

Oogenesis in *Ascalaphus ramburi* and *Protidricerus japonicus* (Ascalaphidae; Neuroptera)

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This paper describes the number of polytrophic ovarioles in each ovary and of nurse cells in the nurse chamber, and the change in sizes of developing oocytes in the adult females of *A. ramburi* and *P. japonicus* (Ascalaphidae; Neuroptera).

1) *The number of ovarioles in each ovary*

Each ovary was composed of 10 polytrophic ovarioles respectively in both species. This number was invariable among individuals observed. The same number was obtained in *Hagenomyia micans* belonging to the neuropteran family Myrmeleonidae (Matsuzaki, unpublished).

2) *The number of nurse cells in each egg chamber*

The ovariole contained 18 egg chambers in average in *A. ramburi* and 30 in *P. japonicus*. Each of these egg chambers consists of one oocyte and many nurse cells in numbers that do not follow the 2ⁿ rule. That is, in *A. ramburi* an egg chamber was composed of one oocyte and 10 to 13 nurse cells. Twelve of 24 observed egg chambers contained one oocyte and 11 nurse cells. On the other hand, in *P. japonicus* an egg chamber contained one oocyte and 12 to 14 nurse cells. Twenty-one of 35 egg chambers had one oocyte and 13 nurse cells. In Neuroptera, thus, the number of interconnected sister cells in the egg chambers does not follow the 2ⁿ rule, but the variation range of the number is a species character. The similar tendency in the nurse cell number has been reported in *Chrysopa perla* (Rousset, 1978 a, b) and some fleas (King and Teasley, 1980).

3) *The curve change in sizes of developing oocyte and nurse chamber*

In first 1-2 stages, the oocyte and the nurse chamber are more or less equal in size. After these stages, the oocyte and its nucleus continually grow until the late vitellogenic stages. During the oogenesis the oocytes increase their volume by about 5,000 times and develop into the elongated mature eggs. The oocyte nuclei start to grow in stage I and almost attain their maximum sizes in stage 5, which is approximately 200 times that of the nuclei in stage 1. The nurse chambers grow very slowly until the onset of vitellogenesis. At early vitellogenesis they begin to be degenerated and their volume eventually becomes smaller than that of the oocyte nuclei.

References

- King, R. C. and M. Teasley (1980) In: "Fleas" (R. Traub and H. Starcke eds.), p. 337-340.
Rousset, A. (1978a) *Int. J. Insect Morphol. Embryol.*, 7, 45-57.
Rousset, A. (1978b) *Int. J. Insect Morphol. Embryol.*, 7, 59-71.