PENGARUH HORMON GIBERELIN TERHADAP PERKECAMBAHAN BIJI DAN PERTUMBUHAN BIBIT *Avicennia marina* (Forssk.) Vierh.

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INTISARI

Tumbuhan mangrove atau bakau merupakan tumbuhan yang hidupdi wilayah pasang surut pantai serta bisa tumbuh subur di wilayah tropis dan subtropis. Spesies mangrove mempunyai kemampuan adaptasi yang berbeda terhadap perubahan keadaan salinitas, substrat, perubahan temperatur, pasangsurut, intensitas cahaya, hama, serta curah hujan. *Avicennia marina* (Forssk.) Vierh merupakan salah satu spesies mangrove yang proses perkecambahan alaminya rendah (11-51%). Penelitian ini ingin mengetahui pengaruh hormon giberelin terhadap perkecambahan biji dan pertumbuhan bibit *A. marina.* Penelitian dilaksanakan selama 5 bulan dari mulai pembibitan sampai dengan analisis data. Metode yang digunakan yaitu persiapan lahan dan media tanam; pengumpulan dan seleksi biji; pembibitan di persemaian; pengamatan dan pengukuranparameter pertumbuhan. Biji *A. marina* diperoleh dari hutan konsevarsi mangrove yang terletak di pantai Baros Bantul, uji persemaian dan analisa laboratorium dilakukan di Fakultas Biologi UGM. Faktorial desain digunakan dalam studi ini dengan 3 konsentrasi giberelin (0 ppm, 100 ppm, dan 200 ppm) sebagai faktor pertama. Faktor kedua berupa empat perlakuan tingkat kemasakan dan ukuran biji (masak kecil, masak besar, muda kecil, dan muda besar). Parameter yang diamati meliputi kecepatan berkecambah, tinggi tanaman, diameter batang, presentase hidup, jumlah akar, panjang akar, kandungan klorofil, bobot basah, bobot kering, anatomi daun dan batang *A. marina*. Data dianalisis menggunakan ANOVA dan perbedaan antar perlakuan diuji dengan *Duncan Multiple Range Test* (DMRT) pada tingkat signifikansi 5%. Hasil analisis menunjukkan bahwa pada biji masak besar, giberelin dapat meningkatkan kecepatan berkecambah laju pertumbuhan tinggi dan diameter batang, presentase hidup, jumlah akar, panjang akar, bobot basah, bobot kering. Giberelin konsentrasi 200 ppm meningkatkan kandungan klorofil daun. Giberelin berpengaruh nyata terhadap ukuran anatomi daun *A. marina* berupa epidermis, palisade, sklerenkim, parenkim spons dan trikoma serta anatomi batang berupa korteks dan xilem. Disimpulkan bahwa aplikasi giberelin pada kondisi biji masak dan ukuran besar dapat mendukung perkecambahan dan pertumbuhan awal benih *A. marina* yang lebih baik dibanding kontrol.

Kata kunci: anatomi daun, *Avicennia marina*, giberelin, perkecambahan, pertumbuhan

GIBBERELLIN'S EFFECT ON SEED GERMINATION AND SEEDLING GROWTH OF *Avicennia marina* (Forssk.) Vierh.

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ABSTRACT

Mangrove plants that live in coastal tidal areas and can thrive in tropical and subtropical areas. Mangrove species have different adaptability to changes in salinity, substrate, temperature changes, tides, light intensity, pests and rainfall. *Avicennia marina* (Forssk.) Vierh is a mangrove species whose natural germination process is low (11-51%). This research aims to determine the effect of the gibberellin hormone on seed germination and growth of *A. marina* seedlings. The research was carried out for 5 months from seeding to data analysis. The methods used are land preparation and planting media; seed collection and selection; seeding in nurseries; observation and measurement of growth parameters. *A. marina* seeds were obtained from mangrove conservation forest located on the Baros coast of Bantul, seeding tests and laboratory analysis were carried out at the UGM Faculty of Biology. Factorial design was used in this study with 3 gibberellin concentrations (0 ppm, 100 ppm, and 200 ppm) as the first factor. The second factor consists of four treatments of maturity level and seed size (small ripe, large ripe, small young, and large young). Several parameters were observed includs germination speed, plant height, stem diameter, live percentage, number of roots, root length, chlorophyll content, wet weight, dry weight, leaf and stem anatomy of *A. marina*. Data were analyzed using ANOVA and differences between treatments were tested with the Duncan Multiple Range Test (DMRT) at a significance level of 5%. The results of the analysis show that in large ripe seeds, gibberellins can increase the germination rate, height growth rate and stem diameter, live percentage, number of roots, root length, wet weight, dry weight. Gibberellin concentration of 200 ppm increases the chlorophyll content of leaves. Gibberellins have a significant effect on the anatomical size of *A. marina* leaves in the form of epidermis, palisade, sclerenchyma, sponge parenchyma and trichomes as well as stem anatomy in the form of cortex and xylem. It was concluded that the application of gibberellin when the seeds were ripe and large in size could support better germination and initial growth of *A. marina* seeds compared to the control.

Key words: *Avicennia marina*, germination, gibberellins, growth, leaf anatomy