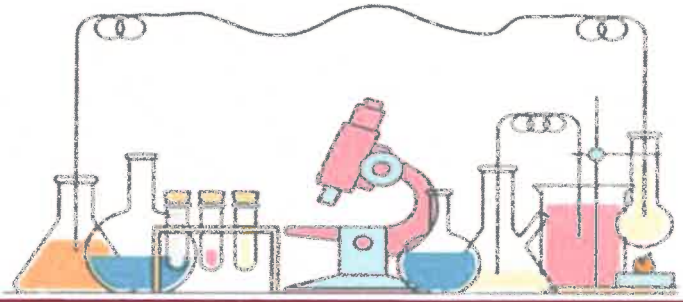

3rd Symposium on Medicinal Chemistry of University of Minho

May 26th, 2017

School of Science, Chemistry Department

University of Minho, Campus of Gualtar

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Posters

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Evaluation of the bioactive properties of a secondary metabolite produced by *Penicillium nordicum*

A. Wierzbińska[a], L. Barros[a], M. Sulyok[b], I.C.F.R. Ferreira[a], P. Rodrigues[a]

[a] *Centro de Investigação de Montanha (CIMO), ESA, Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal*
[b] *University of Natural Resources and Life Sciences, Department for Agrobiotechnology, IFA-Tull, Konrad Lorenz Str.20 - 3430 Tulln, Austria*

Fungi of the genus *Penicillium* are promising sources of bioactive substances. Fungal strains isolated from poorly characterized habitats are currently under active investigation as potential producers of biologically active compounds. *Penicillium nordicum* is mostly known by its ability to produce the mycotoxin ochratoxin A in several protein- and salt-rich food matrices like processed meat and cheese, but it can also produce an array of other secondary metabolites. In a previous study, strains of this species were found to produce, under specific growth conditions, one unidentified compound in apparently big amounts, without producing ochratoxin A.

The aim of the present study was to evaluate the bioactive properties of this compound in terms of antioxidant, antimicrobial, cytotoxic and herbicidal properties. For that purpose, the fungus was grown on ham-based medium and the aqueous extract of the compound was used for further tests.

The extract showed significant effects on seed germination as well as on root and shoot growth of tomato, lettuce, wheat and oat. The root growth inhibition ranged from 74% to 98%, and the shoot growth was reduced in 23 to 88%, being tomato the most sensitive plant. The extract did not show any cytotoxic activity in non-tumor porcine liver primary culture cells and human tumor cell lines. The antibacterial effect on human clinical isolates and antifungal effect on foodborne and environmental isolates was also not significant.

Pestalotin was the predominant compound in the fungal extract, with questiomycin and 7-hydroxypestalotin also being found at lower concentrations, as detected by Liquid Chromatography-Mass Spectrometry (HPLC-MS/MS) based multi-metabolite method.

The extract was considered as a potential bioherbicide without noticeable negative effects on human and animal cells and also on the environment. Further tests on herbicidal potential are now under development.

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