The plant pathogen fungus *Cochliobolus lunatus* – genome annotation: cytochromes P450, toxins – current status

Nada Kraševec, National Institute of Chemistry, Laboratory for Biosynthesis and Biotransformation (L11), Ljubljana

Fungi have huge positive and negative impact on our daily life. They produce metabolites, antibiotics and enzymes which are already used in a wide range of applications from medicine to laundry. In fact they serve as industrial bio-factories and represent key players of white biotechnology. But they also produce potent toxins that spoil our food and infect immuno-compromised patients which leads to increasing costs for both crop protection as well as public health. It is believed there are approximately $1.5\ 10^6$ fungal species in the world, but less than 5% of them have been described. I would like to focus on the plant pathogen Dothideomycete fungus *Cochliobolus lunatus.* The genome of this filamentous fungus has been determined recently, a current status of annotation will be reported.

Cytochromes P450 are important in evolution for adapting fungus to novel ecological niches. They play a role in hydroxylation and oxidation processes leading to degradation, detoxification and syntheses of life crucial compounds. Our progress in identification of cytochromes P450 will be presented. Due to appearing resistances and new registration demands, there is a constant need for new fungicides for (crop) disease control. Compounds with new mode of action and more favorable (eco) toxicological properties are necessary. Benzoate p-hydroxylase or CYP53A15, is a promising antifungal target since it seems to be distributed in most of filamentous fungi and have no homolog in higher eukaryotes. Results of our research have identified some inhibitors which could serve as lead compound for further development of (phyto) pharmaceuticals.