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Investigation of drying behavior of constituents of organic garbage inside a drying chamber

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The "biodegradable organic garbage" which is mainly disposed from houses, hotels *etc.* contains solar energy in the form of chemical energy. Due to this reason, biodegradable organic garbage is considered as a "source of renewable energy". Burning of biodegradable organic garbage is one the standard energy recovering methods. The moisture content of local biodegradable organic garbage is high and therefore, is not suitable as a fuel material. Furthermore, wet biodegradable organic garbage is becoming a health and environmental problem in Sri Lanka. Such garbage could be converted to a useful product by drying. In this research, the drying behavior of the constituents of biodegradable organic garbage was investigated at the temperatures of 60 ^{0}C and 95 ^{0}C. A two term exponential thin layer drying model was identified as the best model to explain the behavior of some constituents of biodegradable organic garbage, drying inside a temperature controlled drying chamber. One term of the two term exponential model acts as a dominant part of the drying process and this term has been used to calculate the drying constants for the samples of Rice, Dried leaves, Cabbage, Grass and Scraped coconut, and the corresponding values found at the temperatures of 60 ^{0}C, and 95 ^{0}C were 3.1×10^{-7}, 3.2×10^{-7}, 3.3×10^{-7}, 4.5×10^{-7}, 5.5×10^{-7} $m^2 h^{-1}$, and 6.7×10^{-7}, 3.7×10^{-7}, 6.4×10^{-7}, 1.2×10^{-6}, 1.8×10^{-6} $m^2 h^{-1}$ respectively.