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Untargeted metabolic profiling of antioxidants within Australian native Quandong and Desert Lime with RF-PCD- FRAP and LC-ESI-MS

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Conventional online post column derivatization FRAP assay is laborious and time consuming task. Here, we present a rapid post column derivatization FRAP assay of Quandong (*Santalum acuminatum*) and desert lime (*Citrus glauca*) with reaction flow chromatography that has reduced the analysis time without compromising the separation performance. This rapid post column derivatization is achieved using Active Flow Technology-Parallel Segmented Flow (AFT-PSF) columns. The direct feed of FRAP reagent into the outlet fitting of the reaction flow chromatography column eliminates the need for mixing T-pieces and reduces the post-column extra-dead volume to no more than required in chromatography using standard modes of detection. Antioxidant profiling of Quandong and Desert lime samples with an extraction and sonication method has shown an interesting analysis. Extracts were analyzed via multiplexed detection using an AFT-PSF column with underivatized UV-VIS and the Ferric Reducing Antioxidant Potential (FRAP) derivatization for antioxidants as detection methods. Multiplex detection has allowed obtaining substantial data within single analysis. Non-targeted metabolomics with RF-PCD-FRAP and LC-ESI-MS analysis implies that Australian native Quandong and Desert lime are a rich source of antioxidants. Analytes were identified by MS and MS² with the ESI mass spectra under the same conditions in both positive and negative ionization modes. Samples have exhibited superior antioxidant capacity and comprise predominantly of flavonols, anthocyanin, phenolic acids and their hydrolysable tannins and contain antioxidants with known therapeutic potential in cardiovascular, neurodegenerative and other chronic diseases that play a major role in the prevention/delay of oxidative stress mediated diseases.

Biography

Rashida Bashir is currently pursuing her PhD in the area of natural products and bioanalytical chemistry. She has previously completed Master's degree of Biotechnology and Bachelor's degree of Pharmaceutical Sciences.

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