



Morphology and Postdepositional Dynamics of Eggs of the Predator *Podisus distinctus* (Stål) (Heteroptera: Pentatomidae: Asopinae)

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Abstract

The predator *Podisus distinctus* (Stål) (Heteroptera: Pentatomidae: Asopinae) has been reared to control lepidopteran defoliators. In this study, we describe this predator's morphology, postdepositional dynamics and eggs in different developmental stages under scanning electron microscope. Its eggs are subglobular and ovoid, narrower at the base than at the top, with a convex, circular operculum. They measure 1.09 ± 0.03 mm in height and 0.90 ± 0.04 mm in diameter. The aero-micropylar processes number 16.00 ± 2.00 and are arranged radially at the egg anterior pole. Immediately after laying, the egg color is pearl-like, and soon after turns gray. Orientation of the spine-like projections and aero-micropylar processes also change after deposition. Though the eggs of *P. distinctus* are similar to those of other species of the genus *Podisus*, certain aspects, including the egg size and shape, chorion micro-sculptures, and number of aero-micropylar processes, are specific, allowing for differentiation from other related species.

Key words: Aero-micropylar processes, chorion micro-sculptures, embryonic development, stink bugs

Introduction

Heteroptera eggs differ in their shape, color, and chorion structure. They can be barrel-shaped, oval, cylindrical, columnar, or elongated. They also have differences in the aero-micropylar processes, which vary in number, shape, and size (Candan *et al.* 2005; Matesco *et al.* 2009a, 2012; Bianchi *et al.* 2011). Variations in the operculum and projections in the chorion result in specific ornamentation standards (Candan & Suludere 1999; Kumar *et al.* 2002) and can represent egg post-oviposition-induced changes (Wolf & Reid 2004).

Pentatomidae egg morphology allows for identification of the eggs soon after deposition (Matesco *et al.* 2006). However, the lack of information regarding egg morphology makes effective studies on generalist predators, including Pentatomidae, nearly impossible (Costello *et al.* 2002). Specifically about Asopinae, there are few studies that describe the postdepositional dynamics of eggs. These insects are important predators and can be used as biological control agents. Studies about these predators could reveal diversity and distribution standards with potential for ecological, bio-geographical, and applied studies (Matesco *et al.* 2007).

Podisus distinctus (Stål) (Heteroptera: Pentatomidae: Asopinae) is widespread in South and Central America (Thomas 1992; Henry & Wilson 2004) and represents an important biological control agent. Therefore, studies regarding the morphological aspects and postdepositional dynamics of *P. distinctus* eggs are important for predator identification. Results from such studies may improve estimates of predator population levels in the field and contribute to pest control. Accurate estimates are important because field studies involving predator capture are often not conclusive regarding the contributions of these natural enemies to pest suppression (Greenstone *et al.* 2007).