

研究论文

反相高效液相色谱法测定烤烟叶片发育过程中的类胡萝卜素类物质

刘国顺¹; 韦凤杰¹; 王芳¹; 李亚娟¹; 郭桥燕¹; 黄晓书^{2,3}

河南农业大学国家烟草栽培生理生化研究基地¹

河南农业大学 河南省高等学校农业生物技术与工程技术重点学科开放实验室²

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摘要 建立了采用反相高效液相色谱测定烤烟叶片中类胡萝卜素的方法。烤烟叶片先用含0.1%丁基羟基甲苯(BHT)的90%丙酮水溶液萃取,然后加入0.1 g醋酸铅,于4℃下以10000 r/min离心5 min以去除蛋白质。色谱柱为C18反相柱(3.9 mm i.d.×150 mm, 5 μm)。流动相:A, 甲醇-异丙醇(体积比为1:1); B, 超纯水。洗脱程序:0~10 min, 70%A+30%B; 10~17 min, 100%A; 17~30 min(90%A+10%B)。流速:0.5 mL/min。进样量:10 μL。检测波长:450 nm。该方法简化了样品的前处理过程,4种类胡萝卜素物质的加标回收率为91.77%~97.42%,相对标准偏差为3.46%~0.98%。用该方法研究了烤烟发育过程中类胡萝卜素含量的变化规律,获得了与文献较为一致的结果。

关键词 [反相高效液相色谱法](#) [类胡萝卜素](#) [烤烟叶片](#)

分类号

Determination of Carotenoids in Flue-Cured Tobacco Leaves During its Growth by Reversed-Phase High Performance Liquid Chromatography

LIU Guoshun WEI Fengjie WANG Fang LI Yajuan GUO Qiaoyan HUANG Xiaoshu

Abstract

A reversed-phase high performance liquid chromatographic (RP-HPLC) method for the determination of carotenoids in flue-cured tobacco leaves was developed. Carotenoids were extracted from flue-cured tobacco leaves by acetone-water (90: 10, v/v) solution containing 0.1% butylated hydroxytoluene (BHT). Plant proteins were eliminated by adding 0.1 g Pb(Ac)₂ and by centrifugation (10000 r/min) for 5 min at 4℃. Lutein, β-carotene, neoxanthin, violaxanthin and other plant pigments were separated on a reversed-phase C18 column (3.9 mm i.d.×150 mm, 5 μm), with a mobile phase of (A) methanol-isopropyl alcohol (1: 1, v/v) and (B) water using a gradient elution at a flow rate of 0.5 mL/min. The optimum elution gradient was as follows: 0-10 min, 70%A+30%B; 10-17 min, 100%A; 17-30 min, 90%A+10%B. The recoveries of carotenoids in flue-cured tobacco leaves were 91.77%-97.42%, and relative standard deviations were 3.46%-0.98%. This method was applied to determine carotenoids in flue-cured tobacco leaves during its growth with satisfactory results.

Key words [reversed-phase high performance liquid chromatography \(RP-HPLC\)](#) [carotenoids](#) [flue-cured tobacco leaves](#)

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通讯作者 刘国顺

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