



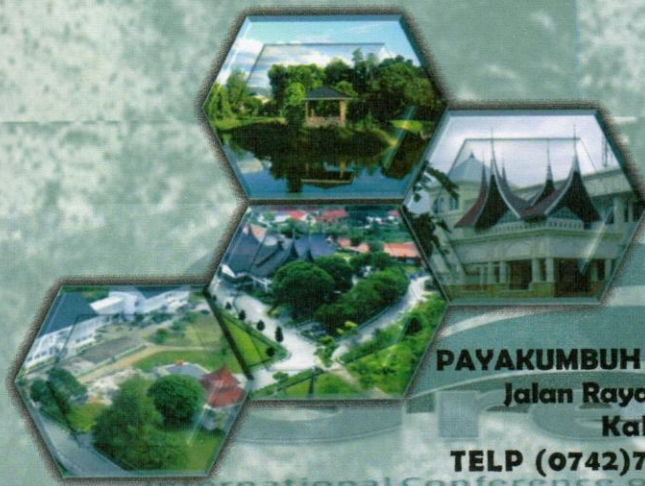
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International Conference of Green City Design

**“The Concept of Green City Development for Medium City
in Facing Global Warming”**

Bukittinggi, 5th-7th of December 2013



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International Conference of Green City Design

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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 performed by using a grinder charcoal tool. The purposes of this research are to design of roller type charcoal grinder, to analyze economy technique, 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