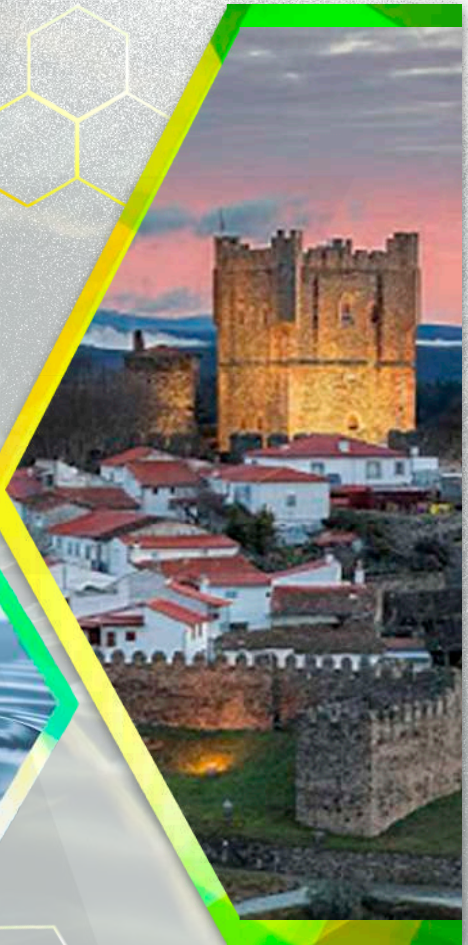




Natural products application: Health, Cosmetic and Food

Provided by nature, adapted scientifically for industry



Book of abstracts
1st International Online Conference
4th - 5th February 2021

Title

1st Natural products application: Health, Cosmetic and Food: book of abstracts

Editors

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Suport

Eletronic

Format

PDF

Edition

Instituto Politécnico de Bragança (IPB)

<http://www.ipb.pt>

5300-253 Bragança, Portugal

Tel. (+351) 273 303 382

ISBN

978-972-745-286-6

URL

<http://hdl.handle.net/10198/22068>



PCF-51

“ECONÓMICOS” CAKES STRENGTHENED WITH CHESTNUT FLOUR: EFFECTS ON TEXTURE AND COLOR

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Cereals grains, such as wheat, rice and corn starch are one of the main sources of nutrients and energy contributors to the human diet. Furthermore, wheat baked products are historically the basis of the diet in Europe [1]. The “económicos” are traditional cakes from Portugal, made with flour, sugar, margarine, olive oils, eggs and brandy and quite appreciated by consumers, because of the good taste [2]. Different sources of flour can be used in pastry products, however, the gluten present in wheat flour, along with starch maintain the union between the ingredients, provide the structure of the baked product and also the elasticity and extensiveness of the mass. Therefore, with the use of other sources of flour, the presence of gluten becomes minimal and the cake tends to become brittle and compact [3,4], usually with an inferior quality compared to foods which contain it, namely at the level of low nutritional value, weak coloration, higher tendency to crumble and, mainly, low volume [3].

Thus, the main objectives of this work were to analyse the texture and color of “económicos” incorporated with chestnut flour, thus strengthening the económicos nutritional value and not fully reducing gluten. Color was analysed using a portable colorimeter, with analysis of the L*, a* and b* coordinates on the top, bottom and inside sections of the “económicos”. Texture was analysed using a texturometer and a texture profile analysis, rendering the dimensions of hardness, adhesiveness, resilience, cohesiveness, springiness, gomosity, chewiness and firmness. Both analysis were carried out over the course of 25 days and the samples were compared with control económicos with only wheat flour. Overall, significant interaction was sought for all analysis of color, except for red-green on the top of the “económico” and lightness of the inside, being the chestnut samples significantly darker than the control ones. Storage time showed, as expected, a higher influence on the texture profile, especially in terms of hardness, cohesiveness, springiness and chewiness, with statistical differences found from the first to the 11th day. The chestnut flour only influenced the springiness, making thus reducing this dimension. Chestnut flour can be useful to fortify these cheap snacks, although analysis on the chemical, nutritional and microbial analyses are being processed.

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Acknowledgments

The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) for financial support through national funds FCT/MCTES to CIMO (UIDB/00690/2020). L. Barros thanks FCT through the institutional scientific employment program-contract for her contract, while M. Carochó and S. Heleno thank FCT through the individual scientific employment program-contracts (CEECIND/00831/2018 and CEECIND/03040/2017); to FEDER-Interreg España-Portugal program for financial support through the project TRANSCoLAB 0612_TRANS_CO_LAB_2_P, to ERDF, through the Incentive System to Research and Technological development, within the Portugal2020 Competitiveness and Internationalization Operational Program for the financial support to BIOMA(POCI 01_0247 FEDER_046112); ERDF through the Regional Operational Program North 2020, within the scope of Project GreenHealth (Norte-01-0145-FEDER-000042).