

ABSTRAC

The Ability of Bamboo Charcoal (*Bambusa vulgaris*) as a Medium to Increase the pH of Water in Peat Water in the Kumpeh Ilir Region

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XII + 52 pages, 10 tables, 2 charts, 3 appendices

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Peat water in the Kumpeh Ilir area has a relatively high degree of acidity (pH 3–5) due to the high content of complex organic compounds such as humic and fulvic acids. This condition makes it difficult for the community to obtain a suitable water source, and has the potential to cause health problems and losses in agriculture and household activities.

The research method used a pretest–posttest experimental design with three variations in bamboo charcoal thickness (8 cm, 10 cm, and 12 cm) and a contact time of 30 minutes for each treatment.

The results showed that the increase in pH was significantly influenced by the thickness of the bamboo charcoal. The 8 cm treatment increased the pH to 6.09; the 10 cm treatment increased to 6.81; and the 12 cm treatment increased the pH to 7.53. ANOVA analysis showed a significant difference between the treatment groups ($p < 0.05$), thus concluding that the thickness of the bamboo charcoal plays a significant role in increasing the pH of peat water.

Thus, bamboo charcoal has proven effective in reducing the acidity of peat water, and a thickness of 12 cm is the most optimal treatment. These results offer an appropriate technological solution that is environmentally friendly, affordable, and easy to implement for communities living in peatland areas.

Keywords: Peat water, bamboo charcoal, pH, adsorption, water treatment



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ABSTRAK

Kemampuan Arang Bambu (*Bambusa vulgaris*) Sebagai Media untuk Meningkatkan pH Air pada Air Gambut di Wilayah Kumpeh Ilir

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Air gambut di wilayah Kumpeh Ilir memiliki derajat keasaman yang cukup tinggi (pH 3–5) akibat tingginya kandungan senyawa organik kompleks seperti asam humat dan fulvat, Kondisi ini menyebabkan masyarakat kesulitan memperoleh sumber air yang layak digunakan, serta berpotensi menimbulkan masalah kesehatan dan kerugian dalam bidang pertanian maupun aktivitas rumah tangga.

Metode penelitian menggunakan desain eksperimen pretest–posttest dengan tiga variasi ketebalan arang bambu (8 cm, 10 cm, dan 12 cm) dan waktu kontak 30 menit pada masing-masing perlakuan.

Hasil penelitian menunjukkan bahwa peningkatan pH sangat dipengaruhi oleh ketebalan arang bambu. Perlakuan 8 cm mampu menaikkan pH hingga 6,09; 10 cm hingga 6,81; sedangkan 12 cm memberikan hasil tertinggi yakni 7,53. Uji ANOVA menunjukkan terdapat perbedaan yang signifikan antar kelompok perlakuan ($p < 0,05$), sehingga dapat disimpulkan bahwa ketebalan arang bambu berperan penting dalam peningkatan pH air gambut.

Dengan demikian, arang bambu terbukti efektif dalam menurunkan tingkat keasaman air gambut, dan ketebalan 12 cm menjadi perlakuan paling optimal. Hasil ini menawarkan solusi teknologi tepat guna yang ramah lingkungan, terjangkau, serta mudah diterapkan oleh masyarakat di kawasan lahan gambut

Kata kunci : Air gambut, arang bambu, pH, adsorpsi, pengolahan air