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DESCRIPTION OF THE EGGS OF *RHODOSTROPHIA MEONARIA* GUENEE FROM NORTH PAKISTAN *(GEOMETRIDAE: LEPIDOPTERA)*

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ABSTRACT

The chorion structures of the eggs obtained from *Rhodostrophia meonaria* were studied by scanning electron microscope.

Key Words: Lepidoptera, egg, description, SEM

INTRODUCTION

The genus *Rhodostrophia* is one of the most interesting group of the geometrid moths in the West Palaearctic Region. Most of its species confine to West Asia, from Turkey to Afghanistan. According to our knowledge, at least 17 species occur only in Afganistan, 12 in Pakistan, 11 in Iran, while it is represented by five species in Turkey and only three species in Europe.

The species under consideration was described by Guenée in 1852 from North India. This species is morphologically close to *adauctata* group within the genus, but it is a distinct species on account of slight genitalic differences and of wing pattern (Wiltshire, 1967). The whole range of *R. meonaria* is East Afghanistan, North Pakistan, North India and West China.

As far as I know, there is no published data regarding the SEM photographs of the eggs of *R. meonaria* or of closely allied species. During his expedition, Koçak (1988) collected some *Rhodostrophia* species from North Pakistan. Among the specimens in paper envelopes, a single female of *R. meonaria* was found with her eggs laid on the paper. I used this opportunity for describing the chorion structures.

MATERIALS AND METHODS

The eggs were laid by the captured female inside of the paper envelope in July, 1987. They were taken for SEM preparation on December 15, 1987. Some of them were left already by the hatched caterpillars, but they were still in good condition for studying.

The eggs were mounted with double-sided tape on Jeol stubs, coated with gold and examined in a Jeol 100 CX II Electron microscope at 20 KV.

24 eggs were examined under the light microscope. Length and width were determined from a sample of 10 eggs on the display screen of the scanning electron microscope at a magnification of X100. The maximum dimension of aeropyles on the different eggs was determined either from micrographs or from display screen at X 10 000 or X 30 000. Counts of primary cells were made on the display screen. Results are presented in both descriptive and photographic forms.

DESCRIPTION

The eggs are generally subcylindirical, the micropylar area is flattened (Fig. 1), the opposite side is slightly convex (Fig. 2). The eggs are 0.50 ∓ 0.01 mm in width and 0.68 ∓ 0.01 mm in height.

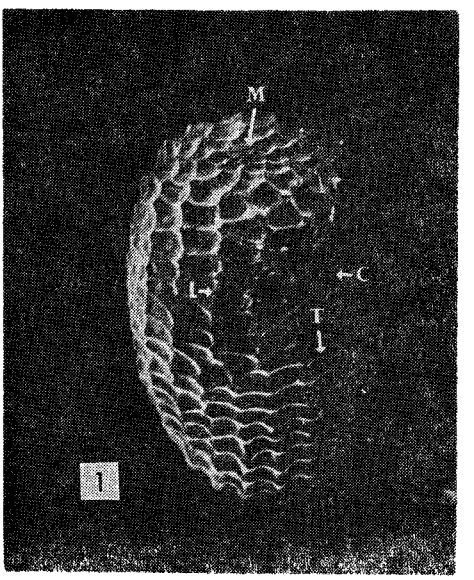

Figure 1. Egg from dorso-lateral side, M. Micropylar area, L.Longitudinal ridge, T. Transverse wall, C. Columnar cell, X 100.

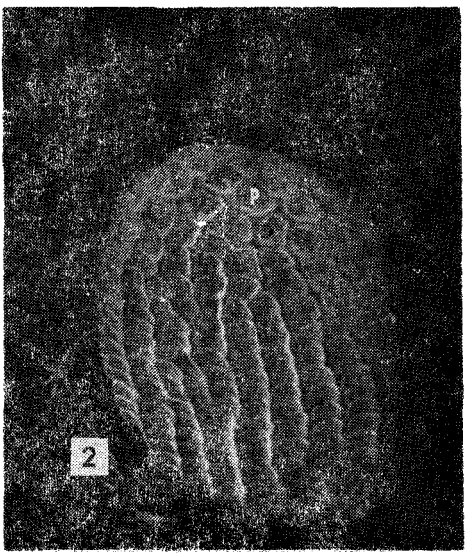

Figure 2. Egg from ventro-lateral side. Note the reticulate pattern of polygons (P), X 100.

In the micropylar area, the central pit of micropyle is surrounded by 5–7 primary cells (Fig. 3). Their thickened walls are round.

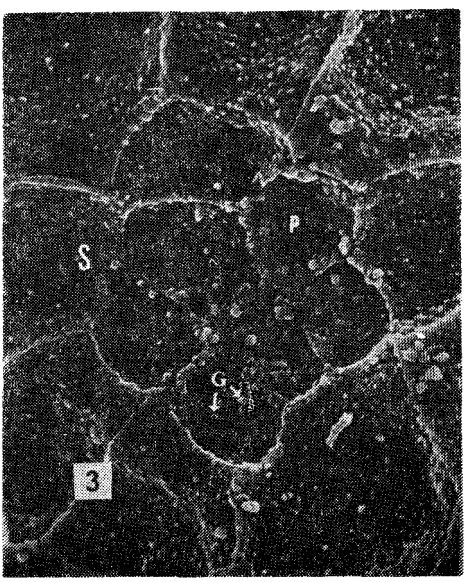

Figure 3. The rosette of primary cells. P. Primary cell, S. Secondary cell, G. Minute granules, X 1000.

The surface of the chorion is well marked by prominent longitudinal ridges and transverse valls. The former varies from 22 to 24, but the latter is uncountable in practice. Transverse walls and columnar cells depressed considerably between the longitudinal ridges. The longitudinal ridges are not sharp above. They originate at various points from the micropylar area to the equatorial line. The crossing points of transverse walls and the longitudinal ridges are remarkably raised at the periphery of the micropylar area. The longitudinal ridges, almost parallel to each other, extend to the opposite side of the egg. They become less in number and the rest forms a reticulate pattern of polygons.

The whole surface, including the micropylar area, of the egg has minute granules, but there is no pore on the surface. Aeropyles are located on the smooth surface at the crossing points of the longitudinal ridges and the transverse walls (Fig. 4). They are very small in size, and vary from 0.5μm to 1.2μm.

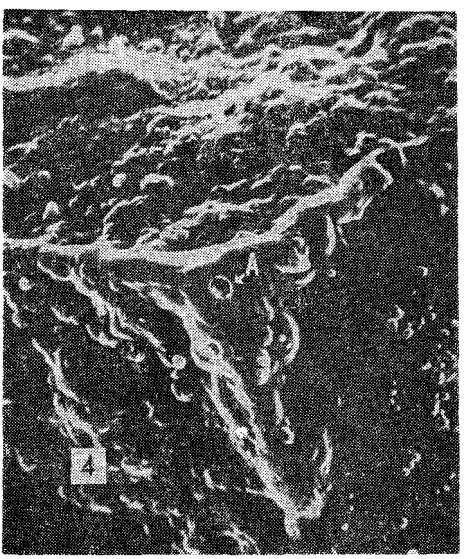

Figure 4. Aeropyle (A), X 5000.

DISCUSSION

For SEM preparations, the authors obtained the eggs for their publications either from the reared females in the laboratory (Salkeld, 1973, 1976, 1984; Suludere. 1977; Edlich et al., 1981; Arbogast and

Byrd, 1981; Arbogast et al., 1983, 1984; Eitschberger et al., 1986; Thiele, 1986; etc.) or from the dried specimens in the collections (Salkeld, 1980; Downey and Allyn, 1981; Suludere, 1988). The second way of preparations appears to be scarce in the literature.

In the present study, the fertilized eggs of *R. meonaria* were examined. They were laid propably just before the death of the female. The preparation of the eggs resembles to some degree to the first way, but its fixation and drying methods have not been applied here, since the eggs were not alive and they were already dried.

R. meonaria belongs to the subfamily *Sterrhinae*. The SEM photographs of the eggs of *Rhodostrophia* and of the allied genera, seem to be unpublished in the West–Asian literature up to the present time. Therefore, the results obtained in this study is uncomparable. Hinton (1970, 1981) published, however, some SEM photographs of the eggs belonging to the species in the subfamilies *Ennominae* and *Larentiinae* in *Geometridae*. After comparing with them, *R. meonaria* eggs appeared to be quite different in structure like micropylar area, longitudinal ridges and transverse walls, and aeropyles.

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