Implementation of the QUECHERS method to determine the presence of pesticides in feces of howler monkeys (Alouatta Palliata) in Costa Rica

Poster

Health effects of environmental pollution

Edwin León Mora [2], Oscar Chaves Badilla [1,2], Greivin Pérez Rojas [3], Marco Retana López [1].

(1) Universidad de Costa Rica, Escuela de Biología, Sede Rodrigo Facio, San Pedro, Montes de Oca, Costa Rica.
(2) Universidad de Costa Rica, Laboratorio de Ensayos Biológicos, Sede Rodrigo Facio, San Pedro, Montes de Oca, Costa Rica.
(3) Universidad de Costa Rica, Centro de Investigación en Contaminación Ambiental, Sede Rodrigo Facio, San Pedro, Montes de Oca, Costa Rica.

edwin.leon@ucr.ac.cr

Introduction

A series of pigmentation changes have been recorded in howler monkeys (Alouatta palliata palliata) in various areas of Costa Rica. These changes consist of the appearance of yellowish/reddish patches on their fur. Previously, Galván et al. (2019) verified that the yellowish fur pigmentation of a group of howler monkeys with PVD in the Ostional region of Nicoya is due to the change from eumelanin (a dark brown pigment) to pheomelanin (a yellowish-reddish pigment). One hypothesis is that the use of pesticides on agricultural plantations surrounding fragments inhabited by howler monkeys may alter the process of melanogenesis by promoting increased production of pheomelanin in certain body regions.

Objective

The objective of this research was to verify the presence of pesticides that can alter the fur of howler monkeys in the Ostional area of Nicoya, Guanacaste, Costa Rica.

Materials and Methods

To verify consumption or exposure to pesticides by monkeys in the Ostional area of Nicoya, Costa Rica, fecal samples of 15 to 20 g were taken from monkeys, including both pigmented and control individuals (N = 26 samples). These samples were collected with a clean spatula and placed in sterilized vials or bags labeled with the individual's information, time of collection, date, and study group. The samples were lyophilized to prevent bacterial or fungal growth. They were subsequently analyzed using the adapted QuEChERS method for multi-residue analysis of pesticides by gas chromatography.

Results and Conclusion

In the analysis of fecal samples from 26 monkeys, two types of triazoles were detected by gas chromatography in two samples, one from each. This suggests that the animals may have been exposed to pesticides, although this cannot be related to changes in fur color.

Keywords

(1) Toxicology, (2) Conservation, (3) Pesticides.

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There is no conflict of interest.

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