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Description of ophiophagy in *Clelia equatoriana* (Amaral, 1924) (Serpentes: Dipsadidae) in captivity

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Snakes of the genus *Clelia* are large and nocturnal, with mainly a ophiophagous diet (Zaher, 1996; Pinto and Lema, 2002; Campbell and Lamar, 2004; Delia, 2009). Ophiophagy has been documented for some species within the genus, such as *Clelia plumbea*, *C. clelia*, *C. rustica* (Vitt and Vangilder, 1983; Pinto and Lema, 2002; Campbell and Lamar, 2004; Delia, 2009), and recently for *C. equatoriana* (Rojas-Morales, 2012). However, natural history information on this last species is still largely unavailable (Zaher, 1996; Gaiarsa et al., 2013). *Clelia equatoriana* (Amaral, 1924) occurs throughout Central America and northwestern South America, from northeastern Costa Rica to Colombia and Amazonian Ecuador (Zaher, 1996). In Colombia, this species is known from montane forests between 800 and 2150 m of elevation (Castro and Vargas-Salinas, 2008; Rojas-Morales, 2012). Herein, I report for the first time ophiophagy feeding behavior in *C. equatoriana* based on a captive individual (650 mm snout vent length (SVL), and 146.5 mm tail length (TL)).

One male captured in Manizales, Caldas, Colombia (05°06'08"N, 75°29'15"W; 2150 m of elevation) was held captive for 15 days, since 12 to 27 November 2007, in a terrarium of 52 x 27 x 20 cm. The same substrate in which the snake was founded was used for captive conditions. On 26 Novembrer 2007 at 16:25 h, a male of *Atractus* sp. (aff. *melanogaster*; 280 mm SVL, 41 mm TL) collected at the same area, was offered as a potential prey to *C. equatoriana* (following Marques and Sazima, 1997) to evaluate the possibility of a trophic interaction.

Immediately after *Atractus* was laid inside the terrarium, *Clelia* attacked and immobilized it with a bite in the middle of its body (Fig. 1A), and subsequently constricted it with the central part of its body, forming three rings that coil in right direction with respect to the body of *Atractus* (Fig. 1B). Constriction was applied with the lateral body side of *Clelia* (Fig. 1A, B). It took 22 minutes to partially suffocate the prey, and subsequently the predator moved its head anteriorly along the prey's body until reaching its head. During this phase, the predator quickly moved its tongue, touching prey body with the rostral and labials scales. After three attempts, the head of the prey was located and the swallowing initiated. The prey was still alive during swallowing (Fig. 1C, D). The swallowing process took only 4.3 minutes, with the full predatory sequence totaling 26.3 minutes (attack–constriction–swallowing). After predation, the predator remained almost immobile, hiding under a log. The next day after the experiment, the predator was released into the same area where it was originally captured.

This behavioral sequence is similar to that reported by Pinto and Lema (2002) for *C. rustica*, but differs markedly of other ophiophagous dipsadid snakes (e.g., *Erythrolamprus aesculapii*), that do no apply constriction on prey and ingest it preferentially tail first (Marques and Puorto, 1994). Also, there are differences with respect to ophiophagous venomous snakes of the genus *Micrurus*, since they hold their prey while inject the venom, but do no apply constriction (Roze, 1996; Marques and Sazima, 1997). To my knowledge, this is the first report on the feeding behavior of *C. equatoriana*. Additional field and experimental observations are needed to evaluate the variability of prey consumed by this species, as well as the behavior of prey subjugation for comparisons with other closely related species (Zaher, 1996; Pinto and Lema, 2002; Scott et al., 2006; Delia, 2009; Orofino et al., 2010).

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Figure 1. Predation of *Atractus* sp. (aff. *melanogaster*) by *Clelia equatoriana* in captivity. Still images taken from the video recording.

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References

Campbell, J.A., Lamar, W.W. (2004): Venomous Reptiles of the Western Hemisphere. Cornell University Press. Ithaca, New York, USA.

Castro-Herrera, F., Vargas-Salinas, F. (2008): Anfibios y reptiles en el departamento de Valle del Cauca, Colombia. Biota Colombiana **9**: 251-277.

Delia, J. (2009): Another Crotaline prey item of the Neotropical snake *Clelia clelia* (Daudin 1803). Herpetology Notes **2**: 21-22.

Gaiarsa, M.P., Alencar, L.R.V., Martins, M. (2013): Natural history of pseudoboine snakes. Papéis Avulsos de Zoologia **53**(19): 261-283.

Marques, O.A.V., Puorto, G. (1994): Dieta e comportamento alimentar de *Erythrolamprus aesculapii*, uma serpente ofiófaga. Revista Brasileira de Biologia **54**: 253-259.

Marques, O.A.V., Sazima, I. (1997): Diet and feeding behavior of the coral snake, *Micrurus corallinus*, from the Atlantic forest of Brazil. Herpetological Natural History **5**: 88-93.

Orofino, R. de P., Pizzato, L., Marques, O.A.V. (2010): Reproductive biology and food habits of *Pseudoboa nigra* (Serpentes: Dipsadidae) from the Brazilian Cerrado. Phyllomedusa **9**: 53-61.

Pinto, C., Lema, T. (2002): Comportamento alimentar e dieta de serpentes, gêneros

Boiruna e *Clelia* (Serpentes, Colubridae). Iheringia Série Zoologia **92**: 9-19.

Rojas-Morales, J.A. (2012): Snakes of an urban-rural landscape in the central Andes of Colombia: species composition, distribution and natural history. Phyllomedusa **11**: 135-154.

Roze, J.A. (1996): Coral snakes of the Americas: biology, identification, and venoms. Krieger Publishing Company. Malabar, Florida, USA.

Scott, N.J., Giraudo, A.R., Scrocchi, G., Aquino, A.L., Cacciali, P., Motte, M. (2006): The genera *Boiruna* and *Clelia* (Serpentes: Pseudoboini) in Paraguay and Argentina. Papéis Avulsos de Zoologia **46**: 77-105.

Vitt, L.J., Vangilder, L.D. (1983): Ecology of a snake community in northeastern Brazil. Amphibia-Reptilia **4**: 273-296.

Zaher, H. (1996): A new genus and species of Pseudoboine snake, with a revision of the genus *Clelia* (Serpentes, Xenodontinae). Bolletino Museo Regionale di Scienze Naturali **14**:289-337.

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