REPRODUKSI GENERATIF DAN VIABILITAS BIJI CENDANA (*Santalum album* LINN.) PADA BEBERAPA LOKASI DI WANAGAMA I GUNUNGKIDUL

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INTISARI

Cendana merupakan jenis langka yang bernilai ekonomis tinggi dan sejak 1977 ditetapkan sebagai spesies "*most threatened*" (berisiko tinggi terhadap kepunahan) karena keberadaannya yang semakin menipis. Cendana diintroduksi ke Hutan Penelitian Wanagama I pada tahun 1968 dan saat ini telah melampaui proses naturalisasi, mampu melangsungkan reproduksi dan menjadi ras lahan. Selain permudaan alam cendana yang terbentuk dari ras lahan tersebut, telah dibangun pula uji provenan cendana di Wanagama I pada akhir tahun 1993. Tanaman cendana di Hutan Penelitian Wanagama I memiliki diameter dan dinamika perkembangan kondisi fisik tegakan yang berbeda-beda di setiap lokasinya. Perbedaan kondisi fisik tegakan ini dapat menyebabkan keberhasilan reproduksi generatif yang berbeda-beda pula. Oleh karena itu, penelitian tentang keberhasilan reproduksi generatif di masing-masing lokasi akibat dinamika kondisi fisik tegakan pada kisaran diameter induk tertentu perlu dilakukan.

Penelitian dilakukan di Hutan Penelitian Wanagama I, RPH Gading, BKPH Playen, Gunungkidul, Yogyakarta. Lokasi terbagi menjadi 5, yaitu (1) tegakan uji provenan cendana dan (2) tegakan *bulk* cendana di Petak 17, (3) induk di gedung serbaguna dan (4) induk di wisma cendana, serta (5) tegakan alam cendana di Petak 5. Penelitian ini dilakukan dengan metode *purposive sampling,* yaitu pemilihan sampel yang didasarkan pada tujuan untuk memperoleh sampel dengan karakter tertentu sesuai tujuan secara non-random. Parameter yang diamati adalah (a) nilai *Reproductive Success,* dan (b) viabilitas biji.

Nilai *reproductive success* di tegakan *bulk*, provenan, dan induk di gedung serbaguna memiliki hubungan yang linier dengan diameter (dbh) indukn**y**a. Semakin besar diameter induk, semakin besar pula nilai *reproductive success*-nya. Nilai *reproductive success* di tegakan *bulk* dan provenan paling besar pada kisaran diameter 9,01-11,00 cm dan induk di gedung serbaguna pada diameter (dbh) 26,4 cm. Nilai *reproductive success* di tegakan alam sama pada kisaran diameter yang berbeda karena keanekaragaman genetik *pollen* yang kecil dari induk-induk yang berasal dari tempat asal yang sama. Sedangkan, nilai *reproductive success* pada induk di wisma cendana (0,07) dan induk di gedung serbaguna (0,08) sangat kecil, karena termasuk induk yang soliter. Viabilitas biji dari setiap lokasi induk cendana menunjukkan nilai viabilitas biji paling baik di kelompok tegakan dengan jumlah induk yang besar, yaitu tegakan *bulk*, provenan, dan alam. Sedangkan viabilitas biji paling rendah terdapat di induk soliter, yaitu induk di gedung serbaguna dan di wisma cendana. Ada perbedaan yang signifikan antara viabilitas biji cendana di tegakan dengan jumlah induk yang besar dengan induk soliter.

Kata kunci: *Santalum album*, kondisi fisik, *Reproductive Success*, viabilitas biji

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GENERATIVE REPRODUCTION AND SEED VIABILITY OF SANDALWOOD (*Santalum album* LINN.) AT SOME LOCATIONS IN WANAGAMA I GUNUNGKIDUL.

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ABSTRACT

Sandalwood is an endangered species which has economically high value. It has been listed as the most threatened species because its existence gets diminishing since 1977. It was first introduced to Wanagama I research forest in 1968 and has passed naturalization process. Eventually, it is able to conduct reproduction and become land race. Besides its nature regeneration which is producesed from its land race, there was also established its provenance test at Wanagama I in the end of 1993. Sandalwood in Wanagama I research forest have diameter and growth of different stand physical condition in each;every its location. The difference of this stand physical condition can also cause different efficacy of generative reproduction. Therefore, research concerning efficacy of generative reproduction in each every location which is caused by dynamics of stand physical condition at selected mains diameter gyration require to be conducted.

This research was conducted in Wanagama I research forest, RPH Gading, BKPH Playen, Gunungkidul, Yogyakarta. Research location were divided into five parts, they were (1) sandalwood provenance stand, and (2) sandalwood bulk stand, in compartment 17, (3) trees in multipurpose building, (4) trees in cendana guest house, and (5) nature stand in compartment 5. This research employed purposive sampling method which was its sample selection was done randomly according to the objective of gathering sample with certain characters. It observed two parameters: (a) the value of reproductive success, (b) seed viability.

Value of reproductive success in stand of bulk, provenance, and tree in multipurpose building have linear relation with diameter (dbh). Ad for mains diameter, ever greater also assess value of reproductive success. Value of reproductive success in bulk and provenan biggest at diameter gyration 9,01-11,00 cm, in multipurpose building at diameter (dbh) 26,4 cm. Value of reproductive success in nature stand same at different diameter gyration because variety of small genetic pollen from trees which is coming from is same provenance. Otherwise, value of reproductive success at mains tree in cendana guest house (0,07) and mains tree in multipurpose building (0,08) very small, because including mains which is soliter. Seed Viability from each;every sandalwood mains location show value of viabilitas seed most either in stand group with big mainses amount, that is stand of bulk, provenan, and nature stand. Otherwise, lowest seed viability there are in mains of soliter, that is mains tree in multipurpose building and in cendana guest house. There is significant difference between sandalwood seed viability in stand with big mainses amount with mains of soliter.

Keyword: *Santalum album*, condition of physical, reproductive success, seed viabilitas.

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