

Sauna technique, drying kinetic modelling and effectiveness compared with direct drying in drying process of *Kappaphycus Striatum* in Selakan Island Malaysia

Abstract

A sauna drying technique—the solar drier was designed and imposed, constructed and tested for drying of seaweed. The seaweed moisture content was decreased around 50% in 2-day sauna. Kinetic curves of drying of seaweed were known to be used in this system. The non-linear regression procedure was used to fit three different drying models. The models were compared with experimental data of red seaweed being dried on the daily average of air temperature about 40°C. The fit quality of the models was evaluated using the coefficient of determination (R^2), Mean Bias Error (MBE) and Root Mean Square Error (RMSE). The highest values of R^2 (0.99027), the lowest MBE (0.00044) and RMSE (0.03039) indicated that the Page model was the best mathematical model to describe the drying behavior of sauna dried seaweed. The percentage of the saved time using this technique was calculated at 57.9% on the average solar radiation of about 500 W/m² and air flow rate of 0.056 kg/s.