

Performance Evaluation of Different types of Spice Grinding Machinery for producing chili Powder

Bandara.,D.M.S.P., Rathnayake.,R.M.N.A., Dissanayake.,T.M.R.,(2012) Performance Evaluation of Different types of Spice Grinding Machinery for producing chili Powder,Proceedings of Research Symposium on" Post harvest technology for food security" pp50,Abstracts.

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A study was conducted to evaluate the performance of two types spice grinding machinery currently used in Sri Lanka namely pin (disk) mill and plate mill. The machines were evaluated for their performance in chili grinding with a view to recommending the suitable machinery or machinery combination for the Sri Lankan spice processing industry. Their performance were evaluated in terms of particle size obtained after grinding; color of ground chili; pungency level after grinding; fat content, moisture content, and fiber content of ground chili and energy consumption per kilogram of processing chili powder.

The pin mill performed best as a single machine in terms of particle size of ground product among two types of spice processing machinery. However, the machinery combination of plate mill gives color close to the red line from orange line.

The machinery combination of one pass through pin mill and other two passes through plate mill (T8) produces a particle size of 500 μ m. The L (Lightness) value of hue angle is 36.50 in which the color is closer to the red line from orange line. The fat content, moisture content, fiber content of ground chili powder are 14.9%, 9.9% and 27.1% respectively and all these parameters are comply with SLSI specification. And the energy consumption per kilogram of chili powder is 0.095kWh. This combination is the best combination for producing chili powder as the consumers' acceptance and therefore the market price.