

THE ROLE OF VIBRATORY SIGNALS IN MATING BEHAVIOUR OF THE SUNN PEST BUG, *Eurygaster integriceps*

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Abstract - The Sunn pest, *Eurygaster integriceps* Puton (Hemiptera; Heteroptera; Scutelleridae) is the most damaging insect pest of wheat and barley in countries of West Asia. This study aimed to characterise vibratory signals produced by male and female *E. integriceps* and to investigate the role of these signals in intraspecific communication, both in the presence and absence of odour signals from the insects. The male "calling song" consists of short chirps repeated at a regular intervals with a call rate of 4.6 chirps/sec, mean chirp duration of 0.085 sec and inter-chirp interval 0.17 sec. When approached, a second male typically produces a distinctive agonistic call or "rivalry song" in which chirps are repeated at a much faster rate of 10.4/sec. Females occasionally call spontaneously, but they are much more likely to do so in response to male calling song, or indeed when any other conspecific is nearby. The female song structure does not differ from the male calling song in its chirp rate, although it is generally produced at lower amplitude and the vibratory movements generating the calls are not always evident. Typically the chirp rate increases as the male gets close to the female, and once mounted with genitalia engaged, vibratory signals subside. A Y-track bioassay system was developed and when vibratory signals produced by live insects were used as source, male bugs were significantly attracted to signals from both females and males. Females were not attracted to signals from either sex. When recorded signals were used as source, rather different results were obtained in that females were significantly attracted to signals from males and males were not attracted to signals from males or females. In the presence of odour collected from male bugs on Porapak, females showed no preference for vibratory signals from live males or the recorded signal. The role of vibratory signalling in mate location in this species and the interaction of these signals with production of volatiles are discussed.

Key Words - Sunn pest, *Eurygaster integriceps*, Hemiptera, Heteroptera, Scutelleridae, vibrational signals, intraspecific communication.