

'MUFFIN' MADE WITH WHOLEMEAL PUMPKIN FLOUR: TECHNOLOGICAL AND SENSORY QUALITY.

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Resumo

The pumpkin ('*Curcubita maxima*') is a vegetable source of fiber, vitamins and minerals, but is restricted to fresh consumption and homemade preparations. The aim of this study was the obtention of a wholemeal pumpkin flour (WPF) and its application in muffins. The physical-chemical and technological characterization of WPF was made and it was used to partially replace wheat flour in 0 (F0), 5 (F2) and 10% (F3) to production of cakes, submitted to technological and sensorial analysis. The WPF is a product rich in dietary fiber ($32.56 \pm 3.89\%$) and can be used in this studied concentrations to produce cakes with the similar specific volume and firmeness, but with diferents tonalities of yellow color. The cake with more sensorial acceptance was produced with 5% of WPF (F1), indicating the potential use of wholemeal pumpkin flour in bakery products.

Palavras-chave:

Cucurbita maxima, healthiness, bakery.

Introduction

Pumpkin is mainly produced by small farmers. Nowadays, muffin is a tendency in bakery products, consumed as a snack². This research aimed develop a wholemeal pumpkin flour (WPF) with conventional drying method for replace wheat flour in muffin.

Results and Discussion

For obtain WPF, the pulp and the skin of pumpkin were used. Pumpkins were sanitized, cut, blanched, dried in a tray dryer with forced air for 6h at 50°C, crushed and sieved. The chemical composition of the WPF resulted in the following values, according to the methodology^{1, 3}: $7.17 \pm 0.09\%$ moisture; $4.02 \pm 0.36\%$ fat; $13.0 \pm 0.07\%$ protein; $6.56 \pm 0.09\%$ ash; $32.56 \pm 3.89\%$ of dietary fiber; and $36.56 \pm 3.89\%$ digestible carbohydrates, calculated by difference.

The results for colorimetric analysis of WPF was performed on HunterLab colorimeter Mini ScanXE, illuminant D65 for the parameters L, a*, b* and presented 69.3 ± 0.07 ; 24.6 ± 0.07 ; 64.2 ± 0.53 respectively, showing strong orange color⁴.

The muffins were manufactured according to the flowchart in Figures 1 and 2.

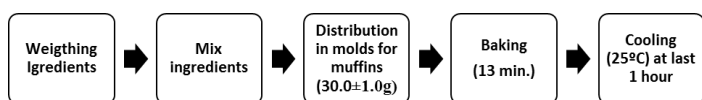


Figure 1 – Flowchart of production of the muffins



Figure 2 – Flowchart: from the wholemeal pumpkin flour to the muffins

The texture of the muffins, analyzed with texturometer TA-XT2i, the specific volume of muffins and crumb color can be seen in Table 1.

The purchase intention are expressed in Figure 3 (a), where 1 is "Definitely wouldn't buy" and 5 "Definitely would buy". The sensory evaluation⁵ are expressed in Figure 3 (b) where 1 is "Dislike extremely" and 9 is "Like extremely".

Table 1 – Technological characterization: crumb color, texture and volume of muffins control (F0) and containing pumpkin flour (5% = F1 and F2 = 10%) #

Parameter	F0	F1	F2
Texture (kg.f)	1.52±0.09 ^a	1.24±0.09 ^b	1.57±0.19 ^a
Volume (mL/g)	2.25±0.01 ^b	2.28±0.08 ^b	2.41±0.02 ^a
Crumb color			
L	81.05±0.29 ^a	76.34±0.05 ^b	73.48±0.26 ^c
a*	1.98±0.26 ^c	9.07±0.19 ^b	13.34±0.69 ^a
b*	28.71±0.50 ^c	56.03±0.16 ^b	65.59±0.60 ^a

#Different small letters on the same lines show that differ by test Scott-Knott ($p \leq 0,05$).

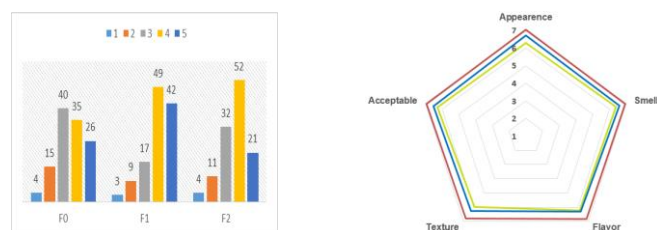


Figure 3 – Sensory Evaluation of muffins: (a) Purchase intention; (b) Acceptance test

Conclusion

This research proved be possible to use WPF as partial substitute of wheat flour in muffins. The muffin with 5% of WPF (F2) had better sensory acceptance.

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