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PENGUJIAN CEPAT VIABILITAS BENIH PINUS (*Pinus merkusii*) DENGAN KONTRAS RADIOGRAPHY

Accelerated Test of Pines (Pinus merkusii) Seed Viability with Radiography Contrast

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ABSTRACT

The objective of the research was to determine the best chemical for radiography contrast test of pines seed viability and the key for interpretation of pines seed viability. The experiment was conducted at Seed Technology Laboratory of Forestry, Bogor from February until May 1994.

The result found the best radiography test for the pine seed with parameters for x-ray as follows, (KVp) 14 Kvolt voltage, (mA) 5.5 A, length of radiation (eT) for 12 second, distance of focus film to object (FFD) by 25 cm, and film placed (OFD) directly above the x-ray film.

Contrast chemical $BaCl_2$ decreased the seed viability at concentration of 30 % and soaking time for 30 minutes. Both KI and NaI decreased the viability at 10 % and soaking time of 45 and 15 minutes, consequtively. Contrast chemicals effectively interprete the viable and non viable seed at 10 % concentration.

Viable seeds have complete structure, did not absorb the chemicals and the physical damage was less than 25 % of the seed space. Non viable seeds did not have a complete structure, absorbed the chemicals and physical damage was more than 25 % of the seed space.

RINGKASAN

Penelitian ini bertujuan menentukan bahan kimia pengontras yang terbaik pada pendugaan viabilitas benih *Pinus merkusii* serta menentukan kunci interpretasi benih viabel dan benih non viabel *Pinus merkusii* berdasarkan kontras radiografi. Penelitian dilaksanakan di Laboratorium Balai Teknologi Benih, Bogor, yang berlangsung dari bulan Februari 1994 sampai bulan Mei 1994.

Hasil penelitian menunjukkan bahwa pada penelitian pendahuluan diperoleh parameter mesin sinar x untuk mendapatkan radiografi terbaik benih *Pinus merkusii* pada tegangan (KVp) = 14 Kilovolt, kuat arus (mA) = 5.5 A, lama penyinaran (eT) = 12 detik, jarak fokus film ke obyek (FFD) = 25 cm dan penempatan film (OFD) langsung di atas film sinar x.

Bahan pengontras $BaCl_2$ menurunkan viabilitas benih *Pinus merkusii* pada konsentrasi 30 % dan lama perendaman 30 menit. KI dan NaI menurunkan viabilitas benih pada konsentrasi 10 % dan lama perendaman untuk KI 45 menit dan NaI 15 menit. Penurunan viabilitas benih disebabkan pengaruh racun dari bahan pengontras khususnya NaI dan KI dengan semakin pekatnya konsentrasi larutan

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