



Foam-generating behaviour in tadpoles of *Leptodactylus latinasus* (Amphibia, Leptodactylidae): significance in systematics

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Abstract

This work reports the capability of *Leptodactylus latinasus* tadpoles to generate foam. During numerous visits to El Ceibal, Tucumán, Argentina, we noticed that adults of *L. latinasus* were calling in choruses on humid and cleared ground. Five subterranean chambers with foam nests were excavated and transferred to the laboratory. In three nests, aquatic coleopteran larvae were found inside the foam after predated on the eggs. Tadpoles from the two other nests were placed in an artificial incubation chamber. Twenty hours later, a substantial amount of foam was observed. This character was analyzed in a phylogenetic analysis that showed that tadpole foam-making behaviour is a feature that corroborates a close phylogenetic relationship between *Leptodactylus* of the subgenus *Lithodytes* and of the *fuscus* and *pentadactylus* groups.

Key words: Anura, foam-nest, larvae, incubating chamber, natural history, phylogeny

Resumen

Este trabajo reporta la capacidad de las larvas de *Leptodactylus latinasus* para generar espuma. Durante numerosas visitas a El Ceibal, Tucumán, Argentina, se detectó la presencia de machos de *L. latinasus* cantando en coros desde terreno húmedo y limpio. Cinco cámaras de incubación con nidos de espuma fueron transferidas al laboratorio. En tres de los nidos, los huevos fueron depredados por larvas de un coleóptero acuático encontradas en la espuma. Renacuajos de los otros nidos fueron colocados en cámaras de incubación artificiales, donde produjeron una sustancial cantidad de espuma. Este carácter fue analizado en un contexto filogenético. El comportamiento de producción de espuma es un carácter que corroboraría una estrecha relación filogenético entre *Leptodactylus* del subgénero *Lithodytes* y de los grupos *fuscus* y *pentadactylus*.

Introduction

The genus *Leptodactylus* is characterized by deposition of eggs in self-produced foam nests, showing an evident tendency toward a terrestrial mode of life (Heyer 1969). Defence against predators (Menin & Giaretta 2003; Giaretta & Kokubum 2004) and avoidance of desiccation (Heyer 1969; Duellman & Trueb 1994) have been postulated as the main functions of the foam nests. Frogs of the *Leptodactylus fuscus* species group (Heyer 1978) deposit eggs in foam nests in self-constructed subterranean chambers on land. Although the tadpoles hatch inside the chamber they need to reach a water body to complete their development (Solano 1987). Studies have already reported that tadpoles of three species of the *fuscus* group (*L. fuscus*, *L. mystaceus* and *L. furnarius*), one species of the *pentadactylus* group (*L. labyrinthicus*), and some species of the subgenus *Lithodytes*, produce themselves a new foam that replaces the foam generated by adults (Downie 1984, 1989;