APPLICATION NOTE
E181VPJ-003

Determination of Hop Bitter Acids

Abstract

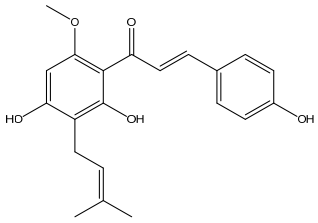
Apart from the classical use of hops for the production of beer, there is growing interest in their possible health benefits in the pharmaceutical and food and beverage industries. Most of the attention has focused on prenylated flavonoids. These bitter compounds are said to be very bioactive with an anti-carcinogenic potential. Particularly Xanthohumol, Isoxanthohumol and 8-Prenylnaringenin have gained in attention. HPLC is a versatile method to analyse the Xanthohumol, Isoxanthohumol and 8-Prenylnaringenin content in hop samples. As a result of its high sensitivity, HPLC analysis can be used for quantification and product quality monitoring. Due to the fact that the maximum UV-absorption varies for different flavonoids, two wavelengths were chosen for the studied separation. For the analysis of Isoxanthohumol and 8-Prenylnaringenin a wavelength of 290 nm was used, while Xanthohumol required a wavelength of 370 nm.

Keywords

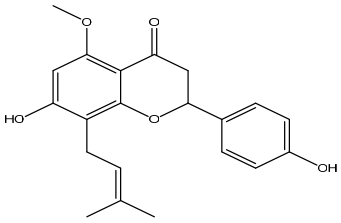
- Chalconoids
- Xanthohumol
- Isoxanthohumol
- 8-Prenylnaringenin

Compound information

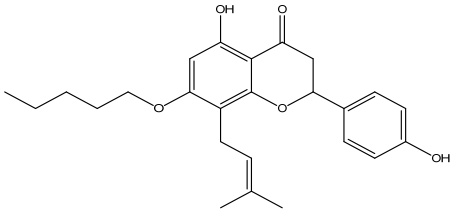
Classification	Compound name
Chalconoids	Xanthohumol
	Isoxanthohumol
	8-Prenylnaringenin



Xanthohumol



Isoxanthohumol

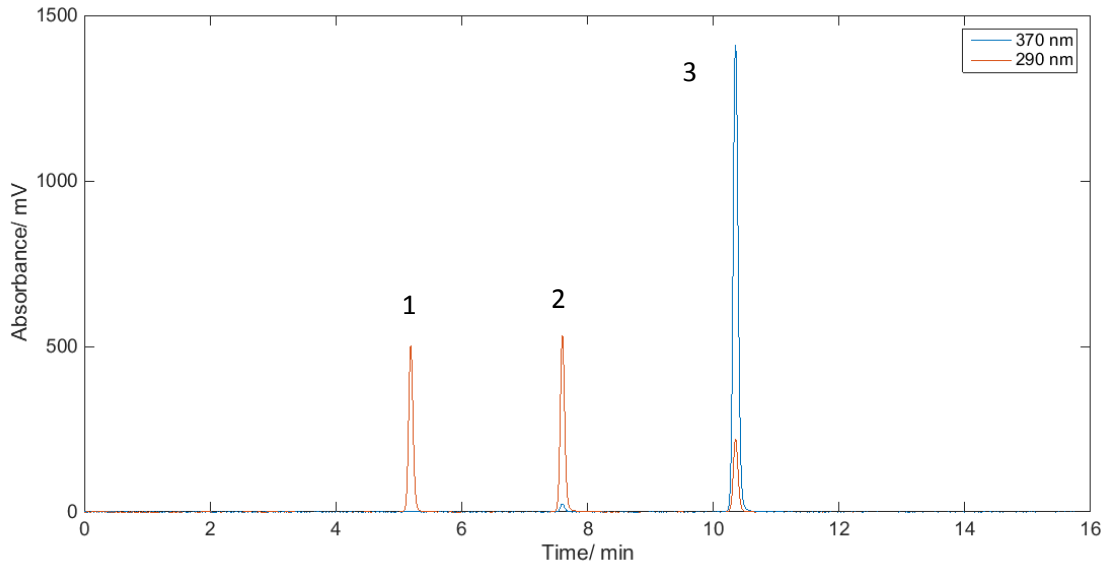


8-Prenylnaringenin

Chromatographic conditions

Column	VDSpher® PUR 100 C18-E
Particle Size, Length × inner diameter	5 µm, 150 × 4.6 mm
Order number	N1546E181VPJ
Separation mode descriptions	analytical, reversed phase
Mobile Phase	A: Water (0.05% Formic acid) B: Acetonitrile (0.05% Formic acid)
Elution conditions	Gradient 0-1 min: 50% B 1-10 min: 50% to 90% B 10-12 min: 90% B 12-14 min: 90% to 50% B 14-16 min: 50% B
Flow rate	1.0 mL/min
Injection	10 µL
Column temperature	25 °C
Pressure	
HPLC system	Gilson system consisting of 322H2 binary gradient pump and GX Direct injection module 155 UV/VIS Detector (Gilson) at wavelengths of 290 nm and 370 nm
Sample and sample preparation	Mixture of three hop bitter acids from hop extract, containing Xanthohumol, Isoxanthohumol and 8-Prenylnaringenin Preparation: The sample was diluted with methanol and a pre-column was used (VDSpher® PUR 100 C18-E (5µm, 10 × 4.0mm)).

Chromatograms



Overlaid chromatograms detected at λ = 290 nm and λ = 370 nm; 1= isoxanthohumol, 2 = 8-prenylnaringenin, 3 = xanthohumol.

Origin

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Biothermodynamik (Biothermodynamics)

References

Year of application: 2016

For more information about VDSpher® columns visit our website or contact us via Email:

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