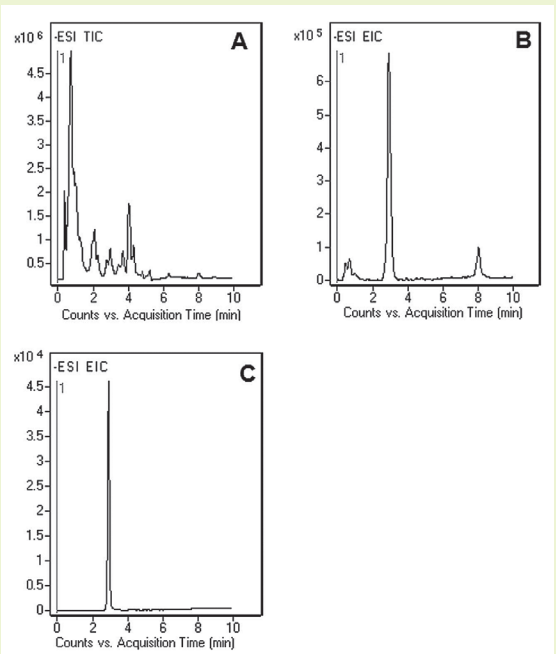
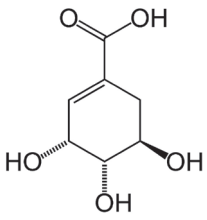
Shikimic Acid in Red Wine (LC-MS)

Ingredient for production of oseltamivir





Note: Shikimic acid is a key ingredient in the production of Tamiflu®, an antiviral drug for Influenza virus A and swine-origin influenza (H1N1). Shikimic acid comes from grape skin and is always present in wines. Determination of its concentration in wine can be used as a tool to differentiate between different red wine varieties. It is an intermediate molecule produced in the shikimate pathway. It participates in the biosynthesis of antocyanines.

Method Conditions

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

Catalog No.: 70000-05P-2

Dimensions: 2.1 x 50 mm

Solvents: A: 50% methanol / 50% DI H_2O / 10 mM ammonium acetate
B: 90% acetonitrile / 10% DI H_2O / 10 mM ammonium acetate

Gradient:

time (min.)	%B
0	95
1	95
5	50
8	50
10	95

Post Time: 5 min

Injection vol.: 1µL

Flow rate: 0.4 mL/min

Detection: ESI – NEG - Agilent 6210 MSD TOF mass spectrometer

Sample: Panel A:TIC of Red Wine (Pinot Noir).
Panel B: Red Wine: EIC: Shikimic acid 173.0455 m/z
Panel C: Standard: EIC: Shikimic acid 173.0455 m/z
Red wine: filtered, 0.45µm nylon filters (MicroSolv Tech Corp.). Sample for injection was diluted 1:1 using A/B solvent mixture. Standard: 0.1 mg/mL in methanol, diluted 1:100 for injection using 1:1 A/B solvent mixture.

Peak: Shikimic acid 173.0455 m/z $(M-H)^-$

t_0: 0.4 min

Discussion

This application note presents a method for the analysis of shikimic acid in red wine. The main advantage of using LC-MS in this method is its high specificity (mass accuracy) of analysis, the short analysis time, fast equilibration time between runs, and high repeatability (%RSD < 0.7). The developed method can be used as an analytical tool to verify the varietal authenticity of red wine. Also, Cogent™ columns are well known for long lifetime (low cost per injection of the sample).

MANUFACTURED BY:
MICROSOLV TECHNOLOGY CORPORATION
9158 Industrial Blvd NE
Leland, NC 28451
p: 1.732.380.8900
f: 1.910.769.9435
customers@mtc-usa.com
www.Cogent-HPLC.com