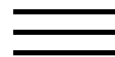


Simultaneous analysis of different classes of phytohormones in coconut (*Cocos nucifera* L.) water using high-performance liquid chromatography and liquid.

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Simultaneous analysis of different classes of phytohormones in coconut (*Cocos nucifera* L.) water using high-performance liquid chromatography and liquid chromatography–tandem mass spectrometry after solid-phase extraction

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Abstract

Coconut (*Cocos nucifera* L.) water, which contains many uncharacterized phytohormones is extensively used as a growth promoting supplement in plant tissue culture. In this paper, a high-performance liquid chromatography (HPLC) method was developed for the simultaneous determination of various classes phytohormones, including indole-3-acetic acid (IAA), indole-3-butyric acid (IBA), abscisic acid (ABA), gibberellic acid (GA), zeatin (Z), *N*⁶-benzyladenine (BA), $\hat{I}\pm$ -naphthaleneacetic acid (NAA) and 2,4-dichlorophenoxyacetic acid (2,4-D) in young coconut water (CW). The analysis

was carried out using a reverse-phase HPLC gradient elution, with an aqueous mobile phase (containing 0.1% formic acid, pH adjusted to 3.2 with triethylamine (TEA)) modified by methanol, and solute detection made at 265 nm wavelength. The method was validated for specificity, quantification, accuracy and precision. After preconcentration of putative endogenous phytohormones in CW using C₁₈ solid-phase extraction (SPE) cartridges, the HPLC method was able to screen for putative endogenous phytohormones present in CW. Finally, the identities of the putative phytohormones present in CW were further confirmed using independent liquid chromatography–tandem mass spectrometry (LC–MS/MS) equipped with an electrospray ionization (ESI) interface.



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Keywords

Coconut water; Phytohormones; High-performance liquid chromatography; Liquid chromatography–tandem mass spectrometry

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