

عنوان مقاله:

Study of Puccinia striiformis -related proteins in wheat using two-dimensional gel electrophoresis

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نویسندگان:

Sodabeh Jahanbakhsh Godehkahriz - *Department of Agronomy and Plant Breeding, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Iran*

Kobra Alirezaie - *Department of Agronomy and Plant Breeding, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Iran*

Mahdi Davari - *Department of Plant Protection, Faculty of Agriculture and Natural Resources, University of Mohaghegh Ardabili, Iran*

خلاصه مقاله:

Wheat is one of the strategic products and has rich nutritional value. Plant diseases are major limiting factors that reduce the yield and quality of wheat, and yellow rust *Puccinia striiformis* f. sp. *tritici* causes considerable damage to wheat production. The most reliable way to control this disease is the use of resistant varieties. Plants have different mechanisms to defend against pathogens, one of which being proteomics employed to examine defense mechanisms in both sensitive and resistant plants. In this research, in order to identify the expression pathways and proteins involved in the mechanisms, resistant (Gaspard) and sensitive (Morvarid) wheat varieties were inoculated with *P. striiformis*, followed by the examination of peroxidase, catalase enzymes, intracellular osmoprotectants. The results showed that the amount of protein, carbohydrates, proline concentration, and peroxidase and catalase activity significantly increased by rust in the resistant variety. Also, results of the electrophoresis of two-dimensional proteins with stripes of IPG = 17 cm and pH = 4-7 showed that expression changes of proteins could be divided into two groups in response to *P. striiformis*. The first group included the proteins that directly reacted to pathogens such as peroxidase and PR10 proteins. The second group consists of the resistance proteins as transcription factors or proteins involved in signaling pathways or chaperons in determining proteins' partial structure such as molecular chaperone protein Hsp90.

کلمات کلیدی:

2D gel electrophoresis, Carbohydrates, Catalase, Peroxidase, Proline

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