ABSTRAK

PEMANFAATAN BIJI NANGKA (*Artocarpus heterophyllus*) DAN BIJI PEPAYA (*Carica papaya L.*) SEBAGAI BIOKOAGULAN TERHADAP PENGOLAHAN AIR GAMBUT

(Dimas Okta Prayoga, 2026, 69 Halaman, 9 Tabel, 15 Gambar, 4 Lampiran)

Air gambut memiliki kualitas yang rendah karena bersifat asam, keruh, dan mengandung bahan organik yang tinggi. Penelitian ini bertujuan untuk mengkaji pengaruh waktu maserasi dan konsentrasi biokoagulan dari kombinasi biji nangka (*Artocarpus heterophyllus*) dan biji pepaya (*Carica papaya* L.) terhadap kualitas air gambut serta menentukan perlakuan yang paling efektif. Biokoagulan dibuat melalui proses maserasi selama 48 jam dan 72 jam menggunakan pelarut etanol dengan variasi konsentrasi 2, 4, 6, 8, dan 10 ppm. Parameter yang dianalisis meliputi pH, *Total Dissolved Solid* (TDS), *Total Suspended Solid* (TSS), *Dissolved Oxygen* (DO), dan turbiditas. Hasil penelitian menunjukkan bahwa maserasi 72 jam menghasilkan kadar tanin lebih tinggi (28,04 ppm) dibandingkan maserasi 48 jam (27,14 ppm). Peningkatan konsentrasi biokoagulan mampu menurunkan nilai turbiditas, TDS, dan TSS serta meningkatkan nilai DO air gambut. Perlakuan terbaik diperoleh pada waktu maserasi 72 jam dan konsentrasi 10 ppm dengan nilai pH 6,12, TDS 719,6 mg/L, TSS 108 mg/L, DO 7,78 mg/L, dan turbiditas 31,3 NTU. Hasil pengolahan menunjukkan bahwa parameter pH, TDS, dan DO telah memenuhi baku mutu berdasarkan Peraturan Pemerintah Republik Indonesia Nomor 22 Tahun 2021.

Kata Kunci: *biokoagulan, biji nangka, biji pepaya, maserasi, etanol, pengolahan air gambut*

ABSTRACT

UTILIZATION OF JACKFRUIT SEEDS (*Artocarpus heterophyllus*) *AND PAPAYA SEEDS* (*Carica papaya L.*) *AS BIOCOAGULANTS FOR PEAT WATER TREATMENT*

(Dimas Okta Prayoga, 2026, 69 *Pages*, 9 *Tables*, 15 *Figures*, 4 *Attachments*)

Peat water generally has poor quality due to its acidic nature, high turbidity, and elevated organic matter content. This study aimed to investigate the effects of maceration time and biocoagulant concentration derived from a combination of jackfruit seeds (Artocarpus heterophyllus) and papaya seeds (Carica papaya L.) on peat water quality and to determine the most effective treatment condition. The biocoagulant was prepared through maceration using ethanol as a solvent for 48 and 72 hours, with concentration variations of 2, 4, 6, 8, and 10 ppm. The parameters analyzed included pH, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Dissolved Oxygen (DO), and turbidity. The results showed that the 72-hour maceration produced a higher tannin content (28.04 ppm) than the 48-hour maceration (27.14 ppm). Increasing the biocoagulant concentration reduced turbidity, TDS, and TSS values while increasing the DO level of peat water. The optimum treatment was obtained at a maceration time of 72 hours and a biocoagulant concentration of 10 ppm, resulting in pH, TDS, TSS, DO, and turbidity values of 6.12, 719.6 mg/L, 108 mg/L, 7.78 mg/L, and 31.3 NTU, respectively. The treated peat water met the quality standards for pH, TDS, and DO as stipulated in Peraturan Pemerintah Republik Indonesia No. 22 Tahun 2021.

Keywords: *biocoagulant, jackfruit seeds, papaya seeds, maceration, peat water treatment*