The species is named after Dr. Laursen, an authority on the genus *Janthina*. The fossil is well preserved. The nature of fossilisation indicates a long gap of time and hence placed as a new species in addition to two known extant species from the Bay of Bengal *viz.*, *J. roseola* Reeve and *J. globosa* Swainson. In *roseola* the body whorl is markedly angular and the lower part of the shell is somewhat flattened, while in *globosa* it is somewhat rounded or globular. The spire is low and the body whorl is depressed in *roseola*, while it is short and inflated in *globosa*. In the fossil species, the spire is not sunken and the body whorl is neither depressed nor inflated. In *roseola*, the striations are reticulate and more marked on the flattened lower surface of the shell, while *globosa* has fine striations. The striations are faint and widely spaced in between with the cross striations which (except one) are not marked on the body whorl in the ventral view in the new species. The aperture possibly of pear or onion shape unlike in *globosa* where it is oval, or in *roseola* where it is squarish.

Only two extant species *viz.*, *J. globosa* Swainson and *J. roseola* Reeve have so far been reported from the Bay of Bengal[3]. The list of fossil molluscan species[4] from Andaman and Nicobar Islands as well as the Cretaceous beds of S. India did not include any representative of this family.

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SIGNIFICANCE OF THE HISTOLOGICAL CHANGES IN THE FAT BODY OF *PERIPLANETA AMERICANA* (L) INFECTED WITH THE CYSTACANTHS OF *MONILIFORMIS MONILIFORMIS* (BREMSER)

K. RAMALINGAM., M. KRISHNAN AND
R. N. GARGESH
Entomology Research Institute, Loyola College, Madras 600 034, India.

STUDIES on various enzyme systems and metabolites in the fat body of insects have not only revealed its nature as a mere storehouse of reserve materials, but also as an important organ of intermediary metabolism corresponding to the vertebrate liver[1-4]. The association of fat body of *Periplaneta americana* with the developing cystacanths of Acanthocephala[5,6] and also the frequency of this intermediate host with varying numbers of cystacanths of *M. moniliformis*[7] appear to be of interest in assessing the role of the fat body in the development of this parasite in its intermediate host. In the present study, aspects relating to the histological changes of the fat body of *P. americana* infected with the cystacanths of *M. moniliformis* were discussed.

Cockroaches (*P. americana*) were collected from eating houses (hotels) and domestic areas (houses) where increased incidence of infection of cystacanths of *M. moniliformis* in them was noticed. The specimens were dissected and those infected with more than 40 cystacanths were taken for the fat body analysis. The fat bodies were separated from the associated cystacanths and fixed in 10% formalin. Sections were cut at 7 micron thickness using Wesswox rotary microtome. They were stained in Ehrlich haematoxylin and counterstained with erythrocin.

The fat body of *P. americana* showing no cystacanth infection (control) revealed the globular configuration similar to that seen in other classes of insects such as Orthoptera, Lepidoptera, Hymenoptera, Coleoptera and Hemiptera[8] (figure 1). The nuclear diameter of cells in the control sections varied from 4.64 to 9.28 microns. The space surrounding the nucleus filled with granular materials, representing glycogen and fat reserves, measured 34.8 to 69.6 microns wide. The fat body tissue in the control sections also revealed the occurrence of limited vacuolar spaces surrounding the cells.

The fat body from the infected hosts, on the contrary revealed marked variations from that of the control (figure 2), with the globular pattern becoming completely unidentifiable through the marked absence of granules. The granular area as observed in the control sections appeared completely vacuolated in these infected fat body sections and the vacuolated spaces measured from 46.40 to 81.20 microns in diameter. The position of the nuclei in the cells was towards the periphery, and the nuclear diameter diminished to about 4.64 microns as compared to that in the control material. The walls of the adjacent cells appeared coalesced in such a way that the obliteration of granular spaces by vacuoles gave a syncytial appearance to the fat body. The absence of granules surrounding the nucleus of the cells also indicates the utilisation of the reserve glycogen,fat by the developing cystacanths.

Besides the above changes, the vacuolated mass of the fat body was also found to be infiltrated by haemo-

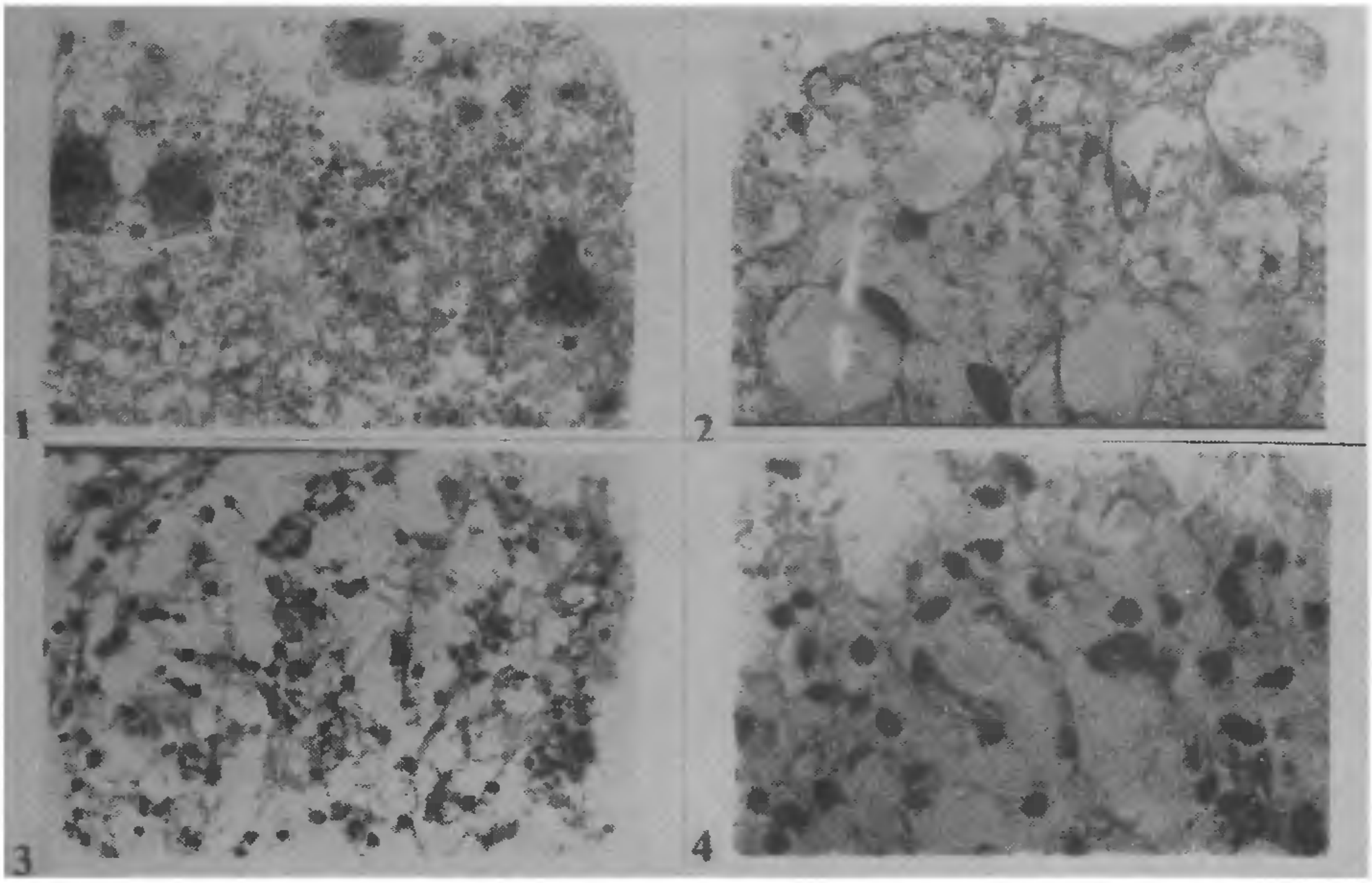

Figure 1–4 1. Section of the fat body of the uninfected *P. americana* (control). (12.5 × 40). **2.** Fat body of the infected *P. americana* showing the vacuolated spaces. (12.5 × 40). **3.** Fat body of the infected *P. americana* showing infiltration of haemocytes. (12.5 × 40) (12.5 × 100)

cytes, probably suggesting the granular haemocytes (figures 3 and 4). Infiltration of haemocytes into the tissues of arthropods is not uncommon[9,10]. The foregoing observations on the histology of the fat body of *P. americana* infected with cystacanths indicate that the reserve materials that were stored in the fat body during the development of the host, prior to infection. were utilised by the parasite during its development from the early acanthella stage to the cystacanth stage. Moreover, considering the previous studies revealing the presence of haemocytes in the capsular fluid of *M. moniliformis*[5] and also the lysosomal nature of the haemocytes[11–13], the infiltration of haemocytes in the fat body as observed in the present study suggests their defensive function to the host.

In addition, the presence of haemocytes inside the mass of the fat body of the infected specimens, indicates that during the course of development of the cystacanths, the haemocytes by infiltrating the fat body mass may be drawn inside the capsular fluid during encapsulation of the parasite or remain outside the cystacanths in the fat mass, thus contributing in either way to the safety of the intermediate host.

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