ABSTRACT

One of the important treatment of some farm products is drying process. Blowing the hot air to the object is the most common method of this process thus water contained is evaporated. In this study, the influence of air temperature and velocity to the evaporation rate is experimentally investigated. Small duct equipped with controlled air heater element and fan is built to set the air temperature and velocity respectively. Thermocouple and digital anemometer are placed for measurement of the air temperature and velocity. The evaporation rate of water contained is then measured for one hour process. The result shows that the higher air temperature and velocity increase the evaporation rate. However, the gradient of evaporation rate by temperature tends to decrease from 0.163 gram/℃ to 0.122 gram/℃ at 2 cm thickness. Contrarily, the gradient is increased from 0.102 gram/℃ to 0.244 gram/℃ at 4 cm thickness. Based on this fact, it can be concluded that the effect of temperature is more significant than air velocity.

Keywords : Drying process; evaporation rate; air velocity; air temperature.