The presence and amount of baking soda in the bread of Sanandaj

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ABSTRACT

Note that in the bread basket of food has a special place it is also important to health. Some manufacturers look to improve the quality of bread baking soda as a chemical unauthorized use. Using baking soda is harmful to human health and is not allowed. The present study investigated the presence and amount of soda bread consumed in the city of Sanandaj in Iran was implemented in 2010. The number of samples included 25 from each four groups of bread, Sangak, Barbari, Lavash and Fantasy choice in Sanandaj. Total samples (i.e 100 samples) were analysed. Identify and measure the baking soda to the national standard based on 4270 characteristics and test methods of oral bicarbonate and AOAC was. The results were analyzed with spss’s software version 17 and T test for compare mean of society with costant number, analysis of variance and Tukey Kramer for compare means. The results of this research indicated that the least amount of baking soda in the most Barbari and there was Sangak, but were lacking Lavash and Fantasy. The result is that the use of baking soda in sangak high degree of extraction is higher than other breads.

Key words: Bread, Baking soda, Sodium bicarbonate, Sanandaj.

Introduction

Daily wheat bread as the main products of much of the energy, minerals and vitamins needed by the body provides [6,9]. Considering the high consumption of bread is the food in our country and about 300 grams of bread per person on average daily consumption leads to [18]. Attention to the preparation and consumption of health and nutritional status and the national economy is very important [1,10,18]. In addition bread to feed the people, especially low-income and poor is the most important food [4]. Unfortunately in recent years the use of a chemical called sodium bicarbonate is baking soda is a common [14]. The leaven is used instead. The most commonly used chemical additives in bread production, sodium bicarbonate is used is [2,4,9,16,21]. Baker for curing of bread and ferment it, and to accelerate the curing process and shorten the repair of defects resulting from natural fermentation and the poor quality of flour and bread, forced to cover the defects apparent on the harmful chemicals of the use of harmful chemicals [9,11]. But part of sodium bicarbonate, sodium carbonate by heat to become the leaven yeast produce CO2 just like a heat-resistant material is that the bread remains bread and alter the taste of bread [4]. Reports on the use of this material is unauthorized [1,4,8,9]. Soda bread consumption in the different effects on health that leaves the consumer with numerous health effects than is [7]. Residues present in the bread baking soda cause digestive discomfort, prevents the absorption of calcium, iron and other essential elements in the digestive tract, the result of iron deficiency anemia especially in women., osteoporosis bone mash calcium will be reduced [4,5]. So it should be noted that demonstrating the presence of this compound in foods such as bread, which provides 65 percent of human energy [6]. Accelerate the awareness and community officials and those involved in the preparation of these products is of vital importance. The studies and research in this area should be done to determine how much importance in the preparation of food standards and consumer health are considered. In case of non-compliance issues and points of bodies involved in the control and monitoring units can operate according to the statistical results obtained with more confidence than the manufacturers to follow the rules and regulations that are in their possession.

Materials and Methods

Comparison is an analytical study of all research, because research hypotheses based on experimental observations from four independent groups breads of Sangak, Barbari, Lavash and
Fantasy based as research subjects, randomly selected from each group and then tested at Sanandaj Azad University of Agriculture Department food laboratory analysis was performed and results of these four groups were compared with each other.

Materials and equipment needed:

Laboratory analysis of food supplies in the Faculty of Agriculture, Islamic Azad University of Sanandaj, was used and chemicals needed by the company with the German trademark sunrise Tolooa-e SHafaavar Sanandaj were prepared.

Identification of soda:

For identification of soda the 4270 features standard and oral test methods baking soda (sodium bicarbonate) was: To identify baking soda (sodium bicarbonate) solution of 1 in 10 weight to volume of sodium bicarbonate with acids produced colorless gas that immediately after the passing of calcium hydroxide (3/4 g in 100 ml water) precipitated a white buildup. Gas samples that were created indicating the presence of bicarbonate was Chemists [7].

Measurement the baking soda:

Method American Official Analytical Chemist was performed to measure the baking soda. Powder, 0.50 g of dry bread, which was previously entered into a Chinese plant used by weight and burned it to ashes. The resulting ash was dissolved in hot water, after filtration, the contents of the filter were washed several times with warm distilled water. The clear solution was titrated in the presence of methyl orange and N/20 sulfuric acid and the amount of baking soda in terms of mg per gram sample was obtained from the following relationship 2/8 × ml of acid = sodium bicarbonate mg per 100 grams of sample [15].

Result:

The results were analyzed with spss’s software version 17 and T test for compare mean of society with constan number, analysis of variance and Tukey Kramer for compare means.

<table>
<thead>
<tr>
<th>Table 1: Average amount of baking soda in breads of Sangak (S), Barbari (B), Lavash (L) and Fantasy (F).</th>
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In table 1 Average values from top to bottom, respectively, for soda in breads of Sangak, Barbari, Lavash and Fantasy are. Average minimum and maximum values, respectively, in the barbaric and sangak soda there, but are lacking Lavash and Fantasy. So the amount of baking soda in a variety of breads is a significant difference.

<table>
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<th>Table 2: Analysis of Variance.</th>
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The ANOVA test in Table 2 because the amounts of baking soda in the total sample is pvalue <.001, So the amount of baking soda in a variety of bread. Tukey test for multiple comparisons is a significant difference. Compared to the amount of baking soda in Sangak and Barbari, as Lavash and Fantasy as well as Lavash with Barbari is pvalue<.05, so the difference is significant. Lavash and fantasy, as compared to the amount of soda is pvalue >.05, so this difference is not significant. In the T test with a fixed amount for the total baking soda sample pvalue <.001, H0:µ≠2 , H0:µ=2 So H0 can be rejecte.. In the first test with a fixed amount of baking soda in Sangak pvalue <.00 and for Barbari pvalue <.05, H0:µ≠0, H0:µ=0 So H0 can be rejected. The amount of soda in Sangak and Barbari with the
standard amount is significant. In the T test with the constant need for baking soda in breads of Lavash and Fantasy is not a test.

Discussion:

The flour extraction rate is lower, the lower protein levels, with increasing degree of extraction of the protein quality of flour or other baking quality decreases [20]. With an increase in extraction rate, the protein content, fiber, sugar, lipids and mineral matter increase, whereas the starch decreases [12]. Of dark flour protein levels are higher than on the quality of flour and baking capabilities, it is far below the clear flour [20]. In Sangak with high extraction (93%) Shortening the time for processing due to low or non-use yeast and Sourdough by bakers in comparison with other like lavash bread and Fantasy consumption are soda. While in lavash bread and fancy cooking is high quality with low extraction (respectively 88%, 82%) does not need to add baking soda.

Other research has been done in this field, but the overall research and communication to the type of bread not tested and the presence or absence of just baking soda used in bread and bakery as well as the percentage that have used baking soda have been identified.

Research on the bakery in city of SHahrood it was found that 77% of yeast and 21% of sourdough and 2% baking soda used [18]. Evaluation results in about ten percent of bakery shops in the city of Mashhad, which four months were randomly shown that the total amount of sodium in breads (1/34g in 100 g of bread), about 57/5% by increasing salt and about 42/5 percent of sodium bicarbonate to increase the supply of bread is [3]. In city of SHahrood in 2004, 4/7% of the bakeries, baking soda used in the production and 6/92 percent said they do not use [17]. In city of Gorgan at the bakery in 2006, has been determined that 23 percent of bakery Barbari and 88/9 the percentage of Lavash baking soda and use have [19]. In 2010, total 61 bakeries in the city of Jiroft 5/6% of them have used baking soda [13]. While in Rafsanjan 81 number of bakery in 2002, 2/22% baking soda are used [14].

Conclusion:

The flour extraction rate is higher than its protein quality is reduced. So in sangak the degree of extraction is higher than other bread cleave to reduce time and increase the quality, baking soda is used. But the bread with a low degree of extraction is not necessary to use baking soda.

Reference

6. Institute of Standards and Industrial Research of Iran, 211: 7.
7. Institute of Standards and Industrial Research of Iran Specifications and test methods for Sodium Bicarbonate Food Grade Isiri Number4270 (Persian).