STUDY OF THE RELATIONSHIP BETWEEN ASH CONTENT IN DIFFERENT WHEATS FLOUR AND COLOUR AND ACRYLAMID CONTENT OF BREADS MADE OF THEM

In recent decade unwanted production of acrylamid during some important food processes, is known on top of the health problems. In ۲۰۰۲, high levels of a toxic and carcinogenic substance called acrylamid was unexpectedly discovered for the first time in some heat-processed foods be national institute of nutrition in Sweden. Formation of acrylamid is possible when cereals, potatoes and other starchy foods made of plants, are affected by thermal process. At this time, amin groups of amino acids like asparagine reacts with carbonyl group of reducing sugers such as glucose and fructose. So existance and formation of acrylamid in cereal products such as Sangak bread which is one of traditional breads in Iran and has high nutritional properties, is possible and it appears that this bread has the potential to form acrylamid.

Materials and Methods
In this research, ash content of ۷ varieties of Iranian wheat which are zarrin, Azar-۲, Marvdasht,Toos,Alamoot,Chanab and sardari was measured.Then Acrylamid content of breads made of these ۷ varieties was measured. In this regard, ash content of wheat flour samples was measured according to features standard and testing methods for wheat and acrylamid content of breads made of these wheats was measured using gas chromatography with electron capture detector (GC/ECD). In addition, the valves of bread colour factors (L*,a*,b*), colour intensity (c*), Browning index (BI) in sangak bread samples were evaluated through method of digital image processing using software: Image J۱۴۸-jdkb. The data were entered the SPSS software and were analysed.

Results and Discussion
Ash content changed in the range ۵۶۲۸/۱-۳۲۸۴/۱ and the average acrylamid content changed in the range ۳/۹۶۳-۴۷۱. The maximum ash content belonged to Toos wheat and the minimum ash content belonged to Azar-۲ wheat. In addition the maximum acrylamid content was seen in Marvdasht wheat and the minimum acrylamid content was observed in Toos wheat. Furthermore, extent of relationship between ash content and acrylamid was ۳۷۴/۰ which is not statistically significant. (P-valve>۰/۰۵). In other words, ash content has had a direct impact on the extent of acrylamid formation. Moreover, acrylamid
concentration has had the most correlation with brown index (p=0.046). Generally by increasing colour factors, acrylamid concentration had enhanced. However, by over colouring and increasing it's tendency toward blacking, acrylamid content will be reduced again. But in studied samples, the pleasant colour of sangak bread if lighter than this. (so, acrylamid content has not been reduced). Finally variety Toos was recognized as the best one for bakingbread, due to minimum acrylamid content and it's appropriate chemical properties (appropriate ash content).

کلمات کلیدی:
wheat, Sangak bread, Ash, Browning index (Bl), GC , ECD

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