Genetic mapping of partial resistance to Sclerotinia Stem Rot in Soybean. (C07-auclair105109-Oral)

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Abstract:

Sclerotinia stem rot (Sclerotinia sclerotiorum) is a major disease of soybean (Glycine max (L.) Merr.) causing major yield losses in many soybean growing areas. Improvement of our understanding of the genetics of partial resistance observed in certain soybean cultivars is key to developing new cultivars with elevated levels of partial resistance to the disease. The objective of this study was to map the quantitative trait loci (QTL) for partial resistance to sclerotinia stem rot. An F2 and an F5 recombinant inbred line (RIL) population were developed from the cross NK 08-80 x OAC Shire. The F2 segregating population was evaluated for disease severity in a controlled environment using a straw inoculation technique based on fungal mycelia. The RIL population was evaluated in the field using a field-based inoculation method and by measuring natural infection levels at different locations. Approximately 400 SSR markers have been screened and analyzed to identify QTLs for partial resistance to sclerotinia stem rot under the different evaluation conditions. Concurrently, other populations were developed from bi-parental crosses involving partially resistant and susceptible soybean lines. These populations will be used to validate the QTL loci found in the original mapping population.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002

Presentation Time: 10:15 am

Keywords:
Soybean, Sclerotinia stem rot, QTL mapping, Molecular markers