

**STUDI BIOLOGI REPRODUKSI *Gmelina arborea* Roxb.  
DI PT SURYA HUTANI JAYA, TAPAK MENAMANG,  
SAMARINDA, KALIMANTAN TIMUR**

Oleh:

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**INTISARI**

Sedikitnya informasi tentang biologi reproduksi *G. arborea* menjadi salah satu kendala dalam penyelesaian masalah produksi benih dan atau mutu benih yang rendah. Studi ini berusaha untuk mengetahui: (1) Waktu mekar, (2) Waktu masak serbuk sari, (3) Polinator yang membantu penyerbukan, meliputi: jenis, durasi waktu aktivitas dan intensitas populasi serta (4) Pengaruh atraktan bunga terhadap efisiensi penyerbukan.

Pengamatan dilakukan di *Clonal Seed Orchard G. arborea* umur 7 tahun PT Surya Hutani Jaya, tapak Menamang, Samarinda, Kalimantan Timur, mulai akhir bulan Juli hingga awal Oktober 2000. Waktu mekar bunga dan waktu masak serbuk sari, jenis polinator bunga beserta durasi waktu aktivitas dan intensitas populasi diamati pada 3 klon terpilih, masing-masing dengan 4 kali ulangan. Hasil pengamatan dibandingkan untuk mengetahui perbedaannya. Sedangkan pengaruh atraktan bunga terhadap efisiensi penyerbukan diawali dengan memberikan 3 perlakuan pada 3 klon, sehingga diperoleh 9 unit perlakuan. Hasil perlakuan dianalisis menggunakan metode RCBD, dilanjutkan dengan uji DMRT.

Proses pemekaran bunga dimulai jam 00.30 WITA (1,04%), dan berakhir jam 05.45 WITA (4,66%). Puncak bunga mulai mekar jam 01.00 WITA (23,32%), sedangkan puncak mekar sempurna terjadi jam 05.00 WITA (17,61%). Sebagian besar serbuk sari bunga *G. arborea* masak jam 06.00-08.30 WITA, yaitu klon 68 dan klon 5, sebagian lagi masak jam 11.00-13.30 WITA pada klon 48. Pengunjung bunga, tercatat 6 ordo serangga, dan lebah hitam famili *Apidae* (ordo *Hymenoptera*) dianggap sebagai polinator yang efektif. Aktivitas lebah hitam sepanjang bulan Agustus 2000 teramati mulai jam 06.00 WITA hingga 18.00 WITA. Waktu aktivitas optimum adalah jam 09.00 WITA hingga 16.00 WITA. Atraktan yang disediakan oleh bunga *G. arborea* untuk menjalin interaksi dengan lebah hitam famili *Apidae* adalah nektar dan mahkota bunga yang berwarna kuning mencolok serta berbau harum. Pembuangan seluruh mahkota bunga dan yang disisakan  $\pm 1$  cm bagian pangkal mahkotanya menyebabkan bunga tidak dikunjungi lebah hitam famili *Apidae*, sehingga tidak terbentuk buah. Bunga yang dibiarkan alami dikunjungi lebah hitam famili *Apidae*, sehingga terbentuk buah dengan nilai efisiensi buah antara 18-42%.

Kata kunci : bunga, pemekaran, reseptif, polinator, atraktan

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# A STUDY OF *Gmelina arborea* Roxb. REPRODUCTIVE BIOLOGY IN PT SURYA HUTANI JAYA, SITE MENAMANG, SAMARINDA, EAST KALIMANTAN

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## ABSTRACT

A few information of *G. arborea* reproductive biology has become a constrain in solving some problems of seed production and or the low quality of seed. This study tried out to reveal some aspects of *G. arborea* flower, i.e.: (1) The time of anthesis and (2) receptivity of pollen grain, (3) The pollinator that help pollination, consist of kinds, duration of activity and intensity of population, and (4) The effect of flower attractants to the efficiency of pollination.

Observation was done in Clonal Seed Orchard *G. arborea* 7 years old PT Surya Hutani Jaya, Site Menamang, Samarinda, East Kalimantan, started from the end of July 2000 until the first of October 2000. The time of anthesis and receptivity of pollen grain and kinds of flower pollinator as well as duration of time activity and intensity of population were observed at 3 clons chosen, each of them was repeated 4 times. The result of the observation was compared simply to know the difference. Meanwhile, the effect of flower attractants to the efficiency of pollination was started by giving 3 treatments to the 3 clons, so it was obtained 9 unit of treatments. The results of the treatments were analyzed by using RCBD method and DMRT test.

Anthesis of *G. arborea* flower started at 00.30 WITA (1,04%), ended at 05.45 WITA (4,66%). The culminating point of anthesis was at 01.00 WITA (23,32%), while the culminating point of perfect anthesis was at 05.00 WITA (17,61%). Most of receptivity of pollen grain was at 06.00-08.30 WITA, i.e. clon 68 and clon 5; meanwhile clon 48 was at 11.00-13.30 WITA. Some visitors, it was recorded 6 ordo of insects, and black bee of family *Apidae* (ordo *Hymenoptera*) that was supposed to be the effective pollinator. The black bee activities during August 2000 were observed at 06.00 WITA until 18.00 WITA. The optimum time of activity was at 09.00 WITA until 16.00 WITA. Nectar and corolla in yellow color as well as fragrant smell from corolla were prepared by *G. arborea* flower as attractants in order to interact with black bee of family *Apidae*. Black bee did not visit the flower that the corolla was thrown away and which the corolla was  $\pm 1$  cm longs on its lower end, and could not produce the fruit. Whereas, the flower that was let to be natural will be visited by black bee, so that it could produce fruit with efficiency rate between 18-42%.

The key words : flower, anthesis, receptivity, pollinator, attractant

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