

Public Abstract

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Title:Use of Citrus Fiber in Ground Beef Meatballs as a Functional Ingredient

In recent years, consumer's food choices have shifted towards healthy foods due to an increased concern about coronary heart disease and diabetes. Food products with high fat and cholesterol content have been associated with these health problems and consumption of processed meat products have been linked to these diseases. Research in developing healthy meat products is becoming more crucial. Therefore, the objective of this study was to determine the use of citrus fiber in ground beef meatballs as a functional ingredient. The study was conducted in four phases. In the first phase, presence of flavonoid compounds in a citrus fiber was measured by reverse-phase high-pressure liquid chromatography along with total polyphenol content, total carotenoid content and oxygen radical absorbance capacity. Results showed that citrus fiber used in this study had a trace amount of quercetin and kaempferol, and low concentrations of nobiletin, sinensetin, heptamethoxyflavone and tangeretin.

For the second phase of the study, the impact of adding citrus fiber on quality attributes of ground beef meatballs were investigated. While addition of citrus fiber increased cooking yield and water holding capacity, did not change the pH of both raw and cooked meatballs.

The third phase of the study determined the oxidative stability of ground beef meatballs made with different citrus fiber levels. The stability was evaluated using Fourier transform infrared spectroscopy. Results showed that addition of citrus fiber caused oxidation in ground beef meatballs comparison to control treatments. In the final phase of the study, consumer preferences for citrus fiber added meatballs were tested. Results showed that consumers moderately liked the flavor, texture and over likeness of the meatballs made with citrus fiber. Also, addition of citrus fiber caused tenderness in the meatballs that use of citrus fiber in very lean meatball recipes can help with replacing fat and making tender meatballs.