

# Stridulation in the wild kissing bug *Mepraia spinolai*: description of the stridulatory organ and vibratory disturbance signal

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## Abstract

Stridulation is a type of communication in which a mechanical signal is emitted by the friction of two rigid structures. Stridulation is present in kissing bugs (Reduviidae: Triatominae), where the friction of the proboscis against the prosternal stridulatory sulcus generates a vibroacoustic signal. In the present study, we combine microscopy techniques with laser Doppler vibrometry recordings to describe the morphology of the stridulatory sulcus and the vibratory disturbance signal emitted by the kissing bug *Mepraia spinolai*. We describe the morphology of the female sulcus, and those of the three alary morphotypes present in males (micropterous, brachypterous, and macropterous). The vibratory disturbance signal was measured in females and micropterous males. The sulcus shape and location are similar to other triatomine species. The number of ridges is higher, and the distance between them is shorter in *M. spinolai* as compared to other triatomine species. We found morphological differences between alary morphotypes but did not between sexes. Stridulation consisted of two chirps of different duration and spectral composition. Also, the spectral properties differed between sexes. Females presented higher frequency components. The association between morphology and signal structure is unclear in triatomines, and further studies are required to elucidate the biomechanics of kissing bug stridulation.

## Palabras clave

**Palabras clave de autor:** [Stridulatory sulcus](#); [disturbance stridulation](#); [Mepraia spinolai](#); [Triatominae](#); [triatomine biotremology](#); [insect communication](#)

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