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# BOOK OF ABSTRACTS

6TH MEETING  
OF YOUNG RESEARCHERS OF UNIVERSITY OF PORTO



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## CREDITS

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# Influence of $\beta$ -glucans addition on texture and color of homemade bread

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$\beta$ -glucans are soluble and fermentable fibers that, once in the intestine can compose highly viscous solutions, presenting benefits for insulin resistance, dyslipidemia, hypertension, and obesity [1]. Thus,  $\beta$ -glucans can be useful in the food industry, increasing the fiber content of food products and enhancing their health properties. According to EFSA, the amount of yeast  $\beta$ -glucans in conventional foods must range between 50 and 200 mg per serving [2]. However, the influence of  $\beta$ -glucans addition on bread sensory characteristics was not understood.

Bread texture and color affect consumer preference. Sensory evaluation is not simple, nor objective. Thus, instrumental measurement is crucial. The objective of this work was to study the effect of adding different levels of  $\beta$ -glucans extracted from yeast cell wall to improve the bread's characteristics.

Breads were made from 500g of flour mixture of NACIONAL - CEREALIS appropriate for homemade bread “pão caseiro” 320 ml water and variable amounts of  $\beta$ -glucans (0; 0,5; 1; 1,5 and 2g). Weight and volume were evaluated. The characteristics of texture and color were measured. A Texture Analyser was used for evaluation of Hardness, Cohesiveness, Elasticity, Adhesiveness and Masticability. Colour, lightness ( $L^*$ ), redness ( $a^*$ ) and yellowness ( $b^*$ ) were determined using a Minolta colorimeter. The bread displaying the largest volume was that with a dose of 1,5g and the one with the smallest volume was that with a dose of 0g of  $\beta$ -glucan extract. For Hardness, the highest value corresponded to the 0g dose and the lowest to the 1,5g one; whereas for Elasticity, the highest was for 1,5g and the lowest for 0g and 0,5g; the highest value for Masticability corresponded to 0,5g and the lowest one to 1,5g. In respect to color, the  $L^*$  parameter was the highest for the 1,5g dose and the lowest for the 1g one; the  $a^*$  parameter was the highest for 0g and the lowest for 1,5g, the  $b^*$  parameter was the highest for 0g and the lowest for 1,5g. More studies are needed to confirm the influence of  $\beta$ -glucans addition to homemade bread using different baking conditions.

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[1] D. El Khoury, C. Cuda, B. L. Luhovyy, and G. H. Anderson (2011),  *$\beta$ -Glucan: Health Benefits in Obesity and Metabolic Syndrome*, Journal of Nutrition and Metabolism, 2012: 851362.

[2] European Food Safety Authority (EFSA) (2011), *Scientific Opinion on the safety of 'yeast beta-glucans' as a Novel Food ingredient*, EFSA Journal, 2011;9(5):2137