

In vitro growth of some species of *Ascochyta* Lib.

Research Article

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Received 23 April 2012; Accepted 28 August 2012

Abstract: Fungi from the genus *Ascochyta* are generally facultative saprotrophs, which cause diseases in both monocots and dicots. Over 1 000 species belonging to this genus have been identified, 18 of which infect monocot plants from the family *Poaceae*. This study analyses the effects of temperature and light on the growth of selected fungi which infect monocots (*A. agrostidis*, *A. avenae*, *A. brachypodii*, *A. desmazieri*, *A. digraphidis*, *A. ducis-aprutii*, *A. festucae*, *A. graminea*, *A. hordei*, *A. hordei* var. *americana*, *A. hordei* var. *europa*, *A. hordei* var. *hordei*, *A. melicae*, *A. phleina*, *A. skagwayensis*, *A. sorghi*, *A. stipae*, *A. zeicola*), grown on three types of media; Potato Dextrose Agar (PDA), Coon's agar (CN) and oatmeal agar (OMA). The fastest growth among the analyzed fungi at low temperatures was found in *Ascochyta melicae*, while at high temperatures it was *A. zeicola*. The fastest *in vitro* growth (average of all fungi) was observed on CN medium at 20°C (3.4 mm/day), while the lowest on OM medium at 5°C (1.0 mm/day). Radial mycelial growth in dark and the light conditions varied. On average, all isolates grew faster in the dark (3.1 mm/day) than in the light (1.9 mm/day). The greatest effect on the production of pycnidia was found for the isolates. Variation in growth and production of pycnidia depended on temperature, medium and lighting for fungi from the genus *Ascochyta* infecting monocots. Such variation indicates a potential occurrence of these fungi in different environments.

Keywords: Growth of fungi • Monocotyledonous plant pathogen

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1. Introduction

Most species of fungi from the genus *Ascochyta* are facultative saprotrophs. These organisms are known to cause diseases in a variety of mono- and dicot plants. In 1977, over 1 000 fungal species from the genus *Ascochyta* were described worldwide, though a large proportion of these species were later reclassified as synonyms. To date, no comprehensive description or classification of the species in this genus has been developed. *Ascochyta* fungi infect plants of the family *Poaceae*, with 18 plant species known to be diseased by members of this genus [1,2]. In the case of these host plants, the fungus is considered a “weak” pathogen (they become activated when the functioning of the immune system is disturbed or inhibited). Still, the fungi from the genus *Ascochyta* have the potential to infest commercially grown cereals, particularly wheat

and barley, and grasses [3-6]. Thus, it is important to identify the environmental requirements of these pathogens in order to provide better management strategies for plant protection. Determining optimal growth and sporulation conditions of these fungi may facilitate the identification of conditions that may lead to plant infestation.

2. Experimental Procedures

The experiments were conducted in vegetation chambers at constant temperatures of 5, 10, 15, 20 or 25°C. Additionally, the development of fungi was investigated in chambers kept at a temperature of 20°C with a 12-h light cycle using Osram L36W/76 artificial light and Philips TLD 36W/108 fluorescent lamps (180 W/m²). Analyzed isolates of fungi from the genus

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