

Investigation of physicochemical and organoleptic properties of low-calorie functional quince jam using pectin, quince seed gum and enzymatic invert sugar

Vaseghi, F. ¹, Jouki, M. ^{2*}, Rabbani, M. ³

1. Master Student, Department of Food Science and Technology, North Tehran Branch, Islamic Azad University, Tehran, Iran
2. Assistant Professor, Department of Food Science and Technology, North Tehran Branch, Islamic Azad University, Tehran, Iran
3. Assistant Professor, Department of Chemistry, North Tehran Branch, Islamic Azad University, Tehran, Iran

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Jam is a product that uses a lot of sugar in its preparation, and this compound plays an important role in increasing the level of sugar. Since the increase in blood sugar is associated with diabetes and obesity, so reducing sugar consumption in this product can reduce the risk of these diseases which are caused by long-term use of this product. In this study, enzymatic invert sugar was used as a substitute for sugar in different ratios (0, 25, 50, 75 and 100%). Quince seed gum and pectin were also used as thickeners to improve the texture properties of jam. Measurement of acidity and pH, viscosity, brix, total sugar, reducing sugars, energy intake and sensory properties were measured. According to the results, with adding the gum and pectin, pH decreased, followed by acidity, brix, viscosity, reducing sugars, tissue hardness, yellowness and lightness index as well as sensory properties scores. Also, with increasing invert sugar, the acidity of samples increased, while brix and viscosity of samples decreased significantly ($P<0.05$). But as the invert sugar concentration increased, the taste and color scores of the samples increased. The color score of the samples was significantly increased ($P<0.05$) by adding quince seed gum. There was no statistically significant difference in odor of samples with increasing sugar replacement percentage ($P\geq0.05$). In general, based on the results of physico-chemical and sensory tests, it can be said that jam samples containing 75% invert and 0.25% of gum to (treatment number 15) were the best samples with 15% fewer calories than control samples.

Keywords: Jam, Quince fruit, Pectin, Quince seed gum, Invert sugar

* Corresponding Author E-Mail Address: m.jouki@iau-tnb.ac.ir