

# DESIGN OF ROLLER TYPE CHARCOAL GRINDER

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## ABSTRACT

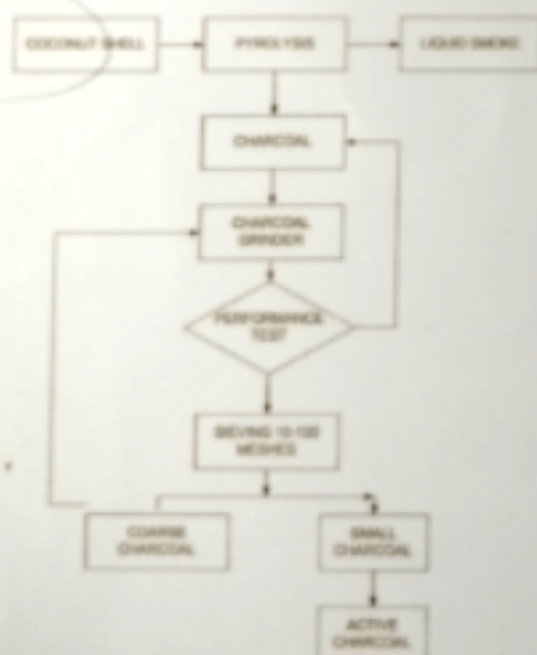
The researches that have been done by Melly et al (2010) and Aulia et al (2011) shows that manufacturing liquid smoke of coconut shell through pyrolysis process also produces charcoal. Coal has not been exploited to its optimal potency. The coal can be processed into useful products such as activate charcoal. To refine the size of the charcoal is conducted by using a grinder charcoal tool. The purposes of this research are to design of roller type charcoal grinder, to perform economy technique analysis, to test the performance of charcoal grinder and to resize charcoal into dimension 10 - 100 meshes. Shell has about 8-12% water content before pyrolysis processing done, and then it was chopped to facilitate the process of pyrolysis. The amount of coal produced in pyrolysis was 13,467 kg, authoring capacity 2,328 kg/day and yield 67,33 %. Milling capacity of coal 16,98 kg/day with a speed rate 19,62 kg/day and very high char yield ie 85,42 %. Dimension of charcoal sieving mesh is 10 to 100 meshes. Fixed operating cost is Rp 1.440.000/year, non fixed cost is Rp 1500/hour and plant operating cost is Rp. 1100 kg/hour.

**Keyword :** charcoal, charcoal grinder, pyrolysis

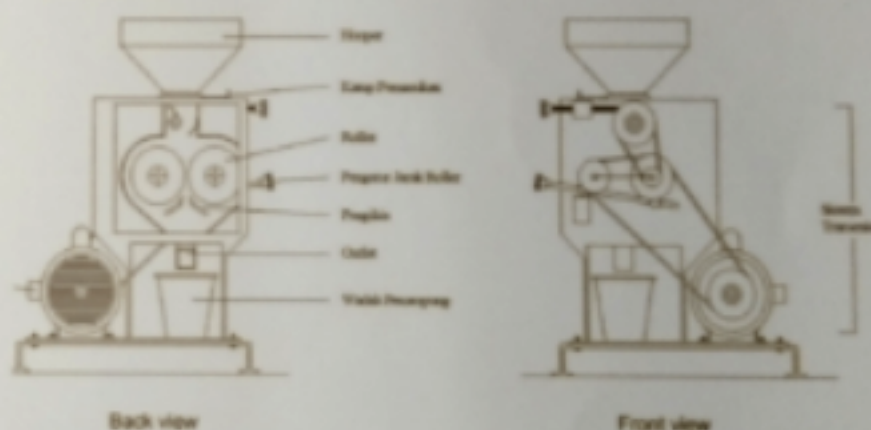
## PURPOSES

- To design of roller type charcoal grinder
- To perform economy technique analysis
- To test the performance of charcoal grinder and
- To resize charcoal into dimension 10 - 100 meshes

## PROCEDURES



## DESIGN



## GRINDER SPECIFICATIONS

Hopper	: $\phi$ = 50 cm
Roller	: $\phi$ = 16 cm (2 units)
Pulley	: $\phi$ 1- 8 cm ; $\phi$ 2- 50 cm ; $\phi$ 3- 12 cm
Output	: $\phi$ = 5 cm
Height	: 100 cm
Width	: 80 cm

## OUTPUT

- Charcoal Grinder
- Active Charcoal

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