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研究论文

全二维气相色谱-飞行时间质谱法测定烟草的中性化学成分

鹿洪亮

厦门卷烟厂技术中心[1]

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摘要 建立了采用全二维气相色谱-飞行时间质谱(GC×GC-TOFMS)分析烟草的中性化学成分的方法。以DB-Petro (50 m×200 μm×0.5 μm) 为第一维色谱柱，DB-1701(2.3 m×100 μm×0.1 μm)为第二维色谱柱；调制周期为8 s；柱头压力为550 kPa；采用程序升温方式,初始温度分别为80 ℃和85 ℃。采用所建立的方法对不同部位的烟叶、不同品种烟草中的25种中性香味成分含量进行了测定和对比。结果表明：云南楚雄产云烟85的中性香味成分(不包括新植二烯)的总量以中部叶最高，其次是上部叶，下部叶最少；国内外不同品种的烤烟中中性香味成分的含量高低顺序为：巴西烤烟最高，其次是津巴布韦烤烟、云烟85、中烟101、NC89、K326；4类烟草中中性香味成分含量最高的是香料烟，其次是白肋烟、烤烟、马里兰烟。

关键词 全二维气相色谱飞行时间质谱 烟草 中性化学成分 同时蒸馏萃取

分类号

Determination of Neutral Chemical Constituents in Flue-Cured Tobacco by Comprehensive Two-Dimensional Gas Chroma-tography and Time-of-Flight Mass Spectrometry

Abstract

A method was established to analyze neutral chemical constituents in tobacco accurately by comprehensive two-dimensional gas chromatography and time-of-flight mass spectrometry (GC×GC-TOFMS). A DB-Petro column (50 m×200 μm×0.5 μm) was chosen as the column for the first dimension, and a DB-1701 column (2.3 m×100 μm×0.1 μm) was chosen as the column for the second dimension. The modulation period was set at 8 s, and the column pressure was 550 kPa. The initial temperatures of the two columns were set at 80 ℃ and 85 ℃ respectively and then increased with temperature programming. The contents of the neutral chemical constituents in different positions of tobacco leaves, product regions and varieties of tobacco were compared. The results showed that the total contents of the 24 neutral fractions in the middle leaves was the most, then in the upper leaves and the least in the lower leaves. These contents in the flue-cured tobacco produced by Brazil was the highest, followed by Zimbabwe, Yunyan85, Zhongyan101, NC89 and K326. In four kinds of tobacco, the total contents of the 24 neutral fractions in Oriental tobacco was the highest, followed by Burly tobacco, Flue-cured tobacco and Maryland tobacco.

Key words comprehensive two-dimensional gas chromatography, time-of-flight mass spectrometry tobacco neutral constituents SDE

DOI:

通讯作者 鹿洪亮 deardeer@126.com