MODIFIKASI DUDUKAN PISAU PENGUPAS KELAPA MUDA (*Cocos nucifera* L.) MODEL ULIR

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ABSTRAK

Kelapa muda (*Cocos nucifera* L.) merupakan salah satu komoditas yang banyak dikonsumsi dan disukai masyarakat. Alat pengupasan kelapa engsel memiliki kelemahan yaitu pengupasan yang kurang sempurna dan membutuhkan waktu yang lama dalam proses pengupasannya. Penelitian ini bertujuan untuk memodifikasi dudukan pisau pada mesin pengupas kelapa muda model ulir agar proses pengupasan menjadi lebih efektif dan efisien. Metode penelitian yang dilakukan adalah metode eksperimen dengan melakukan modifikasi alat, uji teknis alat, ekonomis alat serta melakukan pengolahan data. Parameter yang diamati meliputi kapasitas kerja, frekuensi putar mesin, tingkat kebisingan, keseragaman hasil irisan, kadar air, *loss fibrous area*, tingkat kerusakan hasil, rendemen, daya operator, energi spesifik, dan analisis ekonomi. Hasil penelitian menunjukkan bahwa mesin hasil modifikasi mampu meningkatkan kinerja mesin dibandingkan rancangan sebelumnya. Mesin hasil modifikasi memiliki nilai kapasitas kerja rata-rata 50 buah/jam, nilai frekuensi putar mesin 368,6667 rpm, nilai tingkat kebisingan berurutan dari 1 meter, 2 meter, 3 meter 87,7 dB, 81,9 dB, 77,7 dB, nilai keseragaman hasil irisan berurutan pangkal, tengah, ujung 10,38 mm, 1,24667 mm, 6,39 mm, nilai tingkat kerusakan hasil sebesar 23%, nilai rendemen rata-rata 65,6%, nilai kadar air rata-rata sebesar 85,3%, nilai *loss fibrou area*, 51%, 51%, 52 %, nilai daya operator rata-rata 81,6667 W dan nilai energi spesifik rata-rata 5,850 kJ/buah. Biaya pengupasan yang diperoleh sebesar Rp 4.298 per buah, biaya tetap sebesar Rp. 1.603.890/buah, nilai biaya tidak tetap sebesar Rp.

14.397,16/buah, dengan titik impas (BEP) sebanyak 361 buah per tahun.

Kata kunci: dudukan pisau, kelapa muda, pisau pengupas, ulir

MODIFICATION OF THE YOUNG COCONUT (Cocos nucifera L.) PEELING KNIFE HOLDER WITH A SCREW MODEL

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ABSTRACT

Young coconut (*Cocos nucifera* L.) is one of the commodities that is widely consumed and favored by the community. The hinge-type young coconut peeling tool has several limitations, including imperfect peeling results and a relatively long peeling process. This study aimed to modify the blade holder of a screw-type young coconut peeling machine to make the peeling process more effective and efficient. The research method used was an experimental method involving machine modification, technical performance testing, economic analysis, and data processing. The observed parameters included work capacity, machine rotational frequency, noise level, uniformity of cutting results, moisture content, *loss of fibrous area*, product damage rate, yield, operator power, specific energy, and economic analysis. The results showed that the modified machine was able to improve machine performance compared with the previous design. The modified machine had an average work capacity of 50 fruits/h, a machine rotational frequency of 368,6667 rpm, and noise levels of 87,7 dB, 81,9 dB, and 77,7 dB at distances of 1 m, 2 m, and 3 m, respectively. The uniformity of cutting results at the base, middle, and tip sections was 10,38 mm, 1,24667 mm, and 6,39 mm, respectively. The product damage rate was 23%, while the average yield was 65,6%. The average moisture content was 85,3%. The *loss of fibrous area* was 51%, 51%, and 52%, respectively. The average operator power was 81,6667 W, and the average specific energy consumption was 5,850 kJ/fruit. The peeling cost was Rp 4.298 per fruit, with fixed costs of Rp 1.603.890/year and variable costs of

Rp 14.397.16/year. The break-even point (BEP) was 361 fruits/year.
Keywords: blade holder, young coconut, peeling blade, screw-type mechanism