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Total phenolic and flavonoids phytochemical concentration was measured in bee pollen samples, *Appis Mellifera*, as well as their botanical origin, antioxidant activity and antimicrobial activity. Pollen loads were washed with 70% ethanol and identified using a 400x magnification. The content of total polyphenols and flavonoids was measured spectrophotometrically with gallic acid and quercetin as standard. The antioxidant activity was evaluated by the linking capacity of (i) the free radical DPPH (2,2-Diphenyl-1-picrylhydrazyl), (ii) ORAC and (iii) system β -carotene/linoleic acid. The experiments were performed in triplicate and the results expressed as mean \pm standard deviation. All statistical analysis were performed using the program STATISTICA 8.0 and adopting the significance level of 5% ($p < 0.05$). Were using six samples of dehydrated bee pollen collected in Ribeirao Preto, SP, Brazil during the years of 2010 and 2011. Five families were found in the mixture of bee pollen: Mimosa caesalpiniaefolia, Mimosa scabrella, Asteraceae, Poaceae, Zea mays. Each dried bee pollen sample was composed mainly of Mimosa caesalpiniaefolia (Fabaceae-Mimosoideae). The variations were (dry basis): 17.64 \pm 1.57 to 32.14 \pm 2,88 mg GAE/g of bee pollen for phenolic compounds; 2.51 \pm 0.28 to 3.71 \pm 0.25 mg quercetin/g of pollen for flavonoids concentration; 77.15 \pm 0.72 to 90.56% for antioxidant activity (DPPH) and 3.19 \pm 0.25 to 4.61 \pm 0.33 mg/mL for EC50; 183.42 \pm 16.26 to 338.32 \pm 33.38 μ moles eq. Trolox/g for ORAC and 68.96 \pm 2.75 to 85.90 \pm 2.27% for β -carotene/linoleic acid. Samples of pollen, phenolics and flavonoids have the potential biological, showing high antioxidant activity by the three methods used. It was verified that the presence of pollen differentially affected the growth of bacteria Gram-positive, Gram-negative and yeasts under study, depending this on the microorganism and the pollen used in fact, only one after sample was monofloral Mimosa caesalpiniaefolia. This is an important study since; their characterization can increase their economic value.

The opinions, hypothesis and conclusions or recommendations expressed in the article are those of the authors and do not necessarily coincide with those of FAPESP.

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Palavra chave: bee pollen - antioxidant activity - antimicrobial activity - *Appis Mellifera* - bee products