Abstract

The drying of rough rice seeds was visualized with the single point mapping imaging (SPI) technique by magnetic resonance imaging (MRI) at various temperatures, and the results were compared with those of the oven-drying method. Most of the water was present in the embryo and endosperm. The water reduction rate was larger on the outside than in the central position of the rice seeds at 50°C, although this discrepancy was not obvious at 40°C. Water reduction was brought about with time according to the kinetics of the multiple components, for both MR imaging and the ventilated-oven method. Images were continuously measured (10 min per image for 100 min). The reduction rate of water from rice kernels increased rapidly with temperature (up) to near 60°C then rose slowly above 60°C. Latent heat was calculated as 15 kcal/mol · deg from the changes of drying rate at temperatures below 60°C.