

ABSTRACT

MODIFICATION AND TEST PERFORMANCE OF CASSAVA STEMS CHOPPER TIPE TEP-1

By

Muhamad Nartanugraha

Cassava stems than as waste is simply discarded and burned it, is also known to have a value-added benefit. Waste cassava stems to become value-added products needs to be done so that the size reduction process using the powder form of cassava stem chopper-type tool TEP 1. However, in its use of cassava chopper tool TEP Type 1 still has some flaws that need to be corrected, the chopper capacity is the background behind the research.

The method in this study include modification of cassava stem chopper-type tool TEP 1 and experimental tools cassava stem chopper. Chopper tool performance testing done by calculating the value of the parameters - parameters include tools work capacity (kg / hr), the calculation of weight loss (%), and the calculation of fuel consumption (ℓ / h) were tested on the chopper tool when operating at 560 RPM, 870 and 1245.

Tool living modified cassava stem chopper at 560.870 RPM, and 1245, of the test showed the average working capacity of 63.87 kg / hr, 80.67 kg / hour and 85.73 kg / hour; an average weight loss of 4.33%, 5.74% and 5.63%; Average fuel consumption of 0.67 ℓ / hr, 0.4 ℓ / h and 0.9 ℓ / h. Three factions proceeds chopped chopper tool measuring > 0.5 cm, 0.2 <x <0.5 cm and <0,2cm, at 560 RPM gained 7.40%, 26.27% and 62.38%; at 870 RPM gained 7.65%, 27.30% and 63.66%; then at 1245 RPM obtained results are 6.74%, 26.98% and 62.67%. Modification of the blade and the transmission system is capable of increasing the capacity chopper Cassava stem chopper tool modification results at 560.870 RPM, and 1245, of the test showed the average working capacity of 63.87 kg / hr, 80.67 kg / hour and 85.73 kg / hour; an average weight loss of 4.33%, 5.74% and 5.63%; Average fuel consumption of 0.67 ℓ / hr, 0.4 ℓ / h and 0.9 ℓ / h. Three factions proceeds chopped chopper tool measuring >

0.5 cm, $0.2 < x < 0.5$ cm and < 0.2 cm, at 560 RPM gained 7.40%, 26.27% and 62.38%; at 870 RPM gained 7.65%, 27.30% and 63.66%; then at 1245 RPM obtained results are 6.74%, 26.98% and 62.67%. Modification of the blade and the transmission system is capable of increasing the capacity chopper Cassava stem chopper tool modification results at 560.870 RPM, and 1245, of the test showed the average working capacity of 63.87 kg / hr, 80.67 kg / hour and 85.73 kg / hour; an average weight loss of 4.33%, 5.74% and 5.63%; Average fuel consumption of 0.67 ℓ / hr, 0.4 ℓ / h and 0.9 ℓ / h. Three factions proceeds chopped chopper tool measuring > 0.5 cm, $0.2 < x < 0.5$ cm and < 0.2 cm, at 560 RPM gained 7.40%, 26.27% and 62.38%; at 870 RPM gained 7.65%, 27.30% and 63.66%; then at 1245 RPM obtained results are 6.74%, 26.98% and 62.67%. Modification of the blade and the transmission system is capable of increasing the capacity chopper Average fuel consumption of 0.67 ℓ / hr, 0.4 ℓ / h and 0.9 ℓ / h. Three factions proceeds chopped chopper tool measuring > 0.5 cm, $0.2 < x < 0.5$ cm and < 0.2 cm, at 560 RPM gained 7.40%, 26.27% and 62.38%; at 870 RPM gained 7.65%, 27.30% and 63.66%; then at 1245 RPM obtained results are 6.74%, 26.98% and 62.67%. Modification of the blade and the transmission system is capable of increasing the capacity chopper Average fuel consumption of 0.67 ℓ / hr, 0.4 ℓ / h and 0.9 ℓ / h. Three factions proceeds chopped chopper tool measuring > 0.5 cm, $0.2 < x < 0.5$ cm and < 0.2 cm, at 560 RPM gained 7.40%, 26.27% and 62.38%; at 870 RPM gained 7.65%, 27.30% and 63.66%; then at 1245 RPM obtained results are 6.74%, 26.98% and 62.67%. Modification of the blade and the transmission system is capable of increasing the capacity chopper

Keywords: Cassava stems, Chopper tool, and. Modification,

ABSTRAK

MODIFIKASI DAN UJI KINERJA ALAT PERAJANG BATANG SINGKONG TIPE TEP 1

Oleh

Muhamad Nartanugraha

Batang singkong selain sebagai limbah yang hanya dibuang dan dibakar saja, juga diketahui memiliki manfaat yang bernilai tambah. Limbah batang singkong agar menjadi produk bernilai tambah perlu dilakukan proses pengecilan ukuran sehingga berbentuk serbuk dengan menggunakan alat perajang batang singkong tipe TEP 1. Namun dalam penggunaannya alat perajang singkong Tipe TEP 1 masih memiliki beberapa kelemahan yang perlu diperbaiki, pada kapasitas perajang ini yang menjadi latar belakang penelitian.

Metode dalam penelitian ini meliputi modifikasi alat perajang batang singkong tipe TEP 1 dan percobaan alat perajang batang singkong. Pengujian kinerja alat perajang dilakukan dengan menghitung nilai dari parameter-parameternya meliputi kapasitas kerja alat (kg/jam), perhitungan susut bobot (%), dan perhitungan konsumsi bahan bakar (ℓ/jam) yang di ujikan pada alat perajang saat beroperasi pada RPM 560, 870 dan 1245.

Alat perajang batang singkong hasil modifikasi pada RPM 560,870, dan 1245 dari pengujian tersebut didapatkan hasil kapasitas kerja rata-rata 63,87 kg/jam,80,67 kg/jam dan 85,73 kg/jam; susut bobot rata-rata 4,33%, 5,74%, dan 5,63%; konsumsi bahan bakar rata 0,67 ℓ/jam, 0,4 ℓ/jam dan 0,9 ℓ/jam. Tiga fraksi hasil cacahan alat perajang berukuran $>0,5$ cm, $0,2 < x < 0,5$ cm, dan $<0,2$ cm, pada RPM 560 didapatkan 7,40 %, 26,27%, dan 62,38%; pada RPM 870 didapatkan 7,65 %, 27,30%, dan 63,66%; kemudian pada RPM 1245 didapatkan hasilnya 6,74%, 26,98%, dan 62,67%. Modifikasi mata pisau dan pada sistem transmisi mampu meningkatkan kapasitas perajang

Kata kunci :Alat perajang, Batang singkong, dan Modifikasi