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RESUMEN DEL SEGUNDO SEMINARIO INTERNACIONAL DE SANIDAD AGROPECUARIA (SISA)

Towards the development of botanical fungicides based on essential oils from Uruguayan native plants

Hacia el desarrollo de fungicidas botánicos basados en aceites esenciales a partir de plantas uruguayas nativas

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The main objective of this work was to determine the possible application of essential oils (EOs) as antifungal agents against common citrus and blueberry postharvest pathogens. South American native plants growing in Uruguay were selected to identify their chemical components and to assess the *in vitro* and *in vivo* inhibitory capacity against the fungi *Guignardia citricarpa*, *Penicillium digitatum,* and *Alternaria tenuissima*. The chemical composition of EOs from native plants was determined by gas chromatography-mass spectrometry (GC-MS). In parallel, the percentage of inhibition of these EOs on *G. citricicarpa* and *A. tenuissima* development was evaluated by using the volatile phase test (TFV) and agar dilution test (TDA). For *P. digitatum*, besides TFV test, the bioautography technique on thin layer chromatography was applied. Volatile phase activity of EOs was assessed *in vivo* on blueberry fruits and sensorial studies were also performed. In citrus fruit, for *in vivo* assays, EOs were included in nanoparticules that were further incorporated in protein-based edible films. EOs extracted from *Lippia alba*, *Ocimum selloi,* and *Baccharis trimera* plants exhibited a 100% inhibition (*in vitro* and *in vivo* fase volatile test) on *A. tenuissima*. Nevertheless, the EO from *B. trimera* altered fruit taste. The EOs from *Chenopodium ambrosioides, Conyza bonariensis, Pluchea sagittalis, Baccharis salicifolia, Acca sellowiana, Eugenia uniflora,* and *L. alba* showed *in vitro* fungicidal action against *P. digitatum*, but only the former showed an effect on *G. citricarpa* mycelial growth. Moreover, *C. bonariensis* and *B. trimera* EOs displayed anti-sporulation activity on *G. citricarpa* and *P. digitatum*, respectively. Edible films enriched with EO from *L. alba* were not able to control *P. digitatum* in artificially inoculated Clemenules mandarins. Results suggest good perspectives and highlight the importance of future research in doses, application methods and new formulations in accordance with each EOs properties.