PNS046

Comparative study of antioxidant activity of different propolis extracts (alcoholic, aqueous and dry) by DPPH method

Juliana Darro Canela[1]; Ana Cláudia Lourenço[2]; Vanessa Silveira Fortes[1]; Andresa Aparecida Berretta[1,2*]

[1]Apis Flora Industrial e Comercial Ltda.; [2]Faculdade de Ciências Farmacêuticas de Ribeirão Preto, Universidade de São Paulo. *andresa.berretta@apisflora.com.br

Introduction: Researches involving antioxidant compounds from natural sources are in evidence recently, especially because of its importance in preventing the formation of free radicals. This application can be important to develop topical products for antiaging effects or for internal use focusing in the prevention of deleterious effects of the free radical species in the organism. Propolis is a complex mixture produced by bees from the plant exsudates, consisting of resinous and balsamic material. The chemical composition includes flavonoids, terpenoids and phenylpropanoids and many others (ROCHA et al. 2011). Antibacterial, antiviral and antioxidant activities have usually been attributed to flavonoids and phenolic compounds (Bergonzini & Volpi, 2006). However, nowadays, many different extraction processes exists (alcoholic and aqueous) and the pharmaceutical technology are improving the extracts options to work in different pharmaceutical applications, like the glycolic and dry extracts. Then, the characterization of chemical and antioxidant properties of these new options of propolis extracts can be valuable to the pharmacists that work with new products. **Objective:** The aim of the present work was to evaluate and compare the chemical composition and antioxidant properties of different propolis extracts, like alcoholic, aqueous, glycolic and dry extracts (soluble and insoluble in water). **Methods:** Samples of different propolis extracts were provided by Apis Flora Co. The method used to evaluate the antioxidant activity of the extracts was DPPH, that consists in determining the free radical scavenger of DPPH• by the action of an antioxidant or a radical species (R•). The measure was done considering IC50 value (BRAND-WILIAMS, 1995). The chemical profile and quantification of substances in the different propolis extracts, were done considering the methodology previous developed and validated by HPLC employing internal standardization (Berretta et al. 2012). The standards used were caffeic, p-coumaric, cinnamic acids, aromadendrin, isossakuranetin and artepillin C. The simultaneous measurements were performed considering standard curves constructed with authentic standards of each compound. **Results:** The comparative analyses of different propolis extracts demonstrated that, when comparing the same dry matter for each one, the alcoholic extract was the most potent one (IC50=9.70 ug/ml), followed by aqueous (IC50=11.40 ug/ml) and aqueous soluble dry extract (IC50=16.00 ug/ml). All other pharmaceutical forms were considered similar with a range of 19.50-22.90ug/ml). Considering the chemical composition obtained, the results demonstrated that some standards were more sensible to hot condition, like cinnamic and caffeic acid, standards wich were absent in the propolis dry and glycolic extract. The aromadendrin was absent in water soluble dry and aqueous extracts. All extracts demonstrated the presence of p-coumaric acid, isossakuranetin and artepillin C. **Conclusion:** All propolis extracts obtained presented important antioxidant activities since the values were smaller than the *Ginkgo biloba* extract (IC50=106,14 ug/ml), a known and tradition antioxidant very common used. Considering the differences observed into each propolis extract, it is possible that during the drying process some antioxidant component can be lost and because of that, the propolis dry extract is slightly less potent than alcoholic and aqueous extracts.

Keywords: Propolis, Antioxidant, Alcoholic, Aqueous, Dry Extract

Financial support: Apis Flora Co.