

Flare Mixed-Mode Column: Lavender Essential Oil

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Introduction

The Flare Mixed-Mode/C₁₈ column was used to separate the components in lavender essential oil.

Lavender essential oil has been used topically to treat allergies,¹ herpes,² and the appearance of stretch marks.³ Its oral uses have included the treatment of menopausal conditions,⁴ insomnia,⁵ and premenstrual conditions.³ Lavender has also been used aromatically as a relaxant, and sleep aid.⁵⁻⁶

While these previous uses are perhaps somewhat anecdotal, recent studies suggest that lavender can be used as an analgesic,⁷ antifungal,⁸ anti-inflammatory,⁷ anti-microbial,⁸⁻⁹ anti-tumor¹⁰ and anti-mutagenic agent.¹¹ Lavender has also been used as a sedative and to treat anxiety.¹²⁻¹³

Lavender is composed of many compounds, including alcohols, esters, monoterpenes, sesquiterpenes, phenols, aldehydes, coumarins, ketones and lactones.³

Experimental

Gradient elution was used to separate the mixture of compounds that comprise the lavender essential oil. Known components of the oil including linalool, linalyl acetate, and β -ocimene were purchased from Sigma-Aldrich (St. Louis, MO).

Sample: 5 μ L of peppermint essential oil from dōTERRA Intl., Orem, UT, dissolved in 1mL of acetonitrile

Column: Flare Mixed-Mode Column (4.6 \times 33 mm, 4.0 μ m)

System: Agilent 1290 UHPLC, binary pump, DAD, ChemStation software

Injection Volume: 2 μ L

Temperature: 35 $^{\circ}$ C

Flow Rate: 1.0 mL/min

Detection: Multiwavelength UV/Vis Diode Array (214, 230 nm)

Needle Wash: 1 min with methanol

Mobile Phase: Gradient

A: 10 mM phosphate buffer, pH 8

B: Acetonitrile

Time (min)	%Water	%ACN
0	70	30
12	30	70

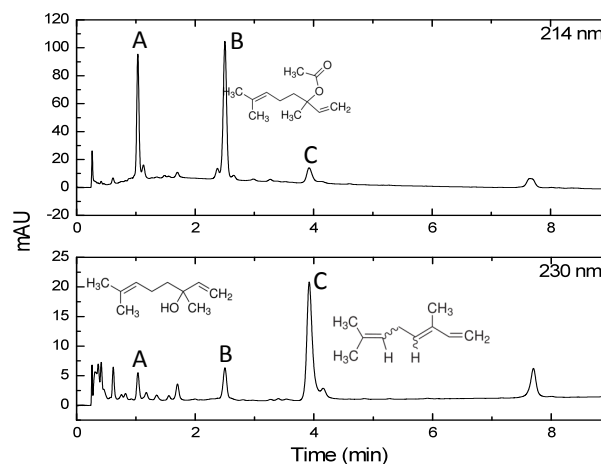


Figure 1. Gradient separation of lavender essential oil (214, 230 nm).

Results and Discussion

The retention times of linalool (A), linalyl acetate (B) and β -ocimene (C) were obtained by individually injecting each compound on the Flare column. These retention times were compared with peaks present in the lavender essential oil. They appeared at the following retention times: 1.03 min (linalool), 2.50 min (linalyl acetate) and 3.92 min (β -ocimene).

References

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