

**DETERMINATION OF SHELL CHARCOAL YIELD
OF DIFFERENT COCONUT VARIETIES IN SRI
LANKA UNDER OPTIMUM TEMPERATURE
CONDITION**

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ABSTRACT

Due to the improper management, inefficient use of resources, use of low quality inputs and production procedures, charcoal production in Sri Lanka has become a less profitable industry which pollutes the environment while cause health problems to the workers and also to the society. Laboratory experiments were carried out at Coconut Research institute, Lunuwila to examine Optimum condition for charcoal production and Best charcoal yielding variety out of four coconut varieties named CRIC 60, CRIC 65, CRISL 98, Kapruwana. The carbonization was effected using particle sizes (5mm) at carbonization temperatures between 200 and 500⁰C in a laboratory muffle furnace. The study involved determination of yield, rate of weight loss, optimum temperature, determination of ash, volatile matter fixed carbon and moisture contents of the carbonized carbon, suitable resident time for carbonization and maximum charcoal yielding variety with its quality parameters. The results showed Kapruwana variety gives maximum yield of 46.59% of carbonized product. It had 0.67, 14.83, 2.12 and 84.5% ash ,volatile matter, moisture content and fixed carbon respectively. The carbonization temperatures of 350⁰C at resident time of 15 minutes with one hour cooling time were the optimum production conditions for coconut shell charcoal.

Key Words: Charcoal, Carbonization, Optimum conditions, Quality parameters, Coconut shell