



An Instance of Nectarivory in a Cuban Green Anole, *Anolis porcatius* (Squamata: Dactyloidae)

Anaisa Cajigas Gandia¹, Jesús Reina Carvajal², and Javier Torres López³

¹Department of Animal and Human Biology, University of Havana, Cuba (acajigasgandia27@gmail.com)

²Sälgvägen 48, Täby, Sweden (jesus.rc@outlook.com)

³Department of Ecology and Evolutionary Biology, University of Kansas, Lawrence, Kansas, USA (javiertorres@ku.edu)

Lizards of the genus *Anolis* are fundamentally carnivorous (e.g., Schwenk 2000; Losos 2009), but they opportunistically consume plant material, particularly fruits (e.g., Pérez-Higareda et al. 1997; Herrel et al. 2004; Vega-Castillo and Puente-Rolón 2011) and nectar (Losos 2009; Colón-Archilla 2010 and references therein).

Nectar-feeding has been reported in *Anolis carolinensis* (Liner 1996; Campbell and Bleazy 2000; Okochi et al. 2006) and a number of West Indian species, including: *A. allisoni* (Valido 2006), *A. aeneus* (Timmermann et al. 2008), *A. bimaculatus* (Powell et al. 2005), *A. conspersus* (Echternacht and Gerber 2000), *A. evermanni* (Colón-Archilla 2010), *A. gingivinus* (Powell et al. 2005), *A. grahami* (Losos and de Queiroz 1997), *A. occultus* (Ríos-López et al. 2016), *A. pogus* (Powell et al. 2005), *A. pulchellus* (Perry and Lazell 2006), *A. richardii* (Timmermann et al. 2008), *A. sabanus* (Powell et al. 2005), and *A. stratulus* (Perry and Lazell 1997; Ríos-López 2004). Herein we report nectar-feeding in *A. porcatius*, an endemic green anole from Cuba.

At 1307 h on 28 December 2010 at the commercial center “Plaza Américas” at Varadero, Matanzas Province, Cuba (23°10'26.68"N; 81°12'31.46"W, WGS84), JRC observed a young adult male tentatively identified as *Anolis porcatius* feeding on nectar (Fig. 1). The lizard was a few centimeters from a flower of a Prickly Pear Cactus (*Opuntia* sp.) when initially sighted. It subsequently moved around the plant, visiting and licking flowers at various stages of development. The episode, including the time spent moving between flowers, lasted 17 min, after which the anole left the plant. An examination of the flowers not visited revealed that they retained small droplets of nectar/sap, which were absent on those the lizard did visit.

We tentatively identified this individual as *A. porcatius* because it possessed a rounded ear opening (Fig. 2); however, we also identified some traits that are typical of *A. allisoni*,

a species known to hybridize with *A. porcatius* (Glor et al. 2004): canthal ridges more elevated than frontal ridges, small temporal scales, and blue coloration, that in this specimen can be observed in the inferior eyelids and the supraescapular zone (Ruibal and Williams 1961).

Nectar-feeding occurs opportunistically in anoles and complements a carnivorous diet that is very rich in proteins but poor in carbohydrates (De Foliart 1989). Nectar could be an important food complement containing sugars, amino acids, ions, water, and aromatic substances (Nicolson and Fleming 2003), although its relative contribution to a lizard's diet must ultimately depend on season and the species of plants present in a given area (Campbell and Bleazy 2000).

Nectar-feeding has been documented in species (see references above) closely related to *A. porcatius* (Glor et al. 2005); consequently, that this species consumes nectar is not surprising. This trophic resource has been exploited by species on different branches of the anole tree of life (see Poe et al. 2017), so many, if not all, species likely consume nectar at some times. Several authors (e.g., Iverson 1985; Traveset 1990; Valido and Nogales 1994; Nogales et al. 1998; Castilla 1999, 2000; Shanahan et al. 2001; Benitez-Malvido et al. 2003) have concluded that lizards and plants might engage in mutually beneficial relationships with the former including in their diets flowers, fruits, and nectar while the latter can be pollinated by these lizards. Given the diversity and abundance of anoles in the West Indies, their role in plant pollination might be underestimated.

Other situations might enhance plant consumption, including nectarivory in Caribbean anoles. For example, hurricanes can negatively affect nectar-feeding bird populations, which, in turn, could lead to an excess of nectar from flowers typically pollinated by birds, thus providing an opportunity for other animals, like lizards, to consume this alternative energy-rich food (Rathcke 2000).



Fig. 1. A male Cuban Green Anole (*Anolis porcatius*) from Plaza Américas, Varadero, Matanzas Province, Cuba, feeding on nectar. Photographs by Jesús Reina Carvajal.

Acknowledgements

We express our gratitude to Olga Motorina for assistance in the field and for recording data.

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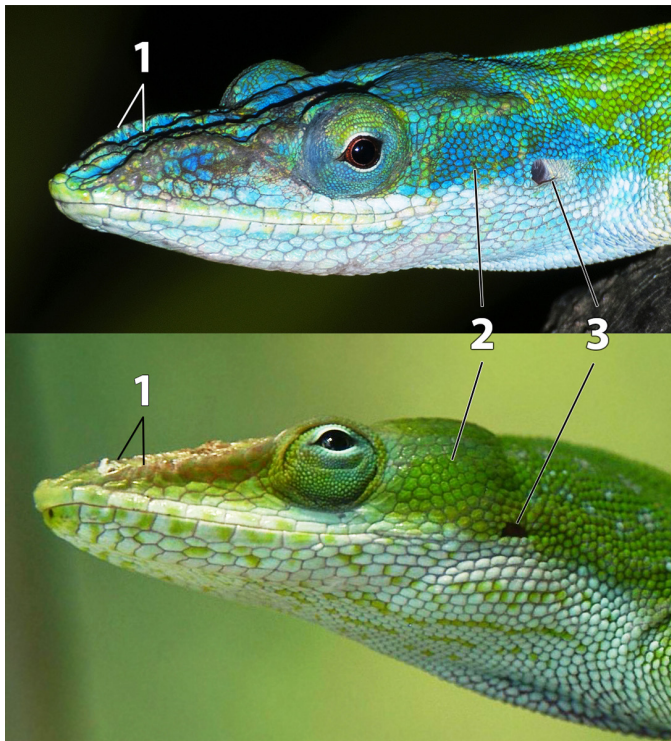


Fig. 2. Two closely related anoles from Cuba: The Cuban Blue Anole (*Anolis allisoni*; top) and the Cuban Green Anole (*A. porcatus*; bottom). They differ in canthal ridge-frontal ridge ratio (1), temporal scale size (2), and shape of the ear openings (3). Photographs by Raimundo López-Silvero (top) and Rosario Basail (bottom).

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