

Abstract

This research is to model and build a prototype of drying process using microwave vacuum drier associated with vacuum drier. At the beginning a computer program assisted is used to design and then to simulate the distribution of microwave energy within a cylindrical cavity. Secondly, the prototype associated with vacuum drier is designed. The internal structure consists of rotating drum having a rotational rate of 1 rpm in order to the material to be processed absorbs uniformly microwave energy. In addition the manufacturing power at 5 kW a time drying is programmed. The materials which is used as indicator for evaluating the performance of the prototype designed is tea leaves with applying the microwave power of 800 and 1600 watts for 1.0 kg. Furthermore the one direction of microwave application is set both pulse and continue opening and pressure is controlled at 385 and 535 torr. The test results show that the designed prototype can dry the moisture content out of inside tea leaves from 170 to 7% by using time consumption only of 110 minutes for microwave power of 800 watts and also utilize to study the parameter involved.