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Studies on the chorionic structure of the eggs of Corixoidea (Hemiptera: Heteroptera) with scanning electron microscopy

SUSANA AMANDA KONOPKO¹, SILVIA ANA MAZZUCCONI² & MONICA LOPEZ RUF³¹*División de Entomología, Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Av. Angel Gallardo 470, C1405DJR, Buenos Aires, Argentina. Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina.**E-mail: konopko@macn.gov.ar*²*Laboratorio de Entomología, Departamento de Biodiversidad y Biología Experimental, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Av. Int. Güiraldes s/n, Ciudad Universitaria, C1428EHA, Buenos Aires, Argentina.**E-mail: mazzucco@bg.fcen.uba.ar*³*División Científica de Entomología, Museo de La Plata, Paseo del Bosque, B1900FWA, La Plata, Buenos Aires, Argentina.**E-mail: lopezruf@usa.net*

Abstract

The chorionic structure of the eggs of sixteen species of Corixoidea (*Ectemnostega* (*Ectemnostega*) *quadrata* (Signoret), *E.* (*Ectemnostegella*) *quechua* (Bachmann), *Trichocorixa mendozana* Jaczewski, *Centrocorisa kollari* (Fieber), *Heterocorixa brasiliensis* Hungerford, *Sigara* (*Aphelosigara*) *tucma* Bachmann, *S.* (*Tropocorixa*) *denseconscripta* (Breddin), *S.* (*T.*) *platensis* Bachmann, *S.* (*T.*) *rubyae* (Hungerford), *S.* (*T.*) *santiagiensis* (Hungerford), *S.* (*T.*) *schadei* (Hungerford), *S.* (*T.*) *yala* Bachmann, *Tenagobia* (*Incertagobia*) *incerta* Lundblad, *T.* (*Fuscagobia*) *fuscata* (Stål), *T.* (*Schadeogobia*) *schadei* Lundblad, and *T.* (*Tenagobia*) *pulchra* Hungerford) is described for the first time using scanning electron microscopy. In addition, the eggs of some of these species are described based on color and morphometry. The sculpturing of the chorion and the structure of the micropylar area here in studied using scanning electron microscopy together with the length of the stalk distinguish the eggs of the genera (except *Sigara*, genus without a uniform pattern on the sculpturing of the chorion) and subgenera (including *Aphelosigara* and *Tropocorixa*) of Corixoidea present in Argentina. The above mentioned characters, together with the egg length, proved to be useful for the identification of the Argentinian species. An identification key to the eggs of Argentinian species of Corixoidea based on the material herein studied, and additional data present in the literature, is provided.

Key words: Nepomorpha, morphology, egg, chorionic structure, key, scanning electron microscopy

Introduction

The eggs of Corixoidea are variable in shape and in the way of attachment to the substrate. Some are elongate and glued lengthwise to the substrate without a special fastening structure; other eggs are ovoid or top-shaped and placed upright by an adhesive pad with a very short or considerably long stalk. The external structure of the chorion is also variable, being either smooth or with projections. The eggs are laid underwater attached singly or together to aquatic plants, dead leaves and twigs, woody debris, stones, and other available substrates. The most unusual oviposition habit is displayed by *Ramphocorixa acuminata* (Uhler), which deposits its eggs on the exoskeletons of crayfish (Griffith 1945).

Although the taxonomy and systematic of the adults of Corixoidea are comparatively well known, very few studies on the morphology of the immature stages are available in the literature. Regarding the eggs, there are only data of macroscopic characteristics and studies of the polygonal pattern of the chorion by optical microscopy. Studies using scanning electron microscopy are still not presently available in the literature.

The existing works include figures and descriptions of the size, color, shape, external structure of the chorion and the attachment system of the eggs of species of several genera of Corixoidea, e.g., *Agraptocorixa* Kirkaldy (Hale 1922, under *Porocorixa* Hale; Hungerford 1948b; Walton 1962; Fernando & Leong 1963; Fernando 1965),

between the above mentioned genera: *Heterocorixa*, EL: 0.50–0.55 mm, EW: 0.45 mm; *Sigara*, EL: 0.44–0.77 mm, EW: 0.31–0.62 mm; *Trichocorixa*, EL: 0.62–0.74 mm, EW: 0.37–0.42 mm (Table 2).

Further research including descriptions of the eggs of the species of Corixoidea is needed. In particular, studies including additional species are needed to confirm the characters herein established for separate genera and subgenera of Corixoidea. The egg morphology and chorionic structure within the families Corixidae and Micronectidae need to be assessed through more detailed approaches as they are still poorly known. Future studies should focus on providing useful morphological data, which will improve the resolution of analyses of the phylogeny of the Corixoidea.

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