

Antioxidant Activity of Methanolic Extracts from Peanut Skin

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Abstract: Antioxidant activity of skin from runner peanut was performed on sunflower refined oil. The skin was obtained from industrial blanching process. The oil was oxidized at 60°C. The methanolic extracts show antioxidant activity in relation to the oil (without additives). However these extracts do not reach the activity level from BHT.

Introduction

The skin obtained from the peanut industrial blanching process is a solid waste, and it is not used to make sub-products.

This work was based on previous experiments made on peanut hull, that had showed antioxidant activity, where polyphenolic compounds were involved [1]. On the other hand, synthetic antioxidants, such as butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT) and tert-butyl hydroquinone (TBHQ) are widely used on food, because of its efficacy and lower costs in comparison with natural antioxidants. However, the safety of synthetic antioxidants has been questioned, some works reported BHA to be carcinogenic in animal experimental [2].

The objective of this work was to examine the antioxidant efficacy of methanolic extract from peanut skin, to know its potentiality as antioxidant substance from natural sources.

Experimental

Material: Skin from runner-type peanut, obtained by industrial blanching from “Lorenzati, Ruesch y Cia.”, Ticino, Argentina.

Extraction: Two methanolic extracts was obtained as follow:

Methanolic Extract (ME): 100g of skin was extracted, passively, with 1000ml of methanol for 24hr, at room temperature and darkness. Then the extract was filtered and evaporated to 50ml final volume [4].

The dry weight was obtained by evaporation to dryness of a ME aliquot into oven at 60°C.

Defatted Methanolic Extract (DME): A 100ml aliquot of the first ME diluted was partitioned with 100ml of hexane, the methanolic phase was evaporated until 5ml final volume.

Total Phenols: The phenols concentration was determined by the Folin-Ciocalteu method [5].

Antioxidant Activity: 5 beakers with 150g of refined sunflower oil were accelerated oxidized into oven at 60°C [6]. One beaker with control oil (without BHT or extracts), the others with 1,8ml ME; 1,8ml DME; 1,5ml methanol and 0,02% BHT. All of them homogenized with glass stick.

The Peroxide Value (PV) was determined by the AOAC method [7], at intervals for 20 days.

Statistic Analysis: The results were analyzed by ANOVA and LSD test (n = 3, confidence level 95%)

Results and Discussion

The dry weight of ME was 171mg/ml, and total phenols 68mg/ml, to DME total phenols were 125mg/ml.

The oxidation test showed that sunflower with ME and DME had less PV, in comparison with control. Those differences were significant from the 7th day. However, the antioxidant activity of ME y DME was lower than BHT. It could be because of the blanching process, that include soft heating and airflow, that conduce to phenols oxidation and lost of activity.

To continue with the work, we propose to obtain the peanut skin by softer process, and the identification of the phenolic compounds with antioxidant activity.

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References and Notes

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