



Abstract

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Engineering Properties of Three Varieties of Melon Seeds as Potentials for Development of Melon Processing Machines

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Abstract:

To develop appropriate technologies for processing agricultural products, it is pertinent to have the full knowledge of the engineering properties of the biomaterial. The engineering properties of melon seeds for three different varieties: *C. edulis*, *C. vulgaris* and *C. lanatus* were investigated at the moisture content of 6.25, 6.33 and 5.21% dry basis respectively. The axial dimension, mean diameter, sphericity, surface area, porosity, true and bulk density, angle of repose, coefficient of friction of the three varieties of melon seeds were determined using standard method. The result obtained from the study revealed that length, width, thickness, arithmetic and geometric diameter, sphericity, surface area and 1000 unit mass ranged from 12.81-14.50 mm, 7.02-8.42 mm, 2.22-2.49 mm, 7.36-8.31 mm, 5.84- 6.54 mm, 0.47- 0.53, 134.64-192.23mm² and 94.0- 110.0g respectively. The static coefficient of friction was determined for four frictional surfaces, namely, glass, plywood, galvanized steel and concrete. The highest coefficient of friction was observed in concrete surface for all the three varieties of melon investigated. The ratio of length to width, length to thickness and length to mass were equally investigated.

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