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Atypical colororation in the yellow-striped poisonous frog, *Dendrobates truncatus* (Cope, 1861), in the Colombian Magdalena river valley

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ABSTRACT

Herein we report an atypical coloration in one individual of the yellow-striped poisonous frog, *Dendrobates truncatus*, in Colombian Magdalena middle valley. The adult individual presented leucism, a rare phenomenon occurs in nature or at very low frequencies.

Key Words: Leucism; Coloration; *Dendrobates*; Colombia.

Dendrobates truncatus (Cope, 1861), is a species of poisonous frog belongs to the family Dendrobatidae. It is endemic to Colombia where it is known in the Caribbean region and inter-Andean valleys of Cauca and Magdalena rivers, at elevations between 10 to 1100 m a.s.l. This species inhabits mainly in the rainforest but may also be found in fragments of dry forest (Zambrano, 2000). Its normal color pattern consists of a black background with yellow dorsal stripes, white or cream dorso-ventral stripes and/or spots, and white spots on the abdominal area (De la Ossa *et al.,* 2012).

Atypical coloration (partial or total albinism, leucism, xanthism, piebaldism) appear rarely in nature, but it has been shown in different group of animals (Glass, 1954; Braun and Boyd, 1979; Bechtel *et al.,* 1995). The leucism refers to partial pigmentation of skin but maintain normal coloration of eyes (Klug and Wareham, 2005; Acevedo and Aguayo, 2008; Guevara *et al.,* 2011), while albinism is a hereditary disorder that occurs due to a recessive gene (alb) in the homozygous condition, leading to a total absence of melanin due to alteration of development chromatophores in the skin of animals (Browder, 2005; Jablonski *et al*., 2014; Martinuzzi *et al.*, 2016).

In amphibians, leucism has been documented in salamanders (Thiesmeier and Hornberg, 1988; Budó, 1998; Benavides *et al.,* 2000; Rivera *et al.,* 2001; Mitchell and Church 2002; Pedrejas *et al*., 2006; Galán, 2010) and tadpoles and adult anurans (Sazima, 1974; Barg and Canepuccia 2003; Brannon, 2006; Wojnowski *et al.,* 2010). In general, the total albinism, in anurans, has been correlated with scoliosis in tadpoles, increasing the time spent on the metamorphosis and development, and the hazard of predation (Barg and Canepuccia, 2003). Therefore, albino individuals generally have low survival rates and this phenotype is quickly removed from the population (Childs, 1953).

This present report provides the first record of leucism in an individual of *Dendrobates truncatus* in colombian Magdalena valley.

An adult male of *D. truncatus* (SVL 22,5 mm, unknown sex, Fig. 1) with abnormal coloration was found during a faunal inventory in October of 2012, around the thermoelectric plant Termocentro (ISAGEN), in Puerto Olaya, Cimitarra Municipality, Santander Department, Colombia (6,4444 N; -74,3796 W - 120 m a.s.l). Vegetation cover around the site had different successional stages as tall grass, stubble and secondary forest. The nearest areas are mainly domain by human activities (crops and livestock). The specimen was collected and deposited to the Museo Herpetológico de la Universidad de Antioquia (MHUA-8566).

The leucistic frog was found at 10:00 h on the leaf leather, active, near to other frogs of the same species with normal coloration. The specimen presented a pattern with absence of melanic coloration in the body but with dark pigmentation in the iris and pupil. The dorsal and lateral lines and abdomen marks had a yellow color, indicating the presence of

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Figure 1. Leucistic (top) and normal color (below) pattern of *Dendrobates truncatus* at the capture site.

xanthophores and iridophores (Betchtel, 1995) (Fig. 1). No additional morphological abnormalities were observed in this specimen.

Although the only leucistic *D. truncatus* reported on Colombian Magdalena valley surveys, the frog skin anomaly may generate limitations, since for these aposematic frogs, color has been associated to mating and survival, including functions as thermoregulation, vital organs protection, camouflage and aid in vision (Kresack, 2007).

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