Bul. Agron. (33) (2) 23 – 30 (2005)

Pengaruh *Sarcotesta* dan Pengeringan Benih serta Perlakuan Pendahuluan terhadap Viabilitas dan Dormansi Benih Pepaya (*Carica papaya* L.) [1)]

Influence of Sarcotesta, Seed drying and Pre-treatment on Viability and Dormancy of Papaya (Carica papaya L.) Seed [1)]

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Diterima 5 Juni 2005 / Disetujui 5 Agustus 2005

ABSTRACT

Improved seed longevity by seed drying and application of phenolic compound as natural antioxidant is the topic of this research. In many cases the sensitivity of papaya seed to drying is being the limit factor because of desiccation injury or induced dormancy. There is phenolic compound on the sarcotesta surrounding papaya seed which may act either as antioxidant or as germination inhibitor. The effect of sarcotesta and seed drying on viabillity and dormancy was studied. The experiment was conducted in July – October 2004, located at Bogor Agricultural University, used papaya seed (IPB-1) which harvested from Pusat Kajian Buah Tropika (PKBT) farm in Bogor. In the last study, seed was dried in the absence and presence of sarcotesta until 11-12% and 6-7% moisture content (mc). After drying, seed viability was measured by tetrazolium test. The hardness of seed was also measured using penetrometer. Seed germination was tested by (1) soaking on 10% KNO_3, (2) scarification on water using electrical stirrer, (3) soaking on 10% KNO_3 with scarification using electrical stirrer, (4) scarification on the hot water (50^oC) followed by soaking on 10% KNO_3. In the absence of sarcotesta, the viability of 6-7% mc seed was as high as 11-12% mc seed. There was neither viability reduction nor induced dormancy. Whereas in the presence of sarcotesta, there was also no viability reduction but the dormancy was induced. The dormancy of seed with 11-12% mc was longer than seed with 6-7% mc. Scanning electron microscopy images showed that sarcotesta was removed by cleaning treatment before drying. On the contrary, sarcotesta was not completely removed from the seed and became more impermeable when cleaning was done after drying.This research can not suggest the most effective pre-treatment to break the dormancy. The mechanism of the dormancy is discused.

Key words: Carica papaya L., seed drying, sarcotesta, seed viability, seed dormancy

PENDAHULUAN

Pepaya merupakan salah satu buah tropika unggulan yang sangat potensial untuk dikembangkan di Indonesia. Hingga saat ini benih tetap merupakan bahan utama dalam perbanyakan pepaya. Pengembangan pepaya memerlukan ketersediaan benih secara berkesinambungan, sebab peremajaan tanaman selalu diperlukan untuk mendapatkan produksi yang baik. Selain untuk kepentingan komersial, penanganan benih pepaya juga penting untuk pengelolaan plasma nutfah yang selama ini lebih banyak dikelola secara *in situ* karena daya simpan benihnya yang relatif singkat. Upaya memperpanjang daya simpan benih pepaya merupakan salah satu permasalahan yang perlu dipecahkan.

Salomao dan Mundim (2000) menggolongkan benih pepaya sebagai benih ortodok, namun kenyataannya daya simpannya relatif singkat dibandingkan benih ortodok umumnya. Ellis *et al. dalam* Wood *et al.* (2000) menggolongkan benih pepaya dalam kelompok benih *intermediate*, yaitu tidak tahan bila kadar air benih < 8%. Sementara itu, menurut Wood *et al.* (2000) menurunnya perkecambahan pada benih pepaya yang dikeringkan hingga kadar air 5% sebenarnya bukan disebabkan oleh hilangnya viabilitas, melainkan karena terjadinya induksi dormansi. Terjadinya induksi dormansi dan pemecahannya perlu dipelajari agar benih dapat disimpan dengan aman pada kadar air rendah, untuk menekan laju metabolisme dan meningkatkan daya simpannya.

Faktor lain yang telah diteliti mampu meningkatkan daya simpan benih adalah penggunaan antioksidan (Woodstock *et al.* 1983). Benih pepaya

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