

SCIENTIFIC NOTE

SYMBIONTS IN THE FOLLICLE CELLS OF THE BEETLE, *AEPOPSIS ROBINII* (LABOULBENE) (COLEOPTERA : CARABIDAE)

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ONLY few studies of microorganisms occurring as symbionts in insect ovaries have been done (Musgrave and Miller, 1958; Eberle and McLean, 1983; Larsson, 1983; Al-Khalifa, 1984). In the present study, the presence of numerous symbionts in various parts of the ovariole, especially the follicle cells, of the ovaries of the beetle *Aepopsis robinii* (Laboulbene) is reported.

Stocks of *A. robinii* were kept in the laboratory at 18°C in jars with a moist layer of plaster of Paris at the bottom to maintain a favourable relative humidity. Females were obtained from these stocks and their ovaries dissected out in ice-cold 5% gluteraldehyde (TAAB) and processed for electron microscopy as outlined by King and Al-Khalifa (1980).

The ultrastructure of *A. robinii* ovary is shown in Figs. 1-4. As other insects with polytrophic ovarioles, *A. robinii* possesses cytoplasmic interconnections between groups of cells of developing egg chambers as well as between these chambers and oöcytes (Fig. 4). The various parts of the ovarioles were found to contain large numbers of intracellular symbionts in the cytoplasm of the trophocytes, follicle cells of penultimate oöcytes, and young oöcytes (Figs. 1-3). Considerably large numbers of microorganisms occur in trophocytes than in any other type of ovariole cells (Fig. 2).

However, the presence of such symbionts within follicle cells seems to be characteristic of *A. robinii*, as they were absent from such areas in several other insects (Byers and Wilkes, 1970; Irving-Bell, 1974; Yen, 1975; Al-Khalifa, 1984). The route these symbionts might have taken to the trophocytes and follicle cells could be through the ovariole sheath, as has recently been demonstrated for symbionts in another beetle, *Sitophilus granarius* (L.) (Al-Khalifa, 1984). These microorganisms might reach the developing oöcytes through the cytoplasmic interconnections between the group of cells of the developing egg chamber as the cytoplasmic contents of these cells are known to be transferred to the developing oöcytes in this insect (Al-Khalifa, 1977). This transovariolate method of transmission in *A. robinii* is very much different from the known methods of symbionts transfer in arthropods as outlined by Brooks (1963).

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