

RESUMEN DEL SEGUNDO SEMINARIO INTERNACIONAL DE SANIDAD AGROPECUARIA (SISA)

Biopesticides: biotechnology and natural products chemistry

Bioplaguicidas: biotecnología y química de productos naturales

Azucena González-Coloma

Instituto de Ciencias Agrarias, CSIC, Serrano 115-dpdo, 28006, Madrid, Spain. E-mail: azu@ica.csic.es.

Biopesticides offer a more sustainable solution to pest control than synthetic alternatives. As chemical pesticides are withdrawn owing to resistance problems or because they are no longer commercially viable, an opportunity arises for biorational solutions. Botanical pesticides do not present the residue problems which are a matter of significant concern for consumers who demand the application of environmentally friendly products to food commodities. In that context, an important means of searching for natural crop protectants is screening bioactive compounds from renewable natural resources such as waste products of horticultural and agricultural production, cultivated as well as wild foods and spices, ornamentals and rare plant species. As a part of our ongoing efforts to create a library of new raw materials with potential biopesticide applications, we present here the results on the selective screening of plants and agriwastes and fungal endophytes as a cheap and/or sustainable source of new, active chemicals. Key steps include the bioprospection and characterization of new raw materials followed by metabolomic profiling of the bio-active extracts and identification of the active compounds. Biocidal screening comprises specific bioassays against selected targets that cause severe economic damage to crops and include insect pests (*Spodoptera littoralis*, *Leptinotarsa decemlineata*, *Myzus persicae* and *Rhopalosiphum padi*), phytopathogenic nematodes (*Meloidogyne javanica*), fungi (*Fusarium* sp.) and plants (*Lactuca sativa* and *Lolium perenne*). Results of metabolomic study of extracts by the means of GC-MS, LC-MS and NMR will also be presented. Prioritized extracts have been submitted to bioassay / metabolomics-guided fractionation to isolate the active compounds by means of chromatographic techniques. Structure-activity studies (SAR) are also discussed.