Isolation and structure elucidation of bioactive secondary metabolites from fungi.

Name: Root Natalia
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For all the numerous biologically active metabolites that are currently known, it is still necessary to find novel metabolites. The emergence of resistant strains particularly towards antibiotics demands the use of alternative substances with more potent antimicrobial activity. Reduction of secondary effect is another reason for finding new metabolites.

For over a thousand year, man utilized the symbiotic activity of microorganisms for his own purpose. Fungi are one of the microorganisms which exhibit a specific symbiotic relationship with other organisms. Fungi produce secondary metabolites which are substances that do not influence the growth of the producer strain but can be strongly inhibitory to other organisms.

This research work is concerned with the production, isolation and structure elucidation of secondary metabolites from Fungi. In the course of a microbial screening process, fungi were isolated from soil samples collected in Braunschweig as well as from several plant materials known to harbor endophytes. The isolated fungus of interest was cultivated in the Technical University of Braunschweig for a period of 70 days. The aim of this doctoral thesis is to search for novel chemical compounds fungi exhibiting medicinal and pesticidal applications. Compounds having new and known chemical structures were detected and subsequently characterized. Out of the eleven compounds that were isolated, six have already known chemical structures. Two compounds (preussomerin G and natural product "P") are potential antimicrobial agents active against the fungi *Phytophtora* and *Pyricularia* and against the Gram-positive bacterium *Bacillus megaterium*.

Moreover, the isolate natural product 1 showed inhibitory activity against the Interleukin Converting Enzyme (ICE). The production of natural product 1 has already been optimized thereby making it possible to obtain this compound at a higher yield.

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