The Chemistry Behind the Folin-Ciocalteu Method for the Estimation of (Poly)phenol Content in Food: Total Phenolic Intake in a Mediterranean Dietary Pattern

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Abstract

The Folin-Ciocalteu assay is a reference method for the quantification of total (poly)-phenols in food. This review explains the fundamental mechanism of the redox reaction on which the method is based and looks at some of the practical considerations concerning its application. To accurately estimate the antioxidant capacity of (poly)-phenolic compounds, a thorough knowledge of their structural characteristics is essential, as the two are closely associated. Therefore, to help researchers interpret the results of the Folin-Ciocalteu method, this review also summarizes some of the main phenolic structural features. Finally, we have used the Folin-Ciocalteu method to estimate the total phenolic intake associated with high adherence to a Mediterranean diet, ranked as one of the healthiest dietary patterns, which is characterized by a high consumption of (poly)-phenol-rich food such as wine, virgin olive oil, fruits, vegetables, whole grains, nuts, and legumes.

Keywords

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antioxidanttotal phenolic contentbioactivecompoundsstructure-activity relationshipvirgin olive oilwine

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