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ABSTRACT BOOK

DEVELOPMENT OF ONLINE COMPREHENSIVE REVERSED-PHASE × REVERSED-PHASE ULTRA-HIGH-PRESSURE LIQUID CHROMATOGRAPHY APPROACH FOR THE ANALYSIS OF ONCONUTRACEUTICAL SMOOTHIES

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Many studies have demonstrated that a healthy lifestyle and diet can help in prevention of chronic pathology such as cardiovascular and neurodegenerative diseases, diabetes and cancer. Several scientific evidences described the potential health effects that dietary polyphenols are able to exercise on biological systems like anti-proliferative, anti-cancer, anti-inflammatory, cardioprotective and antioxidant activities. Nowadays, high attention has been paid to natural components in fruits and vegetables with potential anticarcinogenic, antimutagenic, antioxidant and anti-inflammatory activities.¹ In particular, the consumption of dietary supplements and nutraceuticals in cancer therapy has as its main purpose the chemoprevention, the reduction of the drug resistance, the identification of synergistic effects whit the anti-cancer treatment and the decrease of drug concentrations.²

In this work we have realized a superfood consisting of three different natural matrices, such as annurca (*M. pumila* Miller cv *Annurca*) apple, red grape (*Vitis vinifera* L. cv. *Aglianico N*) and orange (*Citrus sinensis*) fruits, able to reduce the side effects associated with current cancer treatments that induce unintended side effects compromising also health and well-being of patients.³⁻⁵

Mono dimensional LC-MS method is overwhelmed by the complexity of this samples, and, as result, important information can be lost. For these reasons in this work the functional smoothie was characterize by developing and optimizing a comprehensive two dimensional liquid chromatography approach, based on the online coupling of two Reversed Phase (RP × RP) with two different pH conditions. The two dimensions were coupled by a multiport switching valve equipped with two C18 trapping columns, which trap and concentrate the analytes during the transfer. The system was hyphenated to High Resolution LTQ-Orbitrap XL mass spectrometry.

References

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