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Internal oral morphology in larvae of the genus *Rhinella* Fitzinger, 1826 (Amphibia, Anura, Bufonidae)

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Abstract

From the 86 species allocated in the genus *Rhinella,* 25 have their tadpoles described and only *R. arenarum*, *R. chrysophora*, R. *icterica*, *R. ornata*, *R. schneideri* and *R. spinulosa* have aspects of the internal oral morphology evidenced. Herein, the internal oral morphology from 12 species of *Rhinella* distributed between the morphological groups of *R. crucifer*, *R. granulosa*, *R. marina* and *R margaritifera* is described and compared. The internal oral morphology of *Rhinella* is little variable in many aspects. Despite the many similarities found between the tadpoles of *Rhinella*, the study showed that there are characteristics that exhibit interspecific variation that can be used in the taxonomy of the genus. Important features to distinguish species were: number of infrarrostral projections; number and shape of the infralabial papillae; size, arrangement, shape and apex of the lingual papillae; shape of the buccal floor arena papillae; number of projections of the ventral velum; shape of the prenarial ridge; choanae arrangement; number and apex of the postnarial papillae; number and shape of the secondary branches on the lateral ridge papilla; buccal roof arena papillae arrangement.

Key words: taxonomy, tadpoles, internal oral anatomy

Introduction

The genus *Rhinella* Fitzinger, includes most of the South American species previously classified in the genus *Bufo,* and is currently composed by 86 valid species, distributed in Texas—USA, Central America and throughout South America (Frost 2013). Most species of this genus are allocated to morphological groups that were initially established by Duellman & Schulte (1992). Recently, the monophyly of these groups was tested by Pramuk (2006) who recognized four monophyletic groups in *Rhinella*: the *R. crucifer* species group, *R. granulosa* species group, *R. margaritifera* species group and *R. marina* species group.

Of the 86 valid species of *Rhinella*, 25 have the tadpole known (Cei 1980; Heyer *et al*. 1990; Caldwell 1991; Carvalho-e-Silva 1988; Eterovick & Sazima 1999; Carvalho-e-Silva *et al*. 1994; Aguilar & Gamarra 2004; Borteiro *et al*. 2006; Menin *et al*. 2006; Lima *et al*. 2007; Maciel *et al*. 2007; Mercês *et al*. 2009; Lourenço *et al.* 2010; Tolledo & Toledo 2010; Fehlberg *et al.* 2012; Ruas *et al.* 2012) and only five have the internal oral morphology evidenced, as *R. arenarum*, *R. icterica*, *R. ornata*, *R. quechua*, *R. schneideri* and *R. spinulosa* (Fabrezi & Vera 1997; Prado 2006; Candioti 2007; Dias 2008; Aguayo *et al.* 2009). Broad comparisons and generalizations about larval morphology exist for few taxa of anurans, which complicate the use of these characters in taxonomic and systematic studies. Therefore, we herein describe the internal oral morphology in larvae of 12 species from four groups, *R. crucifer*, *R. granulosa*, *R. marina* and *R. margaritifera*, compare the internal oral morphology from these tadpoles and show new features that may be useful in identifying the tadpoles of this genus and might provide a baseline for further studies.

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APPENDIX I. Specimens analyzed.

R. abei—DZSJRP908.1; DZSJRP 917.1/ n=2, São José dos Pinhais, Serro e Gemido, PARANÁ, Brasil. (specimens compared to original description).

R. arenarum—MNRJ 44936, n=3. Dunas Cidreira, RIO GRANDE DO SUL, Brasil. (specimens compared to original description and previous description of the internal oral morphology).

R. crucifer—MUFBA 0107, n=4. Guarajuba, Camaçari, BAHIA, Brasil. (specimens compared to original description).

R. crucifer—UFBA 11819, n=4. 13º49'25"S 39º11'39"W - Igrapiúna, BAHIA, Brasil. (specimens of the same locality of the specimens utilized in original description).

R. granulosa—MZUEFS 110, n=2. Feira de Santana, BAHIA, Brasil. (specimens of the same lots used in original description).

R. granulosa—UFBA11362, n=1. Arembepe, Camaçari, BAHIA, Brasil. (compared to original description).

R. henseli—DZSJRP 1576.4 n=1, 1716.1, n=1. Parque Nacional das Araucárias, SANTA CATARINA, Brasil.

R. hoogmoedi—UFBA 11105, n=5. Aritaguá, Ilhéus, BAHIA, Brasil. (compared to original description).

R. icterica—DZSJRP 1508.5, n=1; 1104.3, n=1; 1201.4, n=1. Parque Estadual Campos do Jordão, Campos do Jordão, SÃO PAULO, Brasil. (compared to original description).