Physicochemical properties and volatile profile of chili shrimp paste as affected by irradiation and heat

ABSTRACT

Chili shrimp paste (CSP) is an exotic traditional Southeast Asian condiment prepared using mainly fresh chilies and fermented shrimp paste (belacan) which attributed to strong pungent fishy odor. This study aims to evaluate the effectiveness of electron beam irradiation (EBI) exposure on CSP for microorganisms decontamination, and its physicochemical qualities changes. Changes in capsaicinoid contents and volatile compounds were analyzed using HPLC and GC–MS. Mesophilic bacteria, yeast, mold and pathogenic Enterobacteriaceae decreased as irradiation dose increasing from 0 to 10 kGy. EBI at 10 kGy effectively decontaminated the samples with no significant effects on phenolic and capsaicinoids contents compared to the fresh samples. From 24 compounds, irradiated CSP retained 23 volatile compounds, while thermally treated CSP has only 19 compounds. EBI at 10 kGy is effective for decontamination in CSP with lesser destructive effect on volatile compounds and texture compared to thermal treatment.

Keyword: Electron beam irradiation; Chili shrimp paste; Volatile compound; Capsaicinoids; Texture