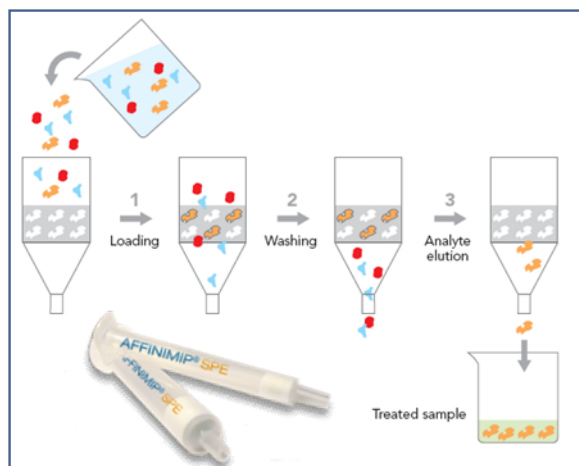


Selective Solid Phase Extraction of Carnosic acid using AFFINIMIP® SPE Phenolics



Background

Carnosic acid (see figure 1) is a natural compound extracted from rosemary and common sage. It is used as a preservative or antioxidant in food and non-food products.

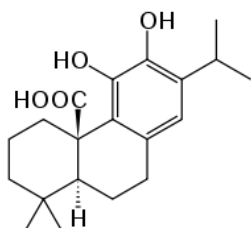
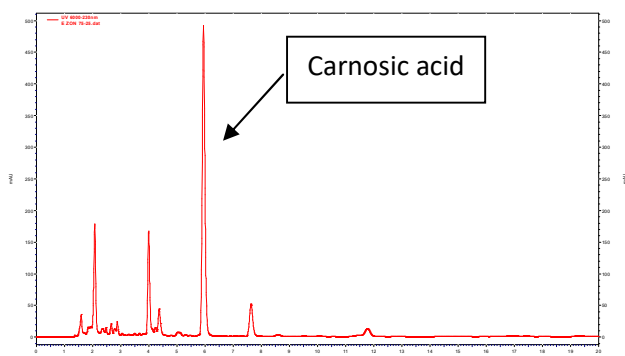


Figure 1. General structure of Carnosic acid.

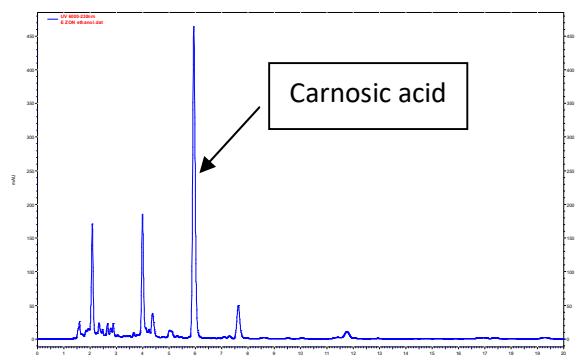
This application note describes the analysis of carnosic acid in turkey using AFFINIMIP® SPE Phenolics cartridges.

Results

Perfect cleanup



Chromatogram of a turkey containing 50ppm of Carnosic acid after clean-up with AFFINIMIP® SPE Phenolics. Extraction of the turkey with 74.5/25/0.5 ACN/H₂O/H₃PO₄



Chromatogram of a turkey containing 50ppm of Carnosic acid after clean-up with AFFINIMIP® SPE Phenolics. Extraction of the turkey with Ethanol-0.5% H₃PO₄

High recovery yields

Extraction solvent	Recoveries %
74.5/25/0.5 ACN/H ₂ O/H ₃ PO ₄	>85%
Ethanol-0.5% H ₃ PO ₄	>80%

Experimental conditions

Preparation of the loading solution

25g of turkey was mixed with 200mL of 74.5/25/0.5 ACN/H₂O/H₃PO₄ or Ethanol-0.5% H₃PO₄ using a blender during 3 minutes. After, the mixture was mixed during 30 minutes with magnetic stirrer. The mixture was filtered on filter paper (4-7µm). Then the mixture was diluted by 2 with water.

Solid phase extraction (SPE) protocol

The SPE procedure used a 3mL AFFINIMIP® SPE Phenolics cartridge. The details of each step are as follow:

- Condition the SPE cartridge with 3mL of Acetonitrile (ACN), then with 3mL of deionized Water
- Load up to 80mL of the loading solution
- Wash the cartridge with 3mL of deionized Water /Acetonitrile (60/40, v/v)
- Elute Carnosic acid with 2mL of Methanol-1% H₃PO₄

Analysis

HPLC was performed on a ThermoFinnigan Spectra System with a Thermo Hypersil Gold column (150mm x 4.6mm). Separation was carried out using a flow rate of 1mL/min and a mobile phase composed of 65/35 (v/v) ACN/Water-0.5% H₃PO₄. The detection system was a ThermoFinnigan Spectra System Model UV6000LP set to 230nm. The injection volume was 5µL.

Product references

- **AFFINIMIP® SPE Phenolics**
 - FS103-02 for 25 polypropylene cartridges 3mL
 - FS103-03 for 50 polypropylene cartridges 3mL