Thin layer drying characteristics of grain sorghum

Ng'ang'a', I K; Okoth, M W
URI: http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/10833
Date: 2003

Abstract

Drying characteristics of both naturally moist and rewetted grain sorghum were studied. Three varieties of Kenyan grain sorghum were used. The drying air temperature and its flow rate were varied. Relative humidity of the air and the initial moisture content of the sorghum grains were determined. Moisture content of the grains was determined at various times during the thin-layer drying process. Thin layer drying equations based on Pabis and Henderson equation and Page model were developed. Drying air temperature was the major factor affecting drying rates of sorghum grains. The difference in sorghum varieties also influenced the drying rates. The relationship between parameter k in Pabis and Henderson equation (MR=exp (-kt)) and drying air temperature was found to be of Arrhenius type. Parameter K in Page equation (MR=exp (-KfI)), for naturally moist grains, was expressed as an exponential function of temperature terms. But for rewetted grains, it was an exponential function of temperature terms, air flow rate, relative humidity and initial moisture content. Parameter N in Page equation was expressed as an exponential function of temperature terms. Page equation fitted drying data better than Pabis and Henderson equation.