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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
genotypes to fungus *Verticillium dahliae kleb* the causal agent of
*Verticillium wilt***

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Summer 2022

Abstract

Fungi, as one of the pathogenic agents in plants, play a different role in human life. Fungi are a very large and diverse group of pathogenic microorganisms in plants. One of the fungal diseases in plants is verticillium wilt disease, which is caused by *Verticillium* sp. It is created and causes wilting and in severe cases it causes the death of the plant. The causative agent of this disease attacks plants such as cotton, potatoes, tomatoes, tobacco and many plants of the gourd family. Luffa from the gourd family (Cucurbitaceae) with the scientific name *Luffa cylindrica* is one of the valuable tropical plants that host this pathogen and is also cultivated in different regions of Iran. In this research, the resistance of a number of native and non-native cultivars of Loofah plant to *Verticillium* disease was investigated. For this purpose, after sowing the seeds in pots and infecting the plants, the rate of disease development in different cultivars was evaluated and qualitatively and quantitatively analyzed. SPSS version 24 software was used for statistical analysis of the data, and Duncan's multiple range test was used to compare the average data at a probability level of 5%. These experiments were carried out in the form of a completely random design, and to confirm the contamination, the plate culture test was used. Also, PCR test and sequence analysis of amplified fragments with the help of ITS4, ITS1 standard primers were used to identify and confirm the pathogen causing the contamination. The evaluation of the symptoms of the cultivars infected with the virus one day after the infection showed symptoms of lethargy and even complete wilting (plant death) in some genotypes. All studied Luffa genotypes, except for grooved, were in two groups, ultra-susceptible and susceptible, in terms of defense response to *V. dahliae* fungus. In the grooved sample, despite the low incidence of disease symptoms, a significant amount of fungal DNA was detected.

KEYWORDS: pathogenicity, pathogen, pumpkins