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| Title | Extraction of bioactive products as pest control agents |
| PI | Dall'Acqua Stefano |
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MAX 1 PAGE !!**Project description:**

The search for new pest control active agents which exhibit efficient activity as well as increased safety, is urgent and in the recent time is the extremely rich resource of natural products have been studied in this field. Thanks to the established collaboration with international group working in the field of pest control agents and antiparasitic compounds the project will be focused on the the discovery, identification, or study of the molecular mode of action of active natural agents as bi-pesticide and antiprotozoal agents. Extraction of compounds separation using state of the art techniques and analytical hyphenated approach (LC-MS, GC-MS) will be used furthermore the most active compounds will be isolated and describing in detail the chemical structures by the means of MS and NMR approaches.

Publications specific to the aim of the project:

Benelli, G., Pavela, R., Petrelli, R., Cappellacci, L., Santini, G., Fiorini, D., Sut, S., Dall'Acqua, S., Canale, A., Maggi, F. The essential oil from industrial hemp (*Cannabis sativa* L.) by-products as an effective tool for insect pest management in organic crops (2018) *Industrial Crops and Products*, 122, pp. 308-315.

Sut, S., Dall'Acqua, S., Baldan, V., Ngahang Kamte, S.L., Ranjbarian, F., Biapa Nya, P.C., Vittori, S., Benelli, G., Maggi, F., Cappellacci, L., Hofer, A., Petrelli, R. Identification of tagitinin C from *Tithonia diversifolia* as antitrypanosomal compound using bioactivity-guided fractionation (2018) *Fitoterapia*, 124, pp. 145-151.

Sut, S., Pavela, R., Kolarčik, V., Lupidi, G., Maggi, F., Dall'Acqua, S., Benelli, G. Isobutyrylshikonin and isovalerylshikonin from the roots of *Onosma visianii* inhibit larval growth of the tobacco cutworm *Spodoptera littoralis* (2017) *Industrial Crops and Products*, 109, pp. 266-273.

Sut, S., Pavela, R., Kolarcik, V., Cappellacci, L., Petrelli, R., Maggi, F., Dall'Acqua, S., Benelli, G. Identification of *onosma visianii* roots extract and purified shikonin derivatives as potential acaricidal agents against *tetranychus urticae* (2017) *Molecules*, 22 (6), art. no. 1002.

Collaborations/Network:

University of Camerino, University of Pisa, Crop Research Institute of Prague, Umea University, for test on parasites and pest agents.

Research funding:

NPL lab have active research project (Unimpresa) and several funding from Industries.