

Toxin production by *Sarocladium oryzae*, the major sheath rot pathogen of rice

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Sheath rot is a very aggressive, emerging disease of rice. During the last decades, the disease has spread all over the world and has the power to destroy the total yield of a growing season. The major pathogen causing this disease is a fungus, called *Sarocladium oryzae*. This fungus produces at least two toxic compounds, helvolic acid and cerulenin. Helvolic acid is not only toxic for the plant, but also for other bacteria, while cerulenin is toxic for other fungi. According to the literature, exogenous application of both toxins can mimic sheath rot symptoms, but a clear correlation of these toxins with disease severity has not been demonstrated. The goal of this research is to study the diversity of *S. oryzae* isolates from Rwanda and their capacity to produce toxins. Therefore, we measure helvolic acid and cerulenin *in vitro* and *in planta* using LC-MS and study the genetic capacity to produce toxins using PCR with specific primers. Toxin levels were correlated with the pathogenicity of different *S. oryzae* isolates after rice inoculation using the grain inoculum technique. Results show that *S. oryzae* isolates differ tremendously in their toxin production. Ongoing research will further elucidate the role of these toxins in phytotoxicity.

Keywords: *Sarocladium oryzae*, helvolic acid, cerulenin, sheath rot