INDUCTION OF SEXUAL REPRODUCTION AND DETERMINATION OF 
MATING TYPES IN Phaeoacremonium aleophilum, THE CAUSAL AGENT 
OF ESCA DISEASE OF GRAPEVINE IN EAST AZARBAIJAN PROVINCE *

A. NARMANI, M. ARZANLOU ** and A. BABAI-AHARI 1

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Abstract

Togninia minima (anamorph: Phaeoacremonium aleophilum) is the most common species of Phaeoacremonium associated with Petri and esca disease in grapevines. A bipolar heterothallic mating strategy has been proposed for this species, which requires two isolates with opposite mating types for sexual reproduction. In the present study, the possibility for the induction of sexual stage among the Iranian isolates of Pm. aleophilum was investigated under laboratory conditions. For this purpose, different vineyards in East Azerbaijan province were inspected during the summer 2012 and samples were collected from grapevines with typical esca disease symptoms. Isolation and purification of the causal agent was carried out using routine plant pathology techniques. Pm. aleophilum isolates were identified based on morphological characteristics of the microscopic structures and previously designed Pm. aleophilum-specific primer set. In order to induce sexual stage, four isolates with different geographical origins were mated in all possible combinations on grapevine cane-water agar (GWA) plates. Perithecial formation was observed on wood segments and agar after 3-4 weeks of mating. The morphological characteristics of the sexual structures were in full agreement with those of T. minima. Two isolates with opposite mating type identity were selected as tester strains and mating identity of 34 T. minima isolates were determined by pairing with tester strains. The results showed that both mating types were present among the isolates examined in this study; however, skewed distribution of mating type alleles (2:1) was found among the tested isolates.

Keywords: β-tubulin, Tester strain, Heterothallism, Grapevine decline.

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**: Corresponding Author, Email: arzanlou@hotmail.com
1. Former MSc. Student, Assoc. Prof. and Prof. Plant Pathol., College of Agri., Univ. of Tabriz, Tabriz, Iran
References


MOYO, P. 2013. The role of arthropods in the dispersal of trunk disease pathogens associated with Petri disease and esca. MSc thesis submitted to Stellenbosch University, South Africa.


