kemp and Chopra[2] examined another damaged specimen from Burmese coast and recorded some more differences. Tiwari and Biswas[3] re-examining the second specimen noticed additional points of difference besides the features mentioned by Kemp[1] and Kemp and Chopra[2] and called it *Squilla* sp. prox. *costata*. Manning[4] placed *Squilla costata* and *Squilla* sp. prox. *costata* under the new genus *Lophosquilla*.

Blumstein[5] examining the stomatopoda from the Gulf of Tonkin came across specimens resembling *Lophosquilla* sp. prox. *costata* and created a new species *Lophosquilla tiwarii* based on the differences compared to *Lophosquilla costata*. The distinguishing features of *Lophosquilla tiwarii* are ; (1) the anterior end of the rostrum is narrowed and rounded, (2) the carapace is comparatively narrow, (3) the sculpturing of the second abdominal somite different and (4) the lateral lobe on the external margin of the inner spine of the bifurcated base of uropod is long and acute with distinctly concave edge.

Three entire specimens and eight damaged specimens of *L. tiwarii* were collected from the trawl nets operated at 10–20 metres depth along the coast of Porto Novo and this is the first record in the Indian coast. The range of distribution extends from Gulf of Tonkin to the southeast coast of India.

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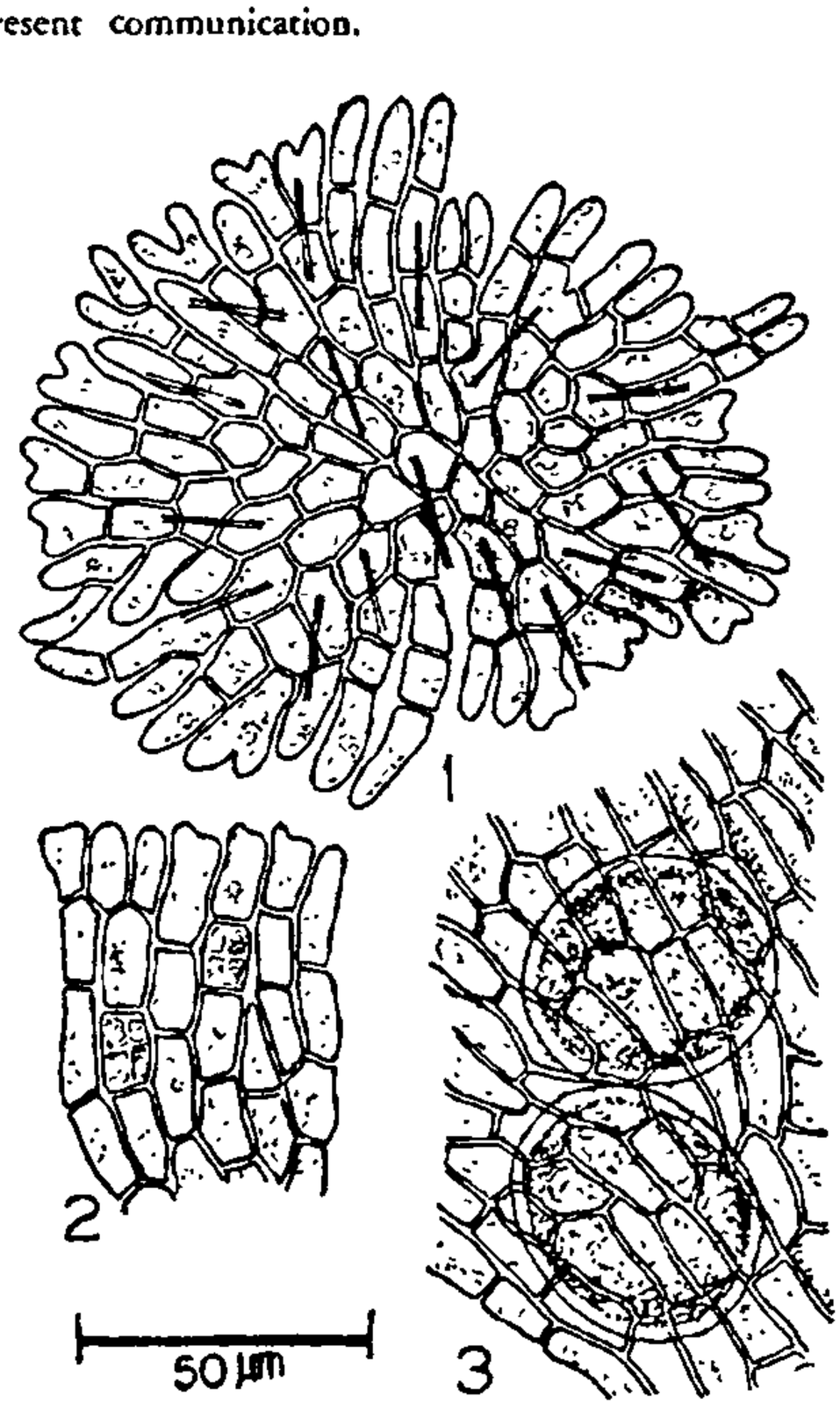
COLEOCHAETE PSEUDOSOLUTA, A NEW ADDITION TO THE INDIAN FLORA

GENUS *Coleochaete* is represented in India by six species only[2-7]. During the course of the investigations on fresh-water Chaetophoralean algae[8], the authors came across plants belonging to *Coleochaete pseudosoluta* Gauthier-Lievre[1], which has not yet been recorded in the Indian flora. It is, therefore, proposed to record the species in our flora, in the present communication.



FIGS. 1–3.

Many thalli of *Coleochaete pseudosoluta* (Fig. 1) were collected from a small fresh-water pond near Amausi aerodrome about 12 kms. from Lucknow in September 1975, as bright green, irregular discs, epiphytic on leaves and stems of *Ceratophyllum demersum* L. Mature discs are 0·5–0·8 mm in diameter. Vegetative cells measure 8–10 µm in width and are 1–4 times longer than broad. Antheridia (Fig. 2) are small cubical structures 2–3 µm in width. Spermocarps (Fig. 3) are 45–55 µm in diameter. Cortications develop only on the upper side of the fertilized oogonia.

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ACARTIA DWEEPI, A NEW SPECIES OF COPEPOD (ACARTIIDAE, GALANOIDA) FROM LAKSHADWEEP

WHILE examining the zooplankton collected from the sea surrounding the Agatti atoll of the Lakshadweep (Laccadives), a species of *Acartia*, hitherto undescribed, was encountered. It is being described as a new species.

Acartia dweepi n. sp.

Material: All specimens were collected in horizontal surface tows made with a square net (area (0·0625 m², mesh 300 µ) at Agatti atoll (10° 40′ N, 72° 10′ E) on 28th December 1976.

Types: All types are deposited in the reference collection of the Indian Ocean Biological Centre with the following catalogue numbers. Holotype ♀, IOBC–0375–0846–1977, Allotype ♂, IOBC–0376–08–46–1977, Paratypes 5 ♀, 5 ♂, IOBC–0377–08–46–1977.

Description

Female: Total length 1·10 to 1·16 mm (Fig. 1). Head broadly triangular anteriorly. Rostal filaments