

EVALUATION OF SOCIAL BEHAVIOR BASED ON VIBRATIONAL SIGNALS OF *PHILAENUS SPUMARIUS* IN SEMI-FIELD CONDITIONS

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Communication by substrate-borne vibrational signals underlies insect social and ecological interactions in a complex vibrational environment containing interference from other species and sources of noise. In many hemipteran species, mating behavior is mediated by vibrational signals that are emitted in different social contexts: individuals, pairs, and groups. The meadow spittlebug *Philaenus spumarius* (Hemiptera: Aphrophoridae) is the main vector of *Xylella fastidiosa* that is the causal agent of the Olive Quick Decline Syndrome in the Apulia region (Italy). The aim of our study was to investigate the communication behavior between individuals of the same sex of *P. spumarius* and to evaluate the temporal pattern of the emitted vibrational signals.

To exclude sexual interactions, the studied groups consisted of only males and only females, from 6 to 10 individuals. They were observed simultaneously but in two different net-cages, each containing two grapevine plants. Recordings were performed outdoors, in semi-field conditions, via two laser vibrometers. To evaluate the seasonal pattern of the insect vibrational signaling activity the trials were carried out from June to the end of September in three periods of the day: from 06:30 to 11, from 11:30 to 16 and from 16:30-21.

Our results indicate that males interact significantly more than females. Since no clear aggregation behavior was observed through the day or the season, the signals seemed to underlie competition or territoriality. The next step will be to test the male signals as playback to either disrupt or disturb individuals on their host plants.