QUALITY ASSESSMENT OF DRIED SHRIMP USING TWO-STAGE SUPERHEATED STEAM AND HEAT PUMP DRYERS

Authors: Yuvanaree Namsanguan, Warunee Tia, Sakamon Devahastin, Somchart Soponronnarit

The purpose of the present study was to investigate strategies for two-stage drying. This work concerned on the drying of shrimp using superheated steam dryer followed by heat pump dryer (SSD/HPD) both from heat/mass transfer and quality points of view. The moisture contents exited from the superheated steam dryer varied between 30% and 40% (w.b.). Shrinkage, color, rehydration behavior and texture of dried shrimps were determined in this study.

The laboratory experiments were carried out in the two different stages of SSD/HPD. The first-stage superheated steam drying was performed at a drying temperature of 140 °C while the second-stage heat pump drying was operated at 50 °C. The results indicate that shrimp dried using SSD/HPD has even better quality than dried in SSD alone; SSD/HPD dried shrimp has much lower degree of shrinkage, higher degree of rehydration, better color and softer.

In addition to the two-stage drying of SSD/HPD, the drying of shrimp using superheated steam dryer followed by hot air dryer (SSD/AD) was investigated. Laboratory experiments were conducted by changing the second stage dryer from heat pump dryer (HPD) to hot air dryer (AD) that operated at the same drying air temperature as HPD. The results show that SSD/AD gives redder and softer shrimp similar to SSD/HPD dried shrimp but no improvement in terms of shrinkage and rehydration behavior was observed.