

Supplementary Materials for Nectar uptake in bats using a pumping-tongue mechanism

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The PDF file includes:

Fig. S1. Cross section showing the size and extension of lateral grooves in the tongue of *L. robusta*.

Fig. S2. Tongue of a drinking *L. robusta* showing the row of triangular papillae covering the entrance to the lateral canal.

Legends for videos S1 to S4

Other Supplementary Material for this manuscript includes the following:

(available at advances.sciencemag.org/cgi/content/full/1/8/e1500525/DC1)

Video S1 (.mov format). Nectar-lapping *G. soricina* (detail).

Video S2 (.mov format). Feeding *L. robusta* (overview).

Video S3 (.mov format). Tongue of *L. robusta* (detail, lateral view).

Video S4 (.mov format). Tongue of *L. robusta* at near-maximum extension (detail, lateral view).

Supplementary Materials

Figure S1

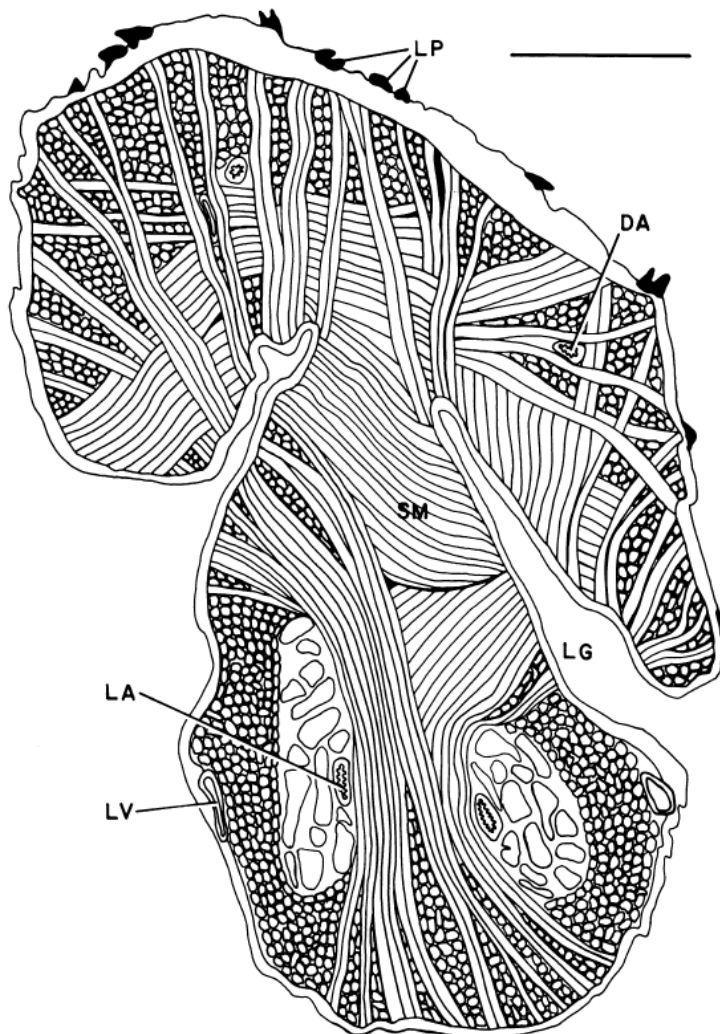


FIG. 29. Cross section of the tongue of *Lonchophylla robusta*. Bar = 1 mm. DA = dorsal artery, LA = lingual artery, LP = lingual papillae, LV = lingual vein, LG = longitudinal groove, SM = skeletal muscle.

Fig. S1: Cross section showing size and extension of lateral grooves in the tongue of *L. robusta*. Bar indicates 1 mm length; LG indicates interior of the latitudinal groove. Fig. 29 from Griffiths 1982 [10].

Figure S2:



Fig. S2: Tongue of a drinking *L. robusta* showing the row of triangular papillae covering the entrance to the lateral canal.

II. Movies:

Video S1: Nectar-lapping *G. soricina* (Detail). In each lapping cycle hairlike papillae trap a nectar coating around the tongue that is transported into the mouth (nectar presented 20 mm below the feeder opening; time expansion 75 x)

Video S2: Feeding *L. robusta* (overview), illustrating the constant contact between the tongue and nectar throughout the entire visit (nectar level 20 mm; time expansion 50 x).

Video S3: Tongue of *L. robusta* (detail, lateral view). Nectar is transported through the canal through pumping movements of the canal structures (nectar level 20 mm; time expansion 75 x).

Video S4: Tongue of *L. robusta* at near-maximum extension (detail, lateral view). Feeding is even possible when only the tip of the tongue is in contact with the nectar, as illustrated by nectar appearing in the canal starting at 00:13 s (nectar level ca. 38 mm; time expansion 75 x).