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The Thesis Submitted for the Degree of M.Sc

**Determining the Best Fermentation Time of
Iranian Soup (Kashk-e-Zard) Under the
Influence of Different Temperatures**

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Abstract

Kashk-e-Zard is one of the fermented foods in Sistan and Baluchistan province, which is prepared based on the fermentation of grains with the microbial flora of fermented dairy products such as yogurt. The purpose of the conducted research is to determine the optimal fermentation time of Kashk-e-Zard at different temperatures and based on the quantitative and qualitative indicators of the final product. In this research, fermentation temperature (in three levels: 25, 30 and 35 degrees Celsius) and duration of fermentation (in five levels: 0, 3, 6, 9 and 12 days) were considered as variables. Microbial tests including total count, coliforms, lactic acid bacteria, *Staphylococcus aureus*, mold and yeast and chemical tests including determination of acidity, pH, ash, fat, moisture, phytic acid, protein, protein digestibility, zinc, calcium, absorbability of mineral elements (calcium and zinc), total phenol, antioxidant properties and sensory properties (color, smell, appearance properties and overall acceptance) were performed on the samples. The obtained results were analyzed in the form of completely random design using factorial test and using SAS software version 9.1. During the experiments, the amount of acidity increased and the pH decreased. The highest amount of acidity, ash, zinc, calcium, protein, fat, moisture, phytic acid and phenol at the temperature of 25 degrees Celsius and the highest amount of carbohydrates, zinc and calcium absorption capacity and the lowest The amount of phytic acid and antioxidant was reported at 30 degrees Celsius. Based on this, fermentation treatment at 25°C for 12 days can achieve the highest food quality based on the mentioned parameters. The highest microbial contamination and the lowest sensory scores were observed at 35°C. This result can probably be used in the workshop and industrial production of Kashk-e-Zard product. Therefore, fermentation at 25 and 30 degrees Celsius for 6-9 days is suggested to maintain the quality characteristics of Kashk-e-Zard.

Key words: nutritional value, optimization, Kashk-e-Zard, fermentation.