



## Volatile organic compounds. How to measure and apply their biological activities?

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Discovering and elucidating many new volatile compounds over the last few years, made us to understand the complexity and diversity of this group of natural products. In addition, both the in vitro and in vivo activities of these compounds and their mixtures, is being extensively studied, allowing discovering and introducing novel fields of application. In this work we present three examples where the study of volatile organic compounds was focused on different potential applications. These are: a) The chemotaxonomic interpretation of certain volatile compounds as markers of some *Baccharis* species. The results to be presented are related to new findings on the role of carquejol and carquejyl acetate in the identification of *B. trimera*. Also are shown differences in flower aroma between male and female specimens of *B. articulata* and their ecological significance in the attraction of pollinating insects (1,2); b) The use of volatile compounds from honeys to identify volatile marker compounds specific for citrus honeys. Usually, the assessment of honey's botanical and geographical origin is very complex. In particular, for citrus honeys which present a limited number of pollen granules. The use of gas chromatography-olfactometry (GC-O) allowed identifying sensory active compounds which, through chemometric analysis, allowed us to provide complementary data to certify monofloral citrus honeys. Results of a fast and complementary application developed, using volatile compounds and NIR measures on honeys, will be also presented (3). c) A worldwide effort to explore alternatives that control postharvest diseases by applying methods with a minimal impact on human health and environment is again an emerging topic for research. In agreement with this tendency, we will present results obtained in the use of essential oils from Uruguayan native plants to control fungus diseases in blueberries and citrus during their storage and transport (4). Different extraction processes (hydrodistillation, SDE, purge-and-trap) and instrumental applications (GC-MS, GC-O, NIR) adapted, or developed, for our needs also will be presented.

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