

Title Modelling High Temperature, Thin Layer, Drying Kinetics of Olive Bagasse
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Abstract

The thin layer drying kinetics of olive bagasse at relatively high temperatures is characterized. The influences of product granularity, gas velocity and temperature on the kinetics have been experimentally analysed. A laboratory dryer and its data acquisition system were designed and constructed to enable a wide range of operating velocities and temperatures. The drying conditions, investigated in this study, included combustion products of air and propane with dry-bulb temperatures ranging from 125 to 250°C, relative humidity lower than 1% and gas velocities ranging from 0.5 to 2.0 ms⁻¹. The results of the drying kinetics experiments were fitted to a model based on Fick's law, which allowed for the determination of the effective moisture diffusivity as a function of temperature. Accurate agreement between experimental results and predicted curves was found for gas velocities above a *critical velocity*, quantified as 1.5 ms⁻¹.