

Antioxidant potential and correlation with physicochemical characteristics of honey samples of *Apis mellifera* L. from microregion Ribeira do Pombal, Bahia

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Abstract

Honey is a natural food made up of water and sugars, mainly fructose and glucose. It is much appreciated product because of its available source of energy and also because of its antibacterial and antioxidant activities. Polyphenols and other compounds can give honey nutraceutical properties. The objectives of this study were to determine the antioxidant potential of 15 honey samples from *Apis mellifera* from beekeepers in the Ribeira do Pombal microregion and to correlate the results with their physicochemical properties. The honey of this region has not yet been characterized. For antioxidant capacity, the methods used were DPPH, FRAP, and CUPRAC and the total phenol content (TPC) was determined by Folin-Ciocalteu method and the results expressed as mg gallic acid equivalents/100g honey. The TPC ranged from 27.0 to 92.7 mg GAE/100g of honey. All samples were shown to have radical scavenger properties, with a consumption of DPPH[•] ranging from 7.3 to 25.9% in 30 min, compared to standard gallic acid, consuming 100% of the radical in 5 min. The FRAP and CUPRAC assays measure the reducing capacity of the substance or sample. The FRAP values ranged from 99.4 to 720.4 $\mu\text{mol TEAC}/100\text{g extract}$ and CUPRAC values varied from 338.7 to 960.0 $\mu\text{mol TEAC}/100\text{g extract}$. Mean values obtained for physicochemical parameters were: pH 3.89; moisture 18.53%; diastase activity 14.12 Gothe scale; free acidity 38.36 meq/kg and reducing sugars 77.79%. Pearson correlations were divided into direct and indirect effects through path analysis. These analyses showed the highest direct effects, being positive Color on TPC (0.89), FRAP (0.82), DPPH (0.90) and CUPRAC (0.97). These results show the importance of color in the evaluation of honey samples in relation to antioxidant activities. It is important to emphasize that the honey produced in the microregion Ribeira do Pombal, contributes to the development of regional economy.



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Apresentou o Resumo Simples ANTIOXIDANT POTENTIAL AND CORRELATION WITH PHYSICO-CHEMICAL CHARACTERISTICS OF HONEY SAMPLES OF *Apis mellifera* L. FROM MICROREGION RIBEIRA DO POMBAL, BAHIA, na forma de PÔSTER, de co-autoria de: **Monika Bezerra dos Santos Oliveira, Iara Barros Valentin, João Gomes da Costa, Marília Oliveira Fonseca Goulart**, no III Simpósio Internacional de Plantas Medicinais e Nutracêuticos (3ISMNP) e na III Conferência do Instituto Nacional de Ciência e Tecnologia de Frutos Tropicais, realizados no período de 14 a 19 de outubro de 2012, no Centro de Convenções de Sergipe, em Aracaju.

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