

Platcor (Leak-Proof Ceiling)
Utilization of Water Hyacinth Fiber, Moringa Leaves, and Plastic Waste as Particle Board in Ceiling Applications

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ABSTRACT

Seiring berjalannya waktu plafon juga dapat digunakan untuk melindungi ruangan dari kebocoran, karena musim penghujan terjadi selama enam bulan menimbulkan berbagai masalah bagi masyarakat, salah satunya adalah kebocoran atap rumah. Selain itu, sampah plastik juga menimbulkan beberapa masalah lingkungan seperti mengganggu kesuburan tanah, menyebabkan banjir, dan memeicu timbulnya beberapa penyakit bagi masyarakat sekitar.

Indonesia juga merupakan negara yang memiliki keanekaragaman hayati yang sangat melimpah. Namun, belum dimanfaatkan secara maksimal, seperti eceng gondok dan daun kelor yang memiliki kandungan serat ligno-cellulosa sebanyak 72,63% dan 2,85%, dengan mengandung ligno-cellulosa yang banyak itu mampu dimanfaatkan untuk bahan baku pembuatan papan plafon.

Hasil penelitian ini adalah platcor (Plafon anti bocor) dengan komposisi bahan terbaik adalah 50% eceng gondok dan 50% daun kelor yang dipanaskan dalam suhu 100°C. Kerapatan dan kadar air platcor telah memenuhi standar SNI_03-3105-2006. Platcor memiliki ketahanan terhadap tekanan mencapai 12.6 Mpa. Selain itu, platcor memiliki tektur yang halus, elastis, dan anti air melalui pencampuran antara lem PV AC dengan eceng gondok, daun kelor dan sampah plastic yang baik sehingga mampu menahan beban sebesar 25.000 gr serta ketahanan keretakan pada paku. Platcor juga dapat bertahan paad suhu yang mencapai 100°C. pengaplikasian Platcor nanatinya melalui kemiringan $\pm 10^\circ - 20^\circ$ sehingga air dapat mengalir keluar dan menuju aliran talas rumah. Lapisan plastik pada bagian atasnya dapat menahan tetesan-tetesan air sehingga tidak merembes dan menembus plafon. Sedangkan, bagian bawah plafon dapat dicat sebagai variasi.

Kata Kunci : Eceng Gondok, Daun kelor, Sampah Plastik, Ligno-Cellulosa, Plafon

Over time, the ceiling can also be used to protect the room from leaks, because the rainy season lasts for six months causing various problems for the community, one of which is a leak in the roof of the house. In addition, plastic waste also causes several environmental problems such as disrupting soil fertility, causing flooding, and triggering the emergence of several diseases in the surrounding community.

Indonesia is also a country that has very abundant biodiversity. However, it has not been used optimally, such as water hyacinth and Moringa leaves which contain ligno-cellulosic fiber as much as 72.63% and 2.85%, with a lot of ligno-cellulosic content that can be used as raw material for making ceiling boards.

The results of this study were platcor (leakproof ceiling) with the best material composition being 50% water hyacinth and 50% Moringa leaves which were heated at 100°C. Platcor density and water content comply with SNI_03-3105-2006 standard. Platcor has a pressure resistance of up to 12.6 MPa. In addition, Platcor has a smooth, elastic and water-repellent texture through mixing PV AC glue with water hyacinth, Moringa leaves and good plastic waste so that it can withstand a load of 25,000 grams and is resistant to cracking nails. Platcor can also withstand temperatures up to 100°C. later the application of the Platcor will go through a slope of $\pm 10^\circ - 20^\circ$ so that water can flow out and into the taro stream of the house. The plastic layer on top can hold water droplets so they don't seep and penetrate the ceiling. Meanwhile, the lower part of the ceiling can be painted as a variation.

Keywords: Water hyacinth, Moringa leaves, Plastic Waste, Ligno-Cellulosa, Ceiling