Characteristics and ultrastructural studies of the mode of penetration by *Phyllosticta plantaginis* in ribwort leaves.

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Abstract

The studies in 2009-2011 were conducted on productive fields of ribwort (*Plantago lanceolata* L.) grouped in Poland. It was pointed to common colonization of leaves with symptoms of regular, necrotic spots by *Phyllosticta plantaginis* Sacc. This species has not been found in Poland before. Identification of isolates which were obtained through mycological analysis, using artificial culture method was carried out on maltose agar MA. Taking into consideration the study of morphological structures light and scanning electron microscopy SEM enabled the discovery of the structure of picnidial ostioles and the mode of extracting conidia from picnidia. *In vitro* pathogenicity tests were carried out to confirm the pathogenic character of Polish isolates of *P. plantaginis,* according to Koch's postulates. The study was conducted in moisture chambers and considered three methods of inoculation. For each method 150 leaves of ribwort (5 isolates x 30 leaves) were used. The observation of disease progress were performed for 12 days, after that on the basis of scale the index of infection was counted. The obtained results of the pathogenicity tests confirmed the pathogenic character of studied isolates of *P. plantaginis.* This was proved by high values of infection indexes in all methods of inoculation, the positive results of reisolation and the symptoms on the inoculated leaves were similar to those that are observed in natural conditions. The Koch's postulates were fulfilled. The ultrastructural studies of artificial inoculated leaves by conidial suspension using scanning electron microscope SEM led to analysis of the early infection stage and estimation of the mode of penetration by *P. plantaginis* in ribwort leaves. After 18 hours on the surface of inoculated leaves conidia formed germ tubes. After 25 hours on the end of germ tube the appressoria were observed. In the next 48 hours the infection hyphae penetrated into intercellular parenchyma through stomata. After 72 hours extensive networks of runner hyphae were observed on the leaves surface.