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Ahmad Shakerardekani, *Iran Pistachio Research Institute*



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## Optimizing Formulation of Pistachio Butter Production

A. Shaker Ardakani<sup>1\*</sup>, M. Shahedi<sup>2</sup> and GH. Kabir<sup>2</sup>

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### Abstract

Pistachio processing, such as production of pistachio butter, is one of the ways to increase the added value of pistachio. Pistachio butter is a paste containing mainly milled, roasted pistachio kernel and sugar. In this investigation, the effect of two emulsifiers (lecithin and mono-di glycerids) at three levels of 0.0, 1.0, 2.0%, on the oil leakage and the effects of BHT as an antioxidant at three levels of 0.00, 0.01 and 0.02% on the peroxide values of pistachio butter and paste after 4 months storage at 20 °C were studied. Each experiment was performed in triplicates. Rheological and organoleptic tests were performed on the finished products. The results were statistically analyzed by a completely randomized Design and by making comparisons between the means via multiple range Duncan's test ( $P < 0.05$ ). Roasting of the pistachios at 110°C for 15 min was the best condition as determined by taste panelists. Moreover, addition of 15-25% of sugar in butter formula, received the best score by the panelists. The results of organoleptic tests showed that the sample containing lecithin and mono-diglycerides had the least leakage of oil. Based on the results, pistachio butter produced in this investigation received higher score in terms of flavor and texture than industrial pistachio butter in the market. Results also showed that addition of BHT had a significant effect on shelf life of pistachio butter. Rheological experiments showed that pistachio butter produced in this investigation was 1.5 times softer than its industrial counterpart. The results indicated that the best formula for production of pistachio butter was 72.99 - 82.99 % roasted pistachio kernels, 15-25 % sugar, 1% lecithin, 1% mono di glyceride and 0.01 % BHT.

**Keywords:** Pistachio butter, Emulsifier, Antioxidant, Shelf life.

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1. Scientific Member of Iran Pistachio Res. Instit, Rafsanjan, Iran.

2. Prof. and Assoc. Prof. of Food Sci. & Technol., Respectively, College of Agric., Isf. Univ. Technol., Isfahan, Iran.

\*: Corresponding Author, Email: shaker@pri.ir