Behavioural differences between Aphidius ervi populations from two tritrophic systems are due to phenotypic plasticity

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The Palaeoarctic parasitoid Aphidius ervi Haliday (Hymenoptera, Aphidiidae) parasitises legume aphids in its region of origin. In Chile, it parasitises both legume and cereal aphids. This special situation was studied at two levels: (i) the host searching behaviour of A. ervi from two different tritrophic systems (Acyrthosiphon pisum on alfalfa and Sitobion avenae on wheat) was investigated in dual choice tests in a wind tunnel between odours from both A. pisum-alfalfa host plant complex (HPC) and S. avenae-wheat HPC, and (ii) the genetic structure of A. ervi populations from both sources using molecular markers. Responses of A. ervi females to volatile olfactory cues emanating from A. pisum-alfalfa HPC and S. avenae-wheat HPC were significantly higher towards the HPC on which they were reared during the last generation before experimentation, regardless of the origin of the parasitoid. As previously described for this parasitoid species, oviposition experience was also of major releva