

CHEMICAL AND VIBRATORY COMMUNICATION IN SPIDERS

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In spiders, silk and silkwork not only contribute to prey catching, but also constitute a means of communication (WITT, 1975 ; WITT and ROVNER, 1982 ; LEBORGNE, 1981). The silk can support tactochemical informations (KRAFFT and ROLAND, 1980) and is favourable to the transmission of vibratory phenomena (KRAFFT and LEBORGNE, 1979).

Our experimental design for the study of tactochemical informations involves observing the choice of a spider in a T-maze as a function of stimuli previously placed in the maze (KRAFFT and ROLAND, 1979). These stimuli can be : a silk substrate freely laid by an individual or a thread extracted from an anesthetized spider and placed into the maze by the experimenter.

Results obtained show that silk is not only a mechanical signal. There is a factor associated with the silk that enables the male to orient its movements (ROLAND, 1982). The nature of this specific, sexual factor has not yet been determined but it is probably, a pheromone.

Before contact with the female and without female reaction, males introduced on female's web exhibit particular behaviours. This suggests the effect of a tactochemical factor (pheromone) on the expression of these behaviours that are at the origin of vibratory phenomena on the web.

Analysis of these phenomena was made thanks to a recording device (LEBORGNE and KRAFFT, 1979). Results show a specific, sequential and repetitive organization of these phenomena that are described in terms of "motif", like some sound signals. Such complex organization makes it possible to use vibratory signals as genuine taxonomic criteria.

In sympatric species, like *Tegenaria domestica* and *T. pagana* chemical and vibratory signals used, certainly, play a part in the interspecific barrier : the factor bound to the silk promotes 1) males'orientation towards specific female silk substrate and 2) the release of male vibratory courtship behaviours. These latter can serve for recognition and reactivity assessment of the conspecific, particularly in *T. domestica* in which female can have vibratory response (LEBORGNE et al., 1980).

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