

Title: **Total polyphenol content in agro-food industry wastes: Antioxidant activity assays versus high performance liquid chromatography.**

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Nowadays the waste generated in food industries is a serious problem for society; one of the solutions to decrease significantly the impact of these residues relies on the recovery of high added value compounds from them. This work analyzes different sample residues from the winemaking process to see how much polyphenols they contain. Polyphenols are molecules that have antioxidant properties and can be of great value in pharmaceutical, nutraceutical and cosmetic products.

Two forms will be used to analyze the total polyphenol content in the samples. The first is by high-resolution liquid chromatography with UV-visible detection (HPLC-UV), and the second by methods of determining antioxidant activity indexes based on spectrophotometric measurements such as the Folin-Ciocalteu (FC), 2,2-diphenyl-1-picrylhydrazyl (DPPH), [2,2'-azinobis-(3-ethylbenzothiazoline-6-sulfonate)] (ABTS) and ferric reducing antioxidant power (FRAP).

The main objective of the work is to determine the overall concentration of polyphenols in different residues generated during the winemaking process. Results from the different assays will be analyzed to study the possible correlation between them as well as to find out the most interesting samples to be used as the source of antioxidant compounds.

Once the results have been analyzed, no solid conclusions have been reached on the information provided by each assay. The most correlated methods are HPLC and Folin-Ciocalteu, expressing both the overall polyphenolic content. The FRAP is the assay that presents the most independent results and therefore less correlation with the other methods.

More studies should be done with a wider range of samples to be able to see if there is a correlation between the different methods and to know more waste with sufficient potential to be used as a source of raw material for the extraction of active polyphenolic compounds.

Keywords: polyphenol, antioxidant, winemaking process waste, antioxidant activity indexes, high-resolution liquid chromatography