

Skin secretions from the velvet swamp snake *Erythrolamprus typhlus*

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The velvet swamp snake *Erythrolamprus typhlus* is a diurnal and predominantly terrestrial species (Martins & Oliveira, 1998) that is distributed widely in South America (Wallach et al., 2014). It feeds mainly on frogs and toads (Pazmiño-Otamendi, 2020). When threatened the species usually compresses its body dorsoventrally (especially the anterior third of the body), and hides its head under its body, rolling it up; when manipulated it may twist the body and release a fetid discharge from its cloacal glands, and occasionally it may also bite (Martins & Oliveira, 1998). Here we report the first cases of skin secretions in *E. typhlus*.

At 10:00 h on 20 March 2022, in Miriti-Paraná, department of Amazonas, Colombia (1.20591° N, 69.88753° W; 102 m a.s.l.), during a local fauna observation walk with people from the community, we observed an adult *E. typhlus* crossing a forest path. We captured the specimen which was about 400 mm total length. At the moment of capture, the snake compressed its body dorsoventrally, it did not try to bite, but after two minutes of manipulation the individual began to twist its body and secreted very small white drops of fluid that emerged from between the scales (Fig. 1A). These white drops were observed mainly in the anterior and middle region of the body; after a few minutes this white substance became sticky, as if it were latex. We were surprised by this behaviour and so we placed the specimen in a plastic box so we could make further observations. After three hours, the individual was manipulated again, and after two minutes of manipulation the snake again secreted small white drops of fluid. The next day we released the snake in the forest area where it was captured.

Ten days later, at 10:43 h on 30 March 2022, in Miriti-Paraná, department of Amazonas, Colombia (1.19566° N, 69.89171° W; 103 m a.s.l.) we encountered a second individual of this species, which we captured. After a few minutes of manipulation this specimen also released white droplets of fluid mainly from the anterior and middle region of the body (Fig. 1B). This appears to confirm that this behaviour is typical of the species.

To the best of our knowledge, this is the first report of skin secretion from any species of the genus *Erythrolamprus*. Skin secretions are well known in some other species of snake and were first documented in the Asian naticine *Rhabdophis tigrinus*, where they are released from nuchal glands below the skin. These secretions are toxic, the toxins being sequestered from the parotid glands of toads that

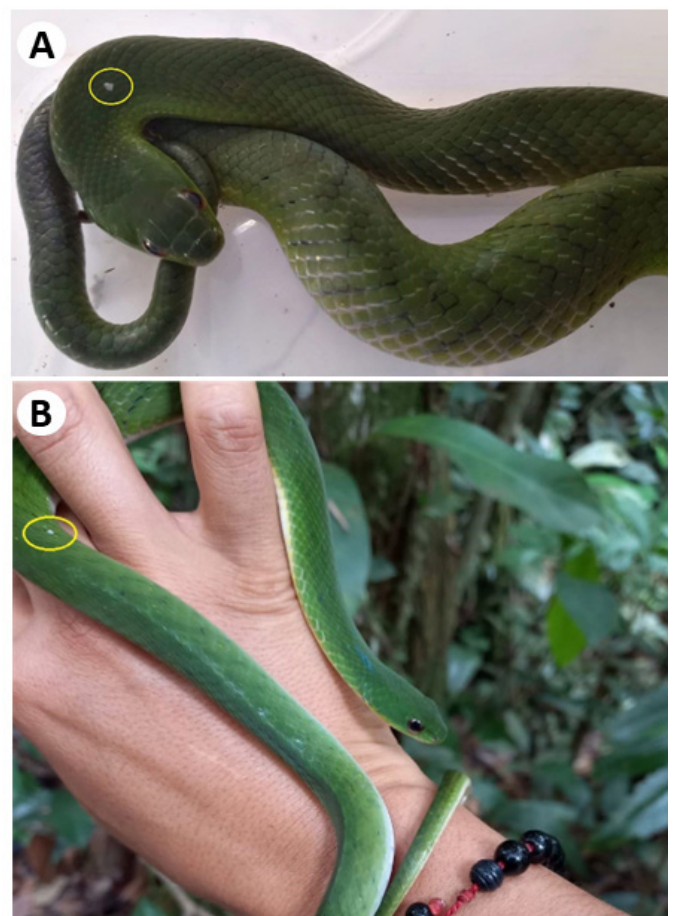


Figure 1. Cutaneous secretion in adult *Erythrolamprus typhlus* at Miriti-Paraná, department of Amazonas, Colombia, the yellow circles indicate secretion droplets - **A.** First specimen, **B.** Second specimen

are their prey (Hutchinson, 2007) and are known to cause toxin ophthalmia (Chen et al., 2014). Subsequently, such secretions have been identified from a total of 17 other Asian naticine snakes (Takeuchi et al., 2018) and are referred to as toxungens, to distinguish them from venoms where there is a distinct delivery mechanism or poisons that lack a delivery mechanism (Nelsen et al., 2014). The status of the *E. typhlus* secretion as a toxungen has still to be confirmed. We propose future studies on the chemical composition of the secretion and the morphology of the glands that produce it.

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