

EICHHORNIA CRASSIPES – *NEOCHETINA EICHHORNIAE* ASSOCIATION: IMPORTANCE OF OLFACTORY ATTRACTION ON IPM STRATEGIES

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Eichhornia crassipes (Fig. 1) is the most important aquatic weed in Portuguese central lowlands and has been controlled by mechanical and chemical methods.

In other countries the weevil *Neochetina eichhorniae* (Fig. 2), is considered one of the most successful biological agents. The release of relatively high numbers of *N. eichhorniae* suppresses regrowth of incipient water hyacinth colonies better than low-densities releases or natural infestations. There is evidence that water hyacinth semiochemicals function to attract *N. eichhorniae*. In order to evaluate and optimise semiochemical mediated devices for trapping live weevils for conservation or augmentative releases of *N. eichhorniae* for biological control of *E. crassipes*, we studied the weevil-host olfactory attraction.

Fig. 1. *Eichhornia crassipes* (C. Martius) Solms-Laubach.



Fig. 2. *Neochetina eichhorniae* Warner (female)

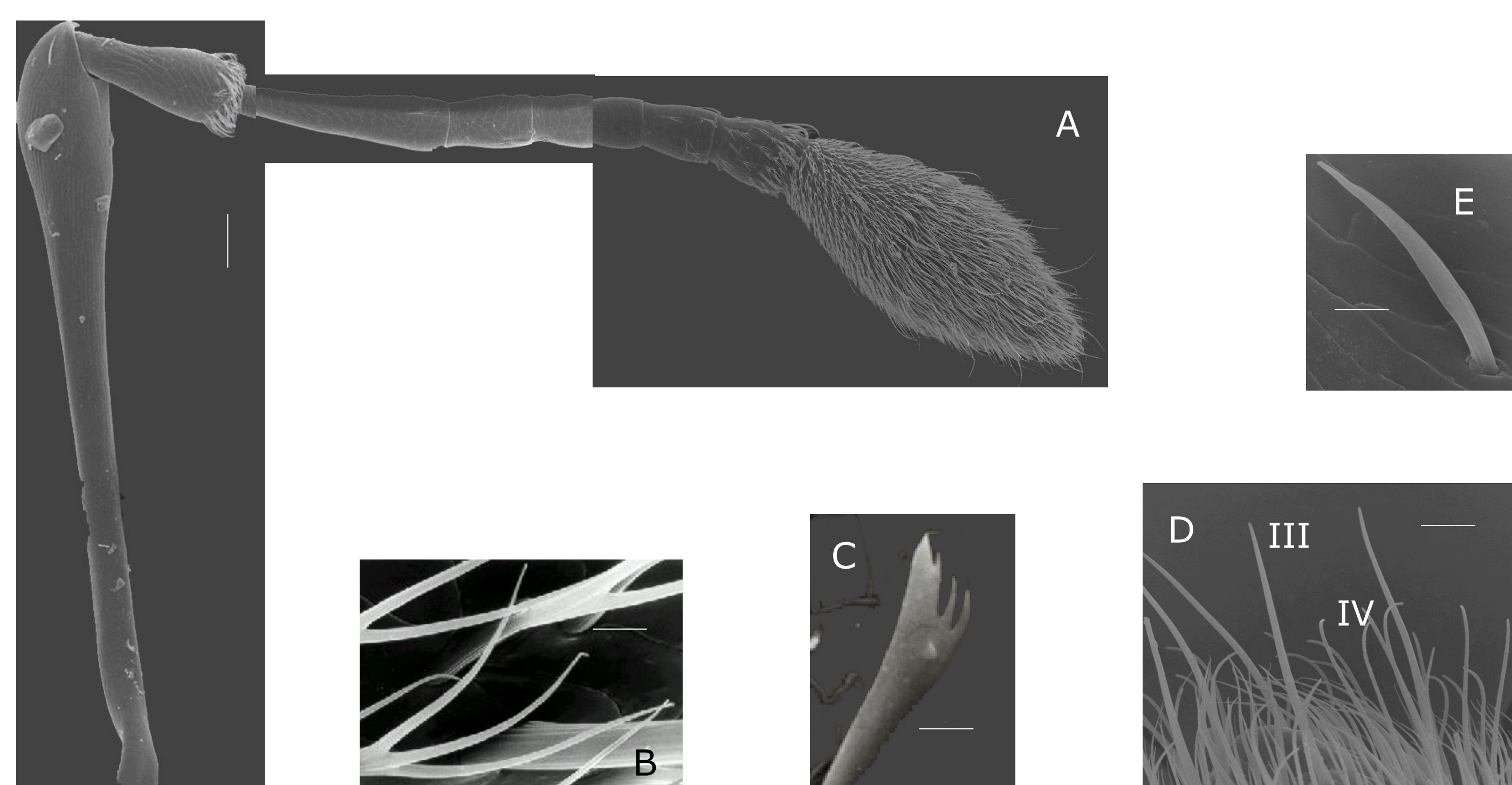


Fig. 3. Scanning electron micrograph of antennal sensilla in adult *Neochetina eichhorniae*. A. Antenna (Bar = 50 μ m). B. Hair type I (Bar = 16 μ m). C. Hair type II (Bar = 8 μ m). D. Hair types III (trichodea) and IV (chaetica) (Bar = 14 μ m). E. Hair type V (basiconica) (Bar = 3 μ m).

The study of the antennal fine structure of *N. eichhorniae* revealed twelve morphologically distinct sensillum types, aggregated into five main types (Fig. 3). Types I and II, different from sensilla found in other insects, were found in all antennomeres. Types III (sensilla trichodea), IV (sensilla chaetica) and V (sensilla basiconica), situated on the antennal club, are chemoreceptors.

E. crassipes emits a small variety of volatiles (Fig. 4) and the weevils only showed strong attraction to two alcohols (2-ethyl-hexanol and 3-hexen-1-ol), which are usual components of epicuticular waxes.

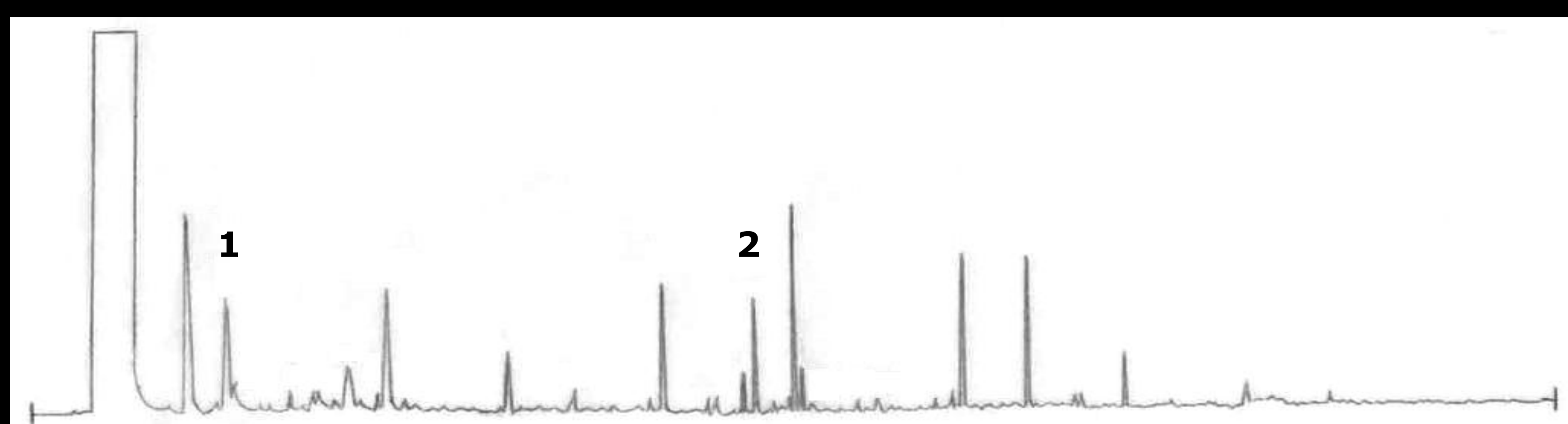


Fig. 4. Gas chromatogram (GC) of headspace volatiles from *Eichhornia crassipes*. Peak 1: 3-hexen-1-ol; peak 2: 2-ethyl-1-hexanol.

The weak attraction revealed to water hyacinth volatiles might suggest a stronger importance of visual rather than chemical clues on host-plant detection.

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