Effect of host defense chemicals on clonal distribution and performance of different genotypes of the cereal aphid Sitobion avenae

Figueroa, Christian C.

Simon, Jean Christophe

Le Gallic, Jean Francois L.E.

Prunier-Leterme, Nathalie

Briones, Lucia M.

Dedryver, Charles Antoine

Niemeyer, Hermann M.

Five microsatellite loci were used to study the genetic variability and population structure of Sitobion avenae (Hemiptera: Aphididae) on some of its host plants. Individuals were collected in Chile from different cultivated and wild Poaceae. Forty-four multilocus genotypes were found among the 1052 aphids analyzed, of which four represented nearly 90% of the sample. No specialist genotypes were found, although some preferred hosts endowed with chemical defenses, i.e., hydroxamic acids (Hx), while others preferred comparatively undefended hosts. Performances of some predominant and some rare genotypes were evaluated on plants differing in their Hx levels. Significant differences in performance were found among clones, the two most common genotypes showing no differences in performance among all hosts tested, and the rare genotypes showing enhanced performance on the host with highest Hx level. A hypothesis is proposed whereby the appearance of rarer genotypes is in part related to the