STUDY OF THE APPLICATION OF MICROWAVE ENERGY KINETICS OF SHRINKAGE IN THE PINEAPPLE


The pineapple is a fruit rich in sugars, minerals and vitamins and wide acceptance in the international market, with Brazil being one of the major world producers. This culture is of great importance for the Brazilian economy, where there is the possibility of expanding the cultivation and supply of processed products. Drying is one of the processing options and generally, the biological materials shrink during drying. This shrinkage gives a reduction in the cost of packaging the final product, facilitating its storage and transportation. However, the shrinkage causes structural changes, one of the factors responsible for the loss of quality of dehydrated foods. Understanding the influence of process variables on the drying shrinkage is essential to improve understanding of the drying kinetics as well as for the preservation of product quality. The objectives of this work were to study the drying of pineapple using microwave energy by evaluating the influence of air conditions and power applied at baseline and end of the drying kinetics of shrinkage of the fruit. The kinetics of shrinkage was performed by monitoring the changes in apparent volume of the samples relative to the sample in natura, as measured by Archimedes principle in n-heptane. The results showed that microwave power presented a more prominent effect on product shrinkage during the first and second period of drying. Therefore, a microwave power control along drying can be applied to achieve a good quality product.