

**[PC 34] - Antioxidant activity assay of ionic liquid as solvent extractor for food additives.**

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The largest application of ionic liquid in food industry it is for solvent or co-solvent in polysaccharides and other ingredients or additives obtaining. We are studying the application of ionic liquids with solvent extractors of natural pigments, as carotenoids, to use in food industry as bioactivity compounds. The main objective of this study was to determine the antioxidant activity of ionic liquid 1-butyl-3-methylimidazolium chloride and carotenoids obtained by its use in the extraction. Two different chemicals assays were utilized for determinate de antioxidant capacity against the peroxy radical (ROO• radical dot). The first assay follows the methodology of homogenous lipophilic medium, in this experimental system, the ROO• is generated by the thermodecomposition of azobisisobutyronitrile at 42°C and the presence of deactivator compounds decreases or slows the fluorescence decay of undecanoic acid, that was measured with a Microplate Reader. The other methodology was aqueous medium of ORAC assay, based on monitoring the effect of the ionic liquid or standard on the fluorescence decay resulting from ROO• radical dot induced oxidation of fluorescein. Carotenoids extract obtain by the ionic liquid were analyzed only by the first assay due to its solubility in the medium and the antioxidant activity value was 7.4 (±1.3) relative to the  $\alpha$ -tocopherol standard. The ionic liquid in this lipophilic medium showed no antioxidant activity. The ionic liquid 1-butyl-3-methylimidazolium chloride in residual concentration were submitted also to ORAC assay, as result in the proposed assay, the ionic liquid shown capable to disable peroxy radical with 144.8  $\mu\text{molTE.mL}^{-1}$  (±18.2). This evaluation was necessary for better characterization of ionic liquid 1-butyl-3-methylimidazolium chloride biological effects. Into now, we conclude that the chemical antioxidant activity of 1-butyl-3-methylimidazolium chloride against ROO• depend of reaction medium, wherein in aqueous medium showed efficiency, 144.8  $\mu\text{molTE.mL}^{-1}$  increased in compared to results found for antioxidants compounds known, such as phenolic extract from kale 70.4  $\mu\text{molTE.mL}^{-1}$  (±1.6) in the same ORAC assay. Carotenoids extracted with ionic liquid did not have their extinct antioxidant capacity. Explore the applications of ionic liquids as solvents for obtaining natural antioxidant compounds deserves special attention and can be very promising.