Abstract

Osmotic dehydration of fruits is one of the oldest forms of food preservation techniques known to man. Osmotic dehydration is affected by several factors such as osmotic agent, solute concentration, temperature, time, size, and shape and tissue compactness of the material, agitation and solution/sample ratio. The application of osmotic dehydration includes musk melon, banana, papaya, mango, onion slices cucumber and carrot. Artificial Neural Network is a black box tool for the modeling of processes involving multivariable non linear relationships. The present work is aimed at the study of effect of time, temperature and concentration of osmotic solution on the weight reduction for the process of osmotic dehydration of banana slices. The experimental data of osmotic dehydration kinetics generated have been used to develop a mathematical model using regression analysis. Artificial neural network models having different topologies are developed. The comparison between ANN models is carried out based on the relative error values of all the output data points. ANN model 1 is observed to be superior than model 2. The comparison is also carried out between the output values obtained by ANN model 1 and the mathematical model using regression analysis.
Modeling of Osmotic Dehydration Kinetics of Banana Slices using Artificial Neural Network

References

- Pandharipande S L, An Introduction to Artificial Neural Networks (Denett Publications, Nagpur), 2008.

Index Terms

Computer Science
Artificial Intelligence
Keywords
Artificial Neural Network  Osmotic Dehydration  Modeling  Banana Slices