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FORTIFICATION WITH OAK FRUIT FLOUR ON TEXTURE AND SENSORY PROPERTIES OF BREAD

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INTRODUCTION: Today, a significant portion of household food requirements is supplied of wheat and its products, particularly the bread. However, there is considerable variation between wheat and its products in Iranian society. Wheat products have been estimated to contribute more than 47 percent of household consumption energy. This study was aimed to partially replace wheat flour with oak flour to increase nutritional value and other nutritional factors of breads.

MATERIALS AND METHODS: In this study we evaluate the effect of adding oak fruit flour (0, 6, 8, 10, 12 and 14 %) to wheat flour and monitoring the effect of this ingredient on product quality in baguette bread. Textural and sensory properties were studied and stress relaxation and cutting test were estimated by Texture Analyzer, (Model CT3 Brookfield Engineering Co, Middelboro, USA). Sensory test on the first, sixth and eighth were performed by 15 volunteers. At this time, breads were kept at room temperature, initial training was given to all participants, and sensory evaluation form was evaluated by Cereal Research Center of Iran.

RESULTS AND DISCUSSION: for the cutting test, data analysis showed no significant difference among the control, 8, 10, 6 and 12% samples. However, using 14% oak flour complementation led to significant difference with other mentioned groups. For stress relaxation test, first and the second hardness there was no significant difference between 10% and other groups, including control. It might be note worthy to mention that data from 14 percent supplementation group was discarded from the analysis because of being too much outlier. In textural tests, including punch and stress relaxation, the texture hardness was improved by the addition of oak fruit flour while the texture quality was deteriorated. In the sensory test issue, results showed that 14% treatment was almost undesirable in all evaluated days, though other treatments sound good in the first day. In sixth day of analysis, only control treatment was at good level, while 6 percent were adequate. In conclusion, this study indicated that oak fruit flour could be substituted in wheat breed to improvement in bread hardness and texture quality. However, at higher levels of oak fruit flour the acceptability sensory properties as well as shelf life declined.

Keywords: Bread, oak fruit flour, sensory, texture