

ADULT-LARVAE VIBRATIONAL COMMUNICATION IN PAPER WASPS: THE ROLE OF ABDOMINAL WAGGING IN *POLISTES DOMINULA*

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Communication through substrate-borne vibrations is widespread among social insects and regulates fundamental aspects of social life. Females of paper wasp, *Polistes dominula*, by performing an abdominal oscillatory behavior known as “abdominal wagging” (AW), are able to produce vibrations which propagate through the nest. Because it is widely recognized that AW is strictly associated with the presence of larvae in the comb, it has been suggested that AW might represent an adult-brood vibrational signal. Indeed, substrate-borne vibrations would have short-term effects related to food and trophallactic exchanges between adult and larvae. According to this, two opposite hypotheses have been proposed: a) vibrations could prepare larvae to receive food by decreasing the amount of salivary secretion, or b) they could be used by adult to stimulate the release of nutrient larval saliva.

Here, we used an electro-magnetic shaker to play back the *P. dominula* vibrations on nests containing larvae. We assessed, for the first time, the short-term effect of abdominal wagging on larval behavior by recording larval response and by measuring the amount of saliva released immediately after abdominal wagging playback.

Our results show that larvae a) are able to perceive the substrateborne vibrations and b) react to abdominal wagging by increasing the movement of their body, likely to attract the attention of adult females during feeding inspection. Nevertheless, vibrations neither increase nor decrease the release of larval saliva.

Although our results support the alleged role of vibrations in adult–larvae communications, they do not support the hypothesis about salivary release modulation.