Evaluation of Soybean Seed Lot with Controlled Deterioration Test (CDT) to Estimate Seed Vigour under Salinity Stress

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Abstract

The experiment was conducted at Seed Science and Technology, Department of Agronomy and Horticulture, in IPB Bogor from February 2011 to June 2011. This research consisted of three experiments. First experiment was the effect of soybean seed varieties and level of salinity to seed vigour. This research aimed to determine NaCl concentration for evaluate vigour of soybean seeds. Second experiment was effect of soybean seed varieties and Controlled Deterioration Test (CDT) condition to seed viability. This research aimed to determine moisture content of soybean seeds and stress period that can be used on CDT. Third experiment was to find out the correlation between variable selected saline condition with variable CDT to estimate vigor of seed. First experiment used Randomized Complete Block Design with two factors. First factor was five varieties of soybean seed, i.e Rajabasa, Wilis, Sindoro, Gepak Kuning, and Tanggamus. Second factor was four concentration of saline condition (0 g/l, 2.56 g/l, 5.12 g/l, 7.68 g/l NaCl). Experiment in salinity stress condition with 5.12 g/l NaCl concentration was effective to identified varieties of soybean seeds with characteristic tolerance or sensitive to salinity stress. Second experiment was CDT, used combination of three level seed moisture content (15\%, 20\%, 25\%) and three level stress period (0 h, 24 h, 48 h) at 45^\circ C with RH 100\%. Condition of 15\% moisture content with 24 h stress period was the best condition for correlation testing with various variable of salinity at concentration 5.12 g/l NaCl. Correlation analysis indicated no correlation relationship between selected level of saline condition with \textit{V_{CDT}}. It case, CDT in this research cannot used for estimate vigor of saline stress in soybean seeds.

Key Words: soybean, seed, controlled deterioration test, salinity stress, moisture content