

Selection of Soybean (Glycine max) Germplasm Against Biotrophic Fungi Disease Based on Anatomical Resistance

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Abstract	<p>The obstacle to increasing the soybean production is an infection of rust disease caused by the biotrophic fungus, <i>Phakopsora pachyrhizi</i>. The research objectives were to determine the anatomical resistance and the level of resistance of soybean cultivars against rust disease. The embedding method for observed leaf structural anatomy. The disease severity based on the method of International Working Group on the Soybean Rust (IWGSR) rating system.</p> <p>The experiment was arranged as a Completely Randomized Design (CRD) with Factorial Pattern and five times repetition. The first factor was soybean cultivars, namely Gepak Kuning, Slamet, Tanggamus, and Wilis. The second factor was <i>P. pachyrhizi</i> inoculation with 0 uredospores/mL (uninoculated) and 104 uredospores/mL (inoculated). The results showed that the soybean cultivars that have thicker cuticle and epidermis, high trichomes and low stomatal density, and low of stomatal conductance have better anatomical resistance to leaf rust disease. Wilis and Slamet cultivars are resistant cultivars, indicated by disease intensity of 20% and 24.6%, respectively. While the Tanggamus is moderately resistant cultivar and Gepak Kuning is a susceptible cultivar, indicated by disease intensity of 56.5% and 85.3%, respectively. The novelty of selection soybean germplasm against biotrophic fungal disease are important and effectiveness in order to increase the crop productivity. These three soybean cultivars potentially serve as genetic sources to develop high yielding soybean cultivars and resistant to rust disease.</p>
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