

ABSTRACTS OF DOCTOR DISSERTATIONS

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THE OCCURRENCE OF FUNGI ON *AMARANTHUS* SPP.

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Key words: *Amaranthus* spp., amaranth, amaranth disease, *Phomopsis amaranthicola*

A study of fungi on *Amaranthus* spp. was performed in 2003–2005. The following forms of the genus were taken under consideration: cultivated amaranth (*A. cruentus*), wild form (*A. retroflexus*) growing as weed in amaranth plantations and in sugar beet plantations, and *A. retroflexus* growing as ruderal weed. The ornamental *A. paniculatus* grown in small gardens was also taken into account.

The health status of leaves and stems was estimated. Fungal communities in phyllosphere, roots, rhizoplane, and rhizosphere were also investigated in various cultivated forms of *Amaranthus*. Mycological analysis of cultivated, wild and ornamental form seeds was also performed. *Alternaria alternata* isolates were obtained from seeds of various amaranth forms. The species was considered potentially pathogenic to the plant and that is why the isolates were tested for their pathogenicity and their variability was investigated with the RAPD-PCR method.

The three years of investigation (2003–2005) resulted in describing symptoms in the form of dark spots on stems and leaves of *A. cruentus* and *A. retroflexus*. For the first time in Poland *Phomopsis amaranthicola* was isolated from *Amaranthus* stems. In leaves of *A. retroflexus* a lot of symptoms were caused by *Albugo amaranthi*.

Phomopsis amaranthicola was found most dangerous to *A. cruentus* crops (stems). Infestation of amaranth crops with the wild form – *A. retroflexus*, can contribute to increase stem spot occurrence on *A. cruentus*. *Phomopsis amaranthicola*, the causing agent of the stem spot disease both in cultivated and wild form, could possibly be considered for use in biological control of *A. retroflexus* in future.

The leaf spot causing fungi seem to be no threat to *Amaranthus* spp. The ornamental form of amaranth was most resistant to leaf, stem and root pathogens – no disease symptoms were found on it during the entire time of investigation.

Seeds of all examined *Amaranthus* plants were very often infested by *Alternaria alternata*. The fungus species is not a specific pathogen of amaranth, as all its isolates infested various forms of the host plant.

The population of *A. alternata* isolates from seeds displayed genetic variability in dependence on host plant and localization, yet the population was not numerous and so investigations should be continued to study the variability of *A. alternata* in detail.

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