

Functional morphology of the proboscis of fruit-feeding tropical butterflies

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Charaxinae are the only butterflies that perform fruit-piercing behavior among fruit-feeding Nymphalidae. Aim of this study is the first description of this behavior and analysis of the functional morphology of their proboscis.

The behavior was analysed with videos that were made in the glasshouse, and the morphology of the proboscis is presently studied using various techniques of micromorphology.

The individuals of *Consul fabius* mainly performed two techniques of fruit juice feeding:

(1) The proboscis performed dabbling movements on the fruit surface. The slits of the dorsal side in the proboscis tip region/drinking region enable the uptake of fruit juice/liquid food.

(2) *Consul fabius* showed piercing behavior of the fruit. This behavior was described for the first time in detail in butterflies. In some cases, the proboscis was stung more than 10 mm into the fruit with anti-parallel movements of the two galeae. These movements opened up the food canal at the apex of the proboscis enabling uptake of the sap.

Results from Confocal Laser Scanning Microscopy indicated a changing composition of the cuticle from proximal to the tip of the proboscis. The sensory equipment and the anatomy of the proboscis will be analysed and compared with other fruit feeding butterflies and moths.