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Evaluation of Soybean Germplasms for Resistance to *Phytophthora sojae*

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[Introduction]

Phytophthora sojae is a soilborne oomycete pathogen that causes severe damages to susceptible soybean plants over the world and the management of this disease has been primarily relied on genetic resistance to *P. sojae*. It can cause pre- and post-emergence damping-off of soybean under wet and warm condition and can infect adult susceptible plants at later growth stages. In South Korea, Phytophthora root and stem rot (PRSR) has not been considered as a severe problem, while a few isolates of *P. sojae* were first reported 20 years ago. The incidence of PRSR is more frequently reported as cultivation of soybean in paddy fields increases recently. The objective of this study was to evaluate soybean germplasms that are resistant to *P. sojae*.

[Materials and Methods]

Briefly, fifteen 7-day-old seedlings per genotype were inoculated on their hypocotyl with mycelial slurry of isolate 3444-1 and placed in humid condition overnight. Reaction of seedlings were evaluated 7 days after inoculation. Reaction was determined as resistance (survival of 80% or more), susceptibility (survival less than 20%) and intermediate (21~79%) depending on the phenotype ratio of seedlings.

[Results and Discussion]

Of the 550, 135 (25%), 314 (57%), and 101 (18%) genotypes showed resistant, susceptible, and intermediate reactions, respectively. This study will be a framework for selection of genetic resources with race-specific resistance to the *P. sojae* isolate 3444-1 to develop *P. sojae*-resistant soybean cultivars by introduction of resistance genes from the identified germplasms in the future.

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