

**GENETICAL DIVERSITY OF RESISTANCE IN POTATO GENOTYPES FOR WAX LAYER TO BROWN SPOT DISEASE**Elham Sadeghi<sup>1</sup>, Mehdi Nasr Esfahani<sup>2</sup> and Abbas Sharzei<sup>3</sup>

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**ABSTRACT**

Brown spot of potato, is the most common and major diseases of potato in the most growing regions, incited by different species of *Alternaria*, remains an increasing threat to The pathogens have a wide spectrum of host plants throughout the world, including Iran. Methods for disease prevention and control are based on combining agricultural management practices with chemical control. Using disease free seeds or seeds and plants treated with fungicides can greatly reduce disease incidence. After appearance of the first symptoms of disease, stringent fungicide spray program is an effective way to reduce losses. Many authors seem to agree, that the most economically feasible method of disease control is the development of resistant potato crops varieties, as transgenic approach proved unsuccessful. Due to our increasing understanding of pathogen - host plant interactions, identification of resistance sources, and assessment of the resistance trait inheritance mode, breeding programs of Potato crops for *Alternaria* resistance can be enhanced. This is of particular importance since recent years' experience dynamic development of ecological and integrated plant production with an emphasis on plant biotic stress resistance. Highly resistant genetic resources have not been reported in potato cultivated species, although some varieties differ in their resistance/susceptibility level. Wax layer plays an important role as far as the resistance to diseases is concerned. This study assessed levels of susceptibility surveyed and analyzed in ten potato cultivars; Boren, White Desiree, Picasso, Ramus, Kaiser, Markiz, Granola, Kennebec, Cosima, Preemie; thickness of the leaf wax layer along with the correlation with resistance was. The thickness of wax layer in upper and lower surface was measured. The result indicated that, there was a positive correlation between the wax layers with various range of susceptibility. Boren and White Desiree with the highest mean of wax thickness 1.48 and 1.41 microns were the most resistant ones respectively. Also, Preemie and Cosima with the lowest means of 0.81 and 0.89 microns were the susceptible respectively. Although the other cultivars are intermediated in between, and in their own statistical groups. These results revealed that thickness of wax layer plays an important role on inhibitory to the disease infection, as far as the resistance is concerned.

**Keywords:** *Alternaria* sp., wax layer, potato, Iran



The 1st International Conference on New Ideas in Agriculture  
Islamic Azad University Khorasgan Branch  
26-27 Jan. 2014, Isfahan, Iran

