mRNA abundance and enzyme activity of myo-inositol 1-phosphate synthase in soybean roots inoculated with Fusarium solani f. sp. glycines. (C07-afzal141120-Oral)

Authors:

- A.J.Afzal* - *Southern Illinois University at Carbondale*
- M.J.Iqbal - *Southern Illinois University at Carbondale*
- S.Yaegashi - *Southern Illinois University at Carbondale*
- V.N.Njiti - *Southern Illinois University at Carbondale*
- J.Shultz - *Southern Illinois University at Carbondale*
- D.A.Lightfoot - *Southern Illinois University at Carbondale*

Abstract:

Myo-Inositol-1-Phosphate synthase (MIPS) is involved in the first and rate-limiting step of the eukaryotic inositol biosynthetic pathway. Inositol 1, 4, 5 triphosphate (IP3), a product of the pathway, binds to specific calcium channels and activates plant defense responses. Seedlings of four soybean genotypes were inoculated with Fusarium solani fsp. glycines. The genotypes differed in the number of QTLs conferring resistance to SDS of soybean either having 0, 2, 4 or 6 resistance alleles. The abundance of MIPS mRNA did not decrease in the roots of the inoculated RIL that contains 6 resistance alleles whereas there was a decrease in MIPS mRNA in the rest of the RILs. The MIPS specific activity in the roots also correlated with the number of resistance loci in the genotypes. The mean IP3 content was higher in plants with resistant alleles inoculated with the pathogen compared to the un-inoculated susceptible genotypes. These studies are being conducted on more genotypes with different combinations of resistance loci for the better understanding of MIPS involvement in disease resistance.

Corresponding Author Information:

Ahmad Afzal
Southern Illinois University at Carbondale
Department of PSGA, Southern Illinois University a
Carbondale, IL 62901-4415

phone: 618 453 3081
fax: 618 453 7457
e-mail: vicnji@siu.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 10:30 am

Keywords:

Soybean, disease, resistance, gene expression