

Why fruit-eating bats eat dirt

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“Don’t eat the green parts of tomatoes, cut the green off the potatoes.” Any child would know that eating these parts of vegetables is a bad idea. The reason behind this is that they contain secondary plant compounds which may have detrimental effects on the consumer.

Each night, tropical fruit-eating bats ingest large amounts of secondary plant compounds with their food. This may become particularly problematic for pregnant or lactating bat mothers, since secondary plant compounds may damage the embryo or the juvenile. Now, a scientific study describes for the first time how female fruit-eating bats deal with this situation.

In a study published in the online journal *PLoS ONE*, researchers from the Berlin Leibniz Institute for Zoo and Wildlife Research (IZW), Boston University and Cornell University, found evidence that fruit-eating bats take up large amounts of mineral rich water and clay from so-called mineral licks to detoxify the secondary plant compounds they ingest in fruits.

Bats include more than 1200 species, represent the second most species rich mammalian group and are important seed dispersers in tropical rain forests. Dr. Christian Voigt and his colleagues captured pregnant and lactating bats at mineral licks in the Amazonian rainforest of Ecuador.

“At first glance it seemed that bats visit these sites for the same purpose as other animals such as large tapirs or birds, i.e. to meet their daily mineral requirements,” Voigt describes their initial thoughts when they

started the study. Bat mothers have particularly high mineral demands, because their juveniles cannot be weaned before they have reached almost adult size.

“To our amazement, we found fruits to be relatively rich in minerals compared to insects,” states Dr. Voigt. In the present study, the researchers focused on one bat species that feeds on both fruits and insects.

The study demonstrates that although insects and not fruits had a low mineral content insufficient for bat reproduction, only bats with a fruit-dominated diet visited mineral licks. The researchers assume that female bats ingest more fruits than usual during pregnancy and lactation. Therefore, they are directly exposed to the detrimental effects of secondary plant compounds.

Female bats seem to be able to compensate the toxicity of secondary plant compounds by consuming mineral rich clay or water. Local people in Africa and South America or Africa are also familiar with the detoxifying qualities of mineral-rich clay and consume it during pregnancy and lactation. It seems as if humans and bats have found a similar solution for a shared problem.

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