GLADIOLUS RUST INOCULATION METHODS AND EVALUATION OF ISOTHIOCYANATES OF BOTANICAL EXTRACTS FROM PLANTS OF THE BRASSICACEAE FAMILY IN RUST CONTROL.

ABSTRACT

Gladiolus rust caused by Uromyces transversalis (Thümen) G. Winter is listed as a major quarantine disease in Mexico. In Mexico, this fungus is controlled by continuous fungicide applications, which can result in fungus resistance, risk to human health and environmental pollution. The objectives of this research were to identify the most adequate method of artificial inoculation of U. transversalis on gladiolus plants under laboratory conditions and in vivo, to identify the main isothiocyanates of the extracts from plants of the Brassicacea family, and to determine their fungicidal potential together with the isothiocyanates of benzyl and phenyl to control this fungus under field and greenhouse conditions. Experiments were carried out in the regions of Yautepec and Ayala, Morelos, Mexico, and at the Center for Development of Biotic Products (CEPROBI) at the Instituto Politecnico Nacional. The main parameters evaluated in the field were disease severity, affected area, percentage infection and disease progress. In the greenhouse only percentage of infection and disease progress were studied. The results associated with artificial inoculation by the methods of spraying and steaming resulted in infection of 2 to 3 plants. The main isothiocyanates identified in the extracts applied were phenyl, benzyl, 2- phenylethyl, alyl and propyl. In the experiments carried out in Yautepec and Ayala, plants treated with the extract at the concentration of 0.1 % had a lower percentage infection than those treated at 0.2 % and 0.5%. Under greenhouse conditions, the isothiocyanates of phenyl and benzyl exerted good control of the fungus. In plants treated with extracts and isothiocyanates under greenhouse and field conditions no phytotoxicity was observed.

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Revista: Chapingo – Serie Horticultura Volume 16, Issue 1, pages 13–22.