

SIMULTANEOUS DETERMINATION OF CAROTENOIDS AND TOCOCHROMANOLS FROM PALM HYBRID OIL BY HPLC WITH PHOTODIODE ARRAY AND FLUORESCENCE DETECTORS

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The oil from palm hybrid (*Elaeis guineensis* x *Elaeis oleifera*) is a source of both pro-vitamin A carotenoids and tocochromanols. These compounds are usually analyzed by HPLC using, respectively, reverse phase and normal phase columns. Previous studies used electrochemical detector for such simultaneous determination. However, in the case of tocochromanols, fluorescence detector is not only specific and more sensitive, but also it is the recommended detector in the official AOCS method. Herein we report the development of a method for simultaneous analysis of carotenoids, tocopherols and tocotrienols using C₃₀ reverse-phase column kept at 35 °C with a gradient of methanol and methyl *tert*-butyl ether at flow of 0.8 mL/min as mobile phase. Carotenoids quantification was performed at 450 nm, using photodiode array detector (DAD), whereas tocochromanols were quantified using fluorescence detector (FLR, excitation at 290 nm and emission at 330 nm). This method enabled the separation of δ -, γ - and α -tocotrienol, and α -tocopherol in 8 minutes of analysis, as well as 13'-*cis*- α -carotene, 13-*cis*- α -carotene, 13-*cis*- β -carotene, all-*trans*- α -carotene, 9-*cis*- α -carotene, all-*trans*- β -carotene, and 9-*cis*- β -carotene until 14 minutes. For the analyzed palm hybrid oils the carotenoids and tocochromanols contents ranged, respectively, from 600 to 2000 mg/g and from 200 to 2000 mg/g. The developed method was efficient for separation of carotenoids and tocochromanols isomers from palm oil.