

A generic chromatographic fingerprinting approach for the analysis of naturals and complex mixtures using a combined pentafluorophenyl and C₁₈ stationary phase.

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The use of analytical fingerprinting methodologies for natural products enable quick, top level characterisation of such chemically complex mixtures. This approach can be used to support raw material quality control or give initial insights and leads into their chemical composition. Chromatographic fingerprinting has many advantages in the range of detection systems available, but method development is often bespoke and time consuming due to the number of variables involved. In addition the chemical functionality of the components is typically diverse and often standard reversed phase approaches do not provide sufficient selectivity to produce an information rich fingerprint.

Pentafluorophenyl (PFP) HPLC stationary phases offer extra selectivity through complementary separation mechanisms to C₁₈ columns. A recently commercially available combined C₁₈-PFP phase has been applied to two plant extracts which have been prepared using differing polarity extraction solvents. The C₁₈-PFP column enabled high resolution chromatographic fingerprints to be produced for polar and non-polar extracts using the same mobile phase gradient conditions. This methodology is presented as a potential screening method for naturals and complex mixtures.