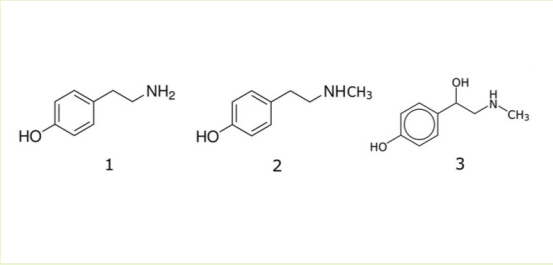
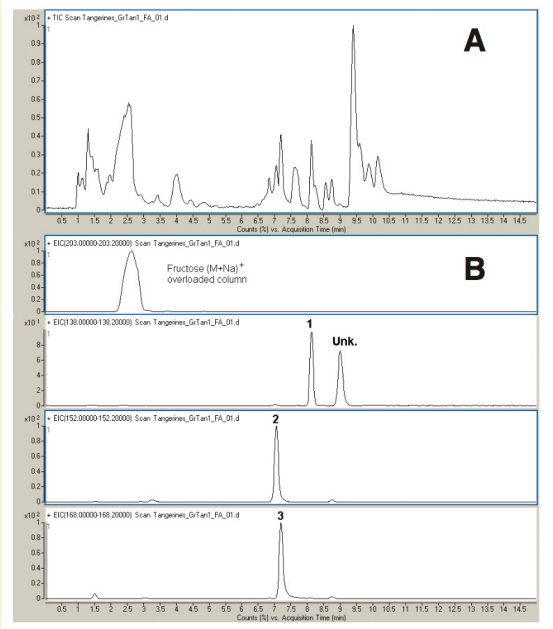
Alkaloids in Citrus Fruit Juice

Phenethylamine alkaloids (adrenergic amines, biogenic amines) in tangerine juice. Fast, sensitive and reproducible





Notes: The problems normally associated with the HPLC separation of adrenergic amines, such as peak tailing, low retention and low resolution, are solved with this method and is robust and reliable enough to be considered suitable for the quality control of citrus plant material and many commercial citrus based products. – Traditionally with ordinary HPLC methods, extensive sample preparation is required, as well as, derivatization of many compounds or ion exchange resins must be used for sufficient retention.

Method Conditions

Column: **Cogent Diamond Hydride™**, 4µm, 100Å

Catalog No.: 70000-15P-2

Dimensions: 2.1 x 150 mm

Solvents: A: DI H_2O/ 0.1% formic acid
B: Acetonitrile/ 0.1% formic acid

Gradient:

time (min.)	%B
0	90
2.5	90
6	70
7	70
12	30
13	30
13,1	90
15	90

Flow rate: 0.4 mL/min

Detection: ESI – pos - Agilent 6210 MSD TOF mass spectrometer.

Sample: Squeezed tangerine juice was centrifuged, and supernatant was diluted with acetonitrile/ 0.1% formic acid (1 portion of juice and 1 portion of acetonitrile). Sample was centrifuged again and 1 mL of the supernatant was injected.

Peaks: 1. Tyramine 138.09134 m/z $(M+H)^+$
2. N-methyltyramine 152.10699 m/z $(M+H)^+$
3. Synephrine 168.10191 m/z $(M+H)^+$

t_0: 1.44 min

Discussion

This method, developed for the analysis of adrenergic amines in tangerine juice is sensitive, fast, simple and reproducible when using Cogent Diamond Hydride HPLC column and an Agilent MS TOF instrument. The resulting sample and diluent, after centrifugation is fully compatible with the ANP mobile phase (shown above), which allows direct injection of the sample with no further prep time required. Total time of the analysis (including sample preparation and equilibration of the column) is merely 30 minutes.

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