

## DETERMINATION OF THE ANTIOXIDANT ACTIVITY OF *CAPSICUM* ACCESSIONS

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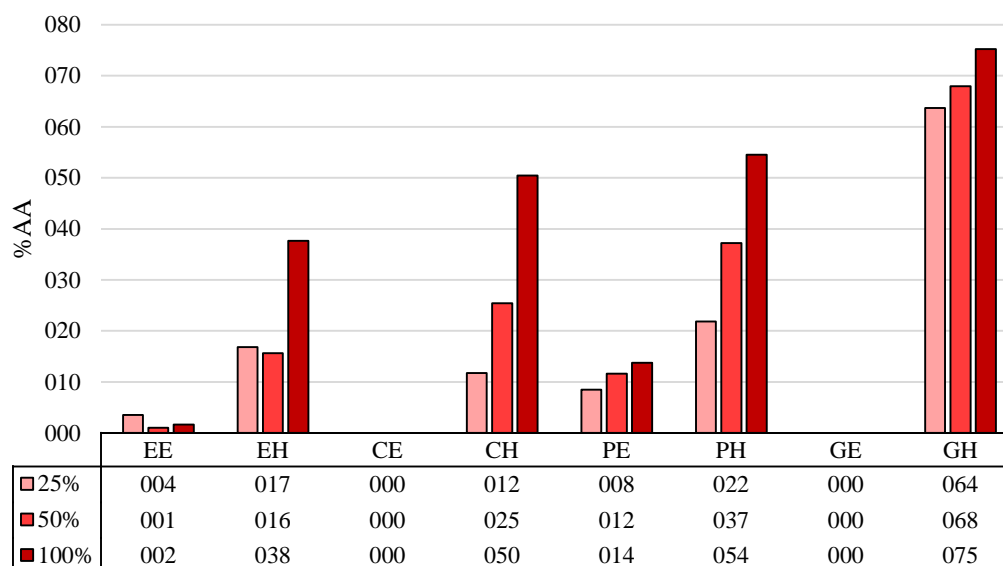
**Abstract:** The human populations uses the genus *Capsicum* (sweet and hot peppers) in several ways for ornament and/or consumption. The fruits consumption can be *in natura*, fried, boiled, powder and they are usually in combination with other foods due to their antioxidant capacity. Besides to food preservation potential [1], the antioxidant substances present in the *Capsicum* fruit has antitumor effects, anti-inflammatory, antihypertensive, aid digestion and retard cellular aging [2-3]. The present work aimed to verify the antioxidant activity of four accessions of the genus *Capsicum*. For this purpose, we evaluated dried fruit with seeds of *C. praetermissum*, *C. annum* var. *glabriusculum* and *C. annum* var. *annum* (Cayenne long and Etna). The fruits were macerated and diluted in ethanolic (100% ethanol) and hydroethanolic (70% ethanol) solutions in proportion of 1:10 (w/v). After seven days of rest, the extracts were filtered and divided into three concentrations (100%, 50% and 25% of original extract). The extracts were subjected to determination of antioxidant activity percentage (%AA) by DPPH radical capture method (2,2-diphenyl-1-picrylhydrazyl). For each concentration of the extract, were prepared triplicates of controls tubes (C) [1.25 mL of absolute ethanol; 1 ml of 0.1 M sodium acetate buffer (pH 5.5); 0.25 mL of DPPH] and tubes samples (S) (control tube, 0.05 mL of extract). All tubes were in the dark for 30 min, and subsequently the absorbance was quantified at 517 nm in UV-Vis spectrophotometer. The antioxidant activity was calculated by the formula:  $\%AA = [(\bar{x}C - \bar{x}S) / \bar{x}C] * 100$ . At every accessions, the hydroethanolic solution was the best extractor of substances with antioxidant activity, whereas in the ethanolic solution of *C. annum* var. *annum* Cayenne long and *C. annum* var. *glabriusculum* the antioxidant activity was not detected (Figure 1). The *C. annum* var. *glabriusculum* accession showed the best antioxidant activity in the concentration of 100% hydroethanolic solution, with 75.245%, followed by *C. praetermissum* (54.499%), *C. annum* var. *annum* Cayenne long (50.482%) and *C. annum* var. Etna (37.660%). The antioxidant activity detected in the extracts may be related to the presence of capsaicin in the fruits of accesses [4], and the hydroethanolic solutions were more effective to extract antioxidants substances of the studied fruits.

### References:

- [1] DA COSTA, Luciene Mendonça et al. Atividade antioxidante de pimentas do gênero *Capsicum*. 2010.
- [2] JEONG, Won Y. et al. Determination of polyphenols in three *Capsicum annum* L. (bell pepper) varieties using high-performance liquid chromatography-tandem mass spectrometry: Their contribution to overall antioxidant and anticancer activity. *Journal of separation Science*, v. 34, n. 21, p. 2967-2974, 2011.
- [3] ZIMMER, Aline Rigon et al. Antioxidant and anti-inflammatory properties of *Capsicum baccatum*: from traditional use to scientific approach. *Journal of Ethnopharmacology*, v. 139, n. 1, p. 228-233, 2012.



[4] LIU, Yunbao; NAIR, Muraleedharan G. Capsaicinoids in the hottest pepper Bhut Jolokia and its antioxidant and antiinflammatory activities. *Natural product communications*, v. 5, n. 1, p. 91-94, 2010.



**Figure 1.** Percentage of antioxidant activity (%AA) of ethanolic (EE) and hydroethanolic extracts (EH) of *C. annuum* var. *annum* Etna; ethanolic (CE) and hydroethanolic (CH) of *C. annuum* var. *annum* Cayenne long; ethanolic (PE) and hydroethanolic (PH) of *C. praetermissum*; ethanolic (GE) and hydroethanolic (GH) of *C. annuum* var. *glabriusculum*; at concentrations of 25, 50 and 100%.