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ABSTRACT BOOK

**OPTIMIZATION OF COMPREHENSIVE HYDROPHILIC INTERACTION CHROMATOGRAPHY ×
REVERSED-PHASE ULTRA-HIGH-PRESSURE LIQUID CHROMATOGRAPHY PLATFORM
FOR THE ANALYSIS OF *PUNICA GRANATUM* FRUIT JUICE**

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Punica granatum L., better known as pomegranate, is an ancient fruit widely consumed as fresh fruit and juice. Moreover, it is increasingly used in cosmetic and pharmaceutical fields for its antioxidant, anti-inflammatory, anti-microbial and anti-proliferative properties related to the presence of several bioactive phytochemicals.¹ In order to characterize in detail the bioactive compounds present in the pomegranate juice, we developed an online comprehensive Hydrophilic High performance Liquid Chromatography × Reversed Phase-Ultra High performance Liquid chromatography (HILIC-HPLC × RP-UHPLC) platform hyphenated to Ion Trap-Time of Flight (IT-TOF) mass spectrometry.² A narrowbore hydrophilic interaction chromatography column (150 × 2.0 mm, 3.0 μm, cross-linked diol) was employed in the first dimension, while a reversed-phase column based on monodisperse sub-2 μm fully porous particles (50 × 3.0 mm, 1.9 μm d.p.) with high surface area (410 m²/g) was employed in the second dimension. The modulation interface consists of two C18 trapping columns (C18 10 × 3.0 mm × 1.9 μm, 80 Å), instead of sampling loops. The combination of a trapping column modulation interface with the high retentive fully porous monodisperse reversed-phase column in the second dimension resulted in higher peak capacity values, increased sensitivity, sharper and more symmetrical peaks. Hyphenation with an ion trap time-of-flight mass spectrometer led to the tentative identification of 73 analytes, showing how this platform could be a powerful analytical tool for the accurate profiling of complex polyphenolic samples.

References

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