

Quantitative and Qualitative Analysis of Total Phenols and Antioxidant Activity of Ethanolic Extracts of Pollen of *Apis mellifera* from the State of Alagoas

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The bee pollen is a natural source of many nutrients and has some therapeutic properties related to phenolic compounds and their antioxidant activity. However, the content of these compounds is intrinsically related to the seasonal and geographical location of the apiary. The purpose of this was to quantify the total content of phenolic compounds (TPC) and antioxidant activity (AA) of hydro-ethanolic extracts of *Apis mellifera* pollen (EEP) collected on the coast, backlands and semi-arid of Alagoas, in the dry season. The EEP of each sample was prepared from 1 g of pollen mixed with an aqueous solution of 70% ethanol (10 mL) and subject to agitation (70 °C, 30 min). The supernatant was collected and the residue re-suspended in the same solution (10 mL). The material was brought back to agitation (70 °C, 30 min). The added supernatants was diluted 25 X and the TPC determined by the Folin-Ciocalteu method, using gallic acid (GA) as standard. The AA of the EEPs and standards [AG, quercetina (Q) and ascorbic acid] was evaluated by the kidnapping of DPPH radical (2,2-diphenyl-1-picryl-hidrazil), and results expressed as % of inhibition. The thin-layer chromatography (TLC=silica gel 60, $F_{254\text{ nm}}$) profile of the EEPs and patterns (AG, Q, rutin and catechin = 0.8 mg.mL⁻¹) were developed through chloroform:methanol:n-propanol: water (5:6:1:4 v:v:v:v) and revealed with the Folin-Ciocalteu reagent (phenols) and solution of FeCl₃ (AA). The TCP of the EEPs ranged from 6-21 eq. AG.g mg⁻¹ pollen, while the AA of these ranged from 42-85%. The patterns showed AA ranging from 75-81%. The TLC profile revealed bands with retention factor ranging from 0,83-0,88 to phenols and from 0,86-0,96 to antioxidants, very similar to the patterns used.

Keywords: bee pollen, total content of phenols, antioxidant activity, *Apis*, African bees

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