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### Performance of an Accelerated Method for the Determination of Equilibrium Moisture Content

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The performance of a method that could accelerate the sorption process of biological materials was evaluated with respect to rapidness (expedition of sorption), comparability of equilibrium moisture content (EMC) values with the control (conventional static method) and effect of specific airflow rates on the rate of sorption, EMC, and sorption rate constant. For this purpose, a simple, compact, and inexpensive experimental setup was fabricated with a facility to agitate the conditioned air around the sample. Different forms of raw and parboiled rice kernels (rough rice, brown rice, and milled rice) of an Indica variety were used as sample material. Both adsorption and desorption processes were investigated under conditions of high humidity (80.27%) and tropical temperature (30°C). Sorption rate constants based on a first-order kinetic model showed a faster rate of sorption by the accelerated method compared to the control for determining the equilibrium moisture content (EMC). The accelerated method required 40-60% less time compared to the control method (static) to reach sorption equilibrium. Specific airflow rates of 79.14m<sup>3</sup>/min-m<sup>3</sup> and lower showed the most similar EMC values to those of the control. The results showed that this method can be applied in order to expedite the sorption process.

**Keywords:** [equilibrium moisture content](#), [accelerated](#), [performance](#)

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