



University of Zabol
Graduate School
Faculty of Agriculture
Department of Plant Protection

The Thesis Submitted for the Degree of M.Sc
(in the field of Plant Pathology)

Title:

The resistance evaluation of some indigenous and non-indigenous luffa cultivars to fungus *Fusarium solani* the causal agent of Fusarium wilt disease

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Abstract:

Fungi constitute the largest number of plant pathogens and are responsible for a wide range of serious plant diseases. One of these diseases is fusarium wilt. The cause of this disease is Fusarium sp. It belongs to the Nectriaceae family, which attacks almost most plants of the gourd family, such as cucumbers, melons, and all kinds of squash, from the seedling stage to the time it becomes a fruit. One of the valuable plants that host this pathogen is Luffa from the gourd family (Cucurbitaceae) with the scientific name Luffa cylindrica, which can be cultivated in tropical and subtropical regions, including in most regions of Iran, and has various cultivars. In this research, the resistance of a number of indigenous and non-indigenous cultivars of loofah plant to Fusarium wilt disease was investigated. For this purpose, after infecting seedlings and growing them in pots, the rate of disease development in different cultivars was evaluated and qualitatively and quantitatively analyzed. These experiments were conducted in the form of a completely random design. SPSS version 24 software was used for statistical analysis of the data, and Duncan's multi-range test was used to compare the mean of the data at a probability level of 5%. In order to confirm contamination, a culture test was used in a plate. Also, in order to identify and confirm the pathogen causing the contamination, PCR test and sequence analysis of the amplified fragments with the help of ITS1, ITS4 standard primers were used. The large northern genotype with a disease index of about 82%, respectively, is the ultra-sensitive genotype of Tori and Longlofa, respectively. Disease indices of 44 and 26% were susceptible and genotypes of northern black seed, grooved, northern white seed and Afghani were placed in the resistant group with indices of 0, 0, 0, 15 %, respectively.

KEYWORDS:Pathogenicity,squash, fungal diseases