

## Abstract

The objective of this study was to determine the effect of brining on the drying rate of tilapia (*Oreochromis niloticus*) in a glass-covered solar tunnel dryer. Tilapia fish, eviscerated, and split into pieces of approximately 4cm by 3cm by 9mm was soaked in brine at varying concentrations of 0, 5, 10 and 15%. The samples were dried in a glass-covered solar tunnel dryer for 40 hours. The moisture content was evaluated by the oven dry method. The moisture content of fish was found to reduce linearly from 5.58 to 2.76kg/kg (db) as brine concentration increased from 0 to 15%. The drying rate reduced with increase in brine concentration. The effective diffusion coefficient decreased from  $8.56 - 5.72 \times 10^{-11} \text{ m}^2/\text{s}$ , and the drying rate constant from  $0.1217 - 0.0813 \text{ hr}^{-1}$ , as the brine concentration increased from 0-15%. These results provide useful information in the modelling and design of solar drying systems for tilapia fish drying