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MARKERS OF OVIPOSITION PREFERENCE FOR THE ASIAN CITRUS PSYLLID.

Carmen Rossini[1]; María E. Amoros[1]; Anna P. Gurgueño[1]; José Buenahora[2].

[1]Laboratorio de Ecología Química, Facultad de Química; [2]Instituto Nacional de Investigación Agropecuaria. Inia Salto Grande.

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ABSTRACT: The Asian citrus psyllid (ACP) is the vector of Huanglongbing, the most destructive citrus disease. Preliminary work has shown that ACP prefers to oviposit on Duncan grapefruit and Sweet Orange. Rough, Eureka and Cravo lemons showed variable results, whereas Citron was not preferred. Searching for biomarkers that may serve as kairomones for ACP females, the volatile organic compounds (VOCs) and the $CDCl_3$ and D_2O extracts from shoots of the mentioned varieties (N = 6/species) were analyzed by GCMS and NMR respectively. All processed data were submitted to multivariate analyses (MetaboAnalyst4.0). For the D_2O extracts, the chemical profiles of Sweet orange and Duncan grapefruit were grouped; being different from the profiles of Citron while the Eureka, Cravo and Rough lemons exhibited intermediate profiles. These results correlated to the oviposition preference (PLS model, permutation test: P = 0.048). Correlation was traced to chemical shifts in the NMR spectra corresponding to compounds with aromatic and sugars moieties in their structures. Among the 81 VOCs characterized, limonene and a mixture of limonene, (E)-β-ocimene, Methyl N-methylanthranilate, β-elemene and β-caryophyllene exhibited different ACP capture ratios than the control in 2-choices cage experiments (GLM, P <0.05). These results suggest that the ACP could use a combination of volatile and non-volatile cues to choose its oviposition plants.