Effect of Sample Preparation Methods and Extraction Time on Extraction Yield and Antioxidant Activity from Krill (Euphausia superba)

Ali Nehari Abdelkarder, 전병수*, 김선봉, 이양봉
부경대학교
(bschun@pknu.ac.kr*)

Sample preparation is an important step in any analysis as it directly affects the assay results. Antarctic Krill was selected for studying the effect of sample preparation method and extraction time on the extraction yield and antioxidant activity. Krill were prepared using freeze-dry and dry-oven methods. Oil including astaxanthin was extracted from each sample using supercritical carbon dioxide (SC-CO2). The preparation methods gave significant effect on antioxidative stability but had no remarkable effects on yield of the extract. Freezing gave a higher yield of the extract, a higher total antioxidant content and a greater antioxidant activity compared with those obtained from oven drying method. Freeze-dried sample were extracted with ethanol for 1, 3, 5, 7, 12, and 24 h. The yield of the extract and total astaxanthin content were almost constant after 5 h at room temperature. However, extraction time from 5 to 7 h gave the highest antioxidant activity, comparing with those from other extraction times. These results suggested that freezing-dry was the appropriate method to prepare krill for oil extraction and the extraction time to obtain the highest yield of the extract and antioxidant activity should be carried out for 5 to 7 h.