

Abstract

The effect of air conditions (air temperature, air humidity and air velocity) and characteristic sample size on drying kinetics of various plant materials (potato, carrot, pepper, garlic, mushroom, onion, leek, pea, corn, celery, pumpkin, tomato) was examined during air drying. A first-order reaction kinetics model was used, in which the drying constant is function of the process variables, while the equilibrium moisture content of dried products within the range of 0.10–0.90 water activity at two temperatures (30 and 70 °C) was fitted to GAB equation. The parameters of the model considered were found to be greatly affected by the air conditions and sample size during drying. In particular the temperature increment increases the drying constant and decreases the equilibrium moisture content of the dehydrated products.