## G7
## CLASSIFICATION OF APIS MELLIFERA HONEYS FROM BRAZIL ACCORDING TO THE SEASON AND BOTANICAL ORIGIN USING DISCRIMINANT ANALYSIS (LDA)

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Introduction: Although best known as a sweetener, hThe aims of this study is were to evaluate physicochemical and antioxidant properties and total phenolic content of phenolic compounds of *A. mellifera* honey samples from Southern Brazil and to classify these samples according to to season and botanical origin classification byusing multivariate analysislinear discriminant analysis. Methods: 49 honey samples were collected in different seasons e were tested for their physicochemical and antioxidant properties and their content of phenolic compounds. Moisture, ash, electrical conductivity, pH, free acidity, color, diastase activity, sugars and HMF HMF levels were determined. Phenolic compounds were analysedanalyzed by HPLC. Levels of total phenolics and total flavonoids were measured andand the ORAC, FRAP and DPPH 2,2-diphenyl-1-picrylhydrazyl free radical assays performed to determine total antioxidant capacit. The linear discriminant analysis (LDA) was carried out to distinguish honey samples in terms of the season when they were collected and all data set (49 samples x 21 responses). Results: LDA also showed that 96% of honey samples were correctly classified into each botanic origin: all multifloral (n=6), *Pluchea sagitalis* (n=2) and *Hovenia dulcis* (n=6) honeys were correctly classified, while 80% (n=4) of *Schinus terebinthiofolius* and 96% (n=27) of eucalyptus honeys were also adroitly classified. The main discriminant responses were pH (Wilk's lambda=0.021, p=0.0004), flavonoids (Wilk's lambda=0.014, p=0.029), electrical conductivity (Wilk's lambda=0.013, p=0.037), and quercetin levels (Wilk's lambda=0.013, p=0.044). A great similarity of honey samples collected in the same season, and theThe main discriminant responses were *p*-coumaric acid levels (Wilk's lambda=0.125, p=0.018), titratable acidity (Wilk's lambda=0.123, p=0.022), diastase activity (Wilk's lambda=0.120, p=0.029), and total flavonoids content (Wilk's lambda=0.116, p=0.044). Although the number of samples was limited, one can infer a great similarity of honey samples collected in the same season. LDA also showed that 96% of honey samples were correctly classified into each botanic origin; all multifloral (n=6), *Pluchea sagitalis* (n=2) and *Hovenia dulcis* (n=6) honeys were correctly classified, while 80% (n=4) of *Schinus terebinthiofolius* and 96% (n=27) of eucalyptus honeys were also adroitly classified. The main discriminant responses were pH (Wilk's lambda=0.021, p=0.0004), TFC (Wilk's lambda=0.014, p=0.029), electrical conductivity (Wilk's lambda=0.013, p=0.037), and quercetin levels (Wilk's lambda=0.013, p=0.044). Conclusion: A great similarity in physicochemical composition, antioxidant activity and phenolic composition of honey samples collected in the same season and our results suggest that multivariate analyses (LDA) are useful tools to authenticate honeys.

***Keywords:*** *honey, season, botanical origin, multivariate analyses., food analysis*

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## G8
## ANTIOXIDANT COMPOUNDS IN EDIBLE FLOWERS OF TAGETES PATULA L (ASTERACEAE) PROCESSED BY RADIATION

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*Tagetes patula* L. (Asteraceae), are French marigold native from Mexico and Central America, which are also popularly known and disseminated throughout the world. Furthermore, the French marigold flowers are used in culinary preparations, being also acknowledged for their phytochemical and medicinal properties. Edible flowers have been increasingly used in culinary preparations, which require new approaches to improve their conservation and safety. Nowadays, food irradiation as a Phytosanitary application is an economically and viable technology to extend shelf life of many vegetables. The purpose of this study was to evaluate the antioxidant properties of *T. patula* flowers submitted to electron beam and gamma irradiation doses of 0.5, 0.8 and 1.0 kGy, as also non-irradiated samples (control). The antioxidant activity was evaluated through Oxygen Radical Absorbance Capacity assay (ORAC), 2,2-diphenyl-1-picrylhydrazyl (DPPH) scavenging and Ferric Reducing Ability of Plasma (FRAP). The results show that the process by ionizing radiation in the flowers *T. patula* preservation can be feasible alternative ensured the properties of edible flowers.

***Keywords:*** *tagetes patula, edible flowers, ionizing radiation, biocompounds*

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