Abstract

Iranian fermented soup (Kashk -e Zard) is a product based on lactic fermentation of cereals made by adding yogurt. In this research, for the first time, the effects of the replacement leves of soybean flour (0, 20, 40, 60, 80 and 100% based on wheat flour w/w) were evaluated on the quantitative and qualitative characteristics of prepared.

Measurements indicated how these parameters affected pH, TTA, moisture, fat, ash, mineral solute values (Zn, Cu, Ca, K, pb, Mn, Mg, Na and Fe), protein, non-protein nitrogen, protein digestibility, phytic acid, amino acid profiles, fatty acid profiles, total dietary fiber (soluble and insoluble), total phenolic compounds (free and grafted), flavonoid content, antioxidant properties (DPPH and FRAP), water and oil absorption capacity, emulsifying activity, viscosity, colorimetric and sensory evaluation (appearance, homogeneity, flavor, viscosity and consistency and overall acceptance) contents in Kashk -e Zard samples. The total viable (TVB), *lactic acid* bacteria (LAB), yeast, *Coliform, Escherichia coli* and *Staphylococcus aureus* were examined during 12 day fermentation process. The results showed that increasing the replacement level, increased the protein content, protein digestibility, ash, dietary fiber, minerals and decreased in fat and phytic acid levels ($P < 0.05$). Also the antioxidant properties of the samples improved ($P < 0.05$). The results of sensory evaluation showed that the highest overall acceptance scores were related to control sample (had no soy flour) (7.24± 0.97) and sample containing 20% replacement level (6.84± 1.55). The initial count of TVB and LAB increased quickly in samples during fermentation time.

A decrease in yeast numbers was observed, with a slight increase in the number of *coliforms* and *Escherichia coli* during fermentation time (< log 10 cfu /g). The results of this study showed that adding soy flour up to 20% with while maintaining overall acceptance quality can improve the nutritional value of the final product.

Keywords: Phytic Acid, Soy Protein, Fermentation, Sensory Properties, Kashk -e Zard.

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Effect of adding soy flour on the quantitative and qualitative properties of Iranian fermented soup (Kashk -e Zard)

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