

## عنوان مقاله:

Changes in Phenolic Acid Levels in Wheat Cultivars Inoculated with *Pyrenophora tritici-repentis* race 1

## محل انتشار:

مجله علوم و فناوری کشاورزی، دوره 25، شماره 1 (سال: 1401)

تعداد صفحات اصل مقاله: 14

## نویسندگان:

M. Ghorbi - *Department of Agronomy and Plant Breeding, East Azarbaijan Science and Research Branch, Islamic Azad University, Tabriz, Islamic Republic of Iran*

H. Momeni - *Department of Plant Disease, Iranian Research Institute of Plant Protection, Agricultural Research, Education and Extension Organization, Tehran, Islamic Republic of Iran*

V. Rashidi - *Department of Agronomy and Plant Breeding, East Azarbaijan Science and Research Branch, Islamic Azad University, Tabriz, Islamic Republic of Iran*

A. Ahmadzadeh - *Department of Agronomy and Plant Breeding, Islamic Azad University, Shabestar, Islamic Republic of Iran*

M. Yarnia - *Department of Agronomy and Plant Breeding, East Azarbaijan Science and Research Branch, Islamic Azad University, Tabriz, Islamic Republic of Iran*

## خلاصه مقاله:

Wheat is the main crop in the world. Tan spot caused by *Pyrenophora tritici-repentis* (Ptr) is a destructive disease in wheat-producing areas. Accumulation of phenolic acids at the onset of the fungal infection induces plant's resistance to tan spot. This study evaluated the effect of phenolic compound accumulation on the resistance to tan spot in wheat-pathogen interactions. Five different wheat cultivars including Glenlea, Salamouni, Moghan ۳, Morvarid, and Bolani were studied at three different time points after inoculation with Ptr. The composition and concentration of phenolic acid including ferulic acid, p-coumaric acids, vanillic acid, chlorogenic acid, and rutin were detected using high-performance liquid chromatography and analyzed according to standard curves. Results showed considerable accumulation of ferulic acid, p-coumaric acids, vanillic acid, chlorogenic acid, and rutin in treatment with Ptr during 7 days post-inoculation in resistant and partially resistant cultivars compared with the susceptible ones. Ferulic acid was the most abundant phenolic compound in Salamouni ( $16.77 \pm 0.16$  mg g<sup>-1</sup> dw), Moghan ۳ ( $17.76 \pm 0.00$  mg g<sup>-1</sup> dw), and Morvarid ( $23.11 \pm 0.00$  mg g<sup>-1</sup> dw) at 7 dpi. The obtained data indicated that the identified phenolic acids had enhanced and improved the wheat resistance to the fungal pathogen. Linear Pearson's coefficient analysis showed a positive correlation between some phenolic acids concentration and also between them and flavonoid rutin in wheat cultivars during infection. These findings highlighted the capacity of phenolic compounds as potential tools for the identification of resistance in wheat-pathogen interactions.

## کلمات کلیدی:

Fungal infection, Resistance to tan spot, Tan spot disease, Wheat-pathogen interaction

