TEXTURAL CHARACTERIZATION OF SEA CUCUMBER (STICHOPUS JAPONICUS) DURING HOT-AIR DRYING PROCESS

Mohammad Anvari, Moojoong Kim, Donghwa Chung. Department of Marine Food Science and Technology, Gangneung-Wonju National University, Gangneung, Gangwon 210-702, Korea

Sea cucumber has been widely consumed in the East Asia because of its high nutrition and tonic function. Sea cucumber undergoes rapid autolysis after being taken out of sea water, and therefore, is often processed to a dehydrated product for an extended shelf-life. However, little information is currently available on the textural changes of sea cucumber during drying process. The objective of this study was to investigate the changes in the textural properties of sea cucumber (Stichopus japonicus) during a hot-air drying process. A 6-step drying process was used: gutting fresh sea cucumber, 15-min boiling, 6-h salting, 30-min drying at 30°C, 2-min boiling, and 12-h drying at 50°C in an oven. The measurement of shrinkage ratio and the texture profile analysis (TPA) were performed during the process for the whole samples and the back side of the samples, respectively. The shrinkage ratio increased to 20% after the process. The values of hardness I and II steeply decreased from 38.6 and 23.0 N (fresh samples) to 6.1 and 5.9 N after the second boiling, and then slightly increased to 9.3 and 9.0 N, respectively, at the end of the process. The springiness and cohesiveness values showed increasing trends during the process. The results demonstrated that the sea cucumber acquired a better chewing property (softer and more springy) after the drying process, because the binding forces between collagen fibers and between myofibrils might become weaker during the drying process, resulting in easy falling apart of muscle tissues.