

are oval, spindle- or pear-shaped cells measuring 72 to 94 μ in length and 43 to 80 μ in width. They are uninucleate, green coloured and contain many densely packed brown coloured, rod-shaped symbionts measuring 1.4 to 1.8 μ . In the adult female the mycetocytes are concentrated towards the posterior end, near the oviduct and vagina. The ovarian ampulla (terminal end of lateral oviducts, where the fifth egg stalk is attached) also harbours a large number of similar symbionts. But these symbionts occur freely in ovarian ampulla and do not seem to be arranged in the mycetocytes, hence filial mycetomes (as shown in *C. columbae columbae*⁴) are not structured. They stain darker than those present in the abdominal mycetocytes.

As the ripe egg passes through the oviduct the symbionts pass into the egg and reach the centre, losing their staining ability. At the time when midgut is undergoing formation (during embryonic development), the cell limits appear around the symbionts and embryonal mycetomes are formed. Now these embryonal mycetome swarm out and penetrate the midgut. From there, they wander further through the fat bodies under the hypodermis, to take their position in the abdomen. When the third instar larva of female readies itself to metamorphose into the adult, the mycetocytes begin to wander towards the abdominal end (because in adult female the mycetocytes are concentrated towards posterior end). The manner in which the symbionts are able to reach the ovarian ampulla in *A. perspicuus* could not be studied.

It seems that the phenomenon of endosymbiosis is also exhibited by *A. perspicuus* which is purely a feather feeder. In *A. perspicuus* the mycetocytes are present in adult females unlike *C. columbae columbae*

in which, it is reported that all the mycetocytes are used up during formation of filial mycetomes in ovarian ampulla⁴. Examination of crop content of a number of specimens of this louse reveals no host blood in it. It is believed that in ischnoceran Mallophaga the symbionts provide a substance which helps in digestion of feather keratin. However, in another nonhaematophagous ischnoceran, *Lipeurus lawrensis tropicalis* (infesting the poultry bird, *Gallus domesticus*) mycetocytes do not occur. Symbionts were not detected in any part of gut⁸ or reproductive system⁹. On the other hand mycetocytes have been reported in *Lipeurus baculus*³. It seems that endosymbiosis occurs in some species of Mallophaga, being absent in others.

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1. Sikora, H., *Arch. Schiffs. Tropenhyg*, (Leipzig) 1922, 26, 271.
2. Ries, E., *Zbl. Bakt. I Orig. Jena*, 1930, 117, 286.
3. Ries, E., *Z. Morphol. Okol. Tiere*, 1931, 20, 233.
4. Ries, E., *Arch. Zool. ital.*, 1932, 16, 1408.
5. Buchner, P., *Ergebn. Biol.*, 1928, 4, 1.
6. Buchner, P., In: *Endosymbiose der Tiere mit pflanzlich Mikroorganismen*, Basel, 1953.
7. Eichler, W., In: *Dr H. G. Bronn's Klassen und Ordnungen des Tierreichs (b) Phthiraptera*, 1. pp. 1. Akademische Verlagsgesellschaft Geest & Portig, K. G. Leipzig, 1963.
8. Saxena, A. K. and Agarwal, G. P., *Angew. Parasitol.*, 1981, 22, 104.
9. Saxena, A. K. and Agarwal, G. P., *Zool. Mag.*, 1981, 90, 174.

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