

Black Cohosh

The need for universal HPLC detection in analytical laboratories is widespread. While several detection technologies (e.g., low wavelength UV, refractive index, evaporative light scattering, chemiluminescent nitrogen detectors) are currently being used, there is significant room for improvement in performance characteristics such as sensitivity, dynamic range, consistency of response factors and gradient or solvent compatibility.

To help address the many challenges of universal detection, ESA has developed the Corona CAD™ detector. This novel technology offers many benefits to analytical scientists including:

- High Sensitivity - Low ng limits of detection.
- Consistent Response Factors - Response magnitude does not significantly depend on analyte properties (e.g. molar absorptivity, proton affinity).
- Broad and Useful Dynamic Range - 4 orders of magnitude (ng - µg quantities).
- Excellent Reproducibility - Typically less than 2% RSD.
- Broad Applicability - Can be used with a wide variety of HPLC conditions to measure virtually any nonvolatile analyte including proteins, lipids, carbohydrates and small molecules.
- Ease of Use - Easy setup. Uses minimal bench space and requires only gas input pressure and signal output range to be set.

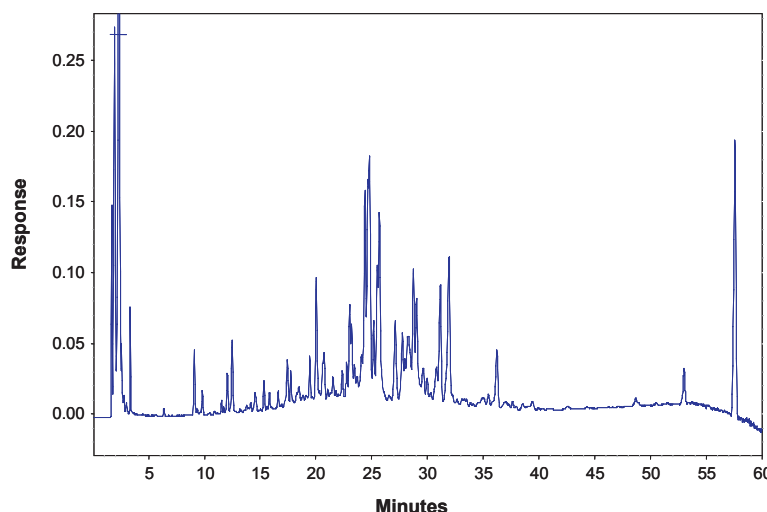


Figure 1. Black Cohosh Metabolites.

This application note describes the use of the Corona CAD for the measurement of black cohosh metabolites (Figure 1). The method is extremely reproducible (Figure 2) and sensitive (low ng levels).

Corona parameters

Gas: 35psi via nitrogen generator

Filter: none

Range: 100pA

HPLC Parameters:

Mobile Phase A: 0.1% Formic acid

Mobile Phase B: 100% Acetonitrile

Gradient:	Time	%A	%B
	0.00	80	20
	60.00	0	100
	65.00	0	100
	66.00	80	20
	80.00	80	20

Flow Rate: 1.0mL/min

Column: Shiseido MG 100 C18, 4.6 x 250mm; 5µm

Column Temperature: ambient

Injection Volume: 10µL



The Corona™ Charged Aerosol Detector

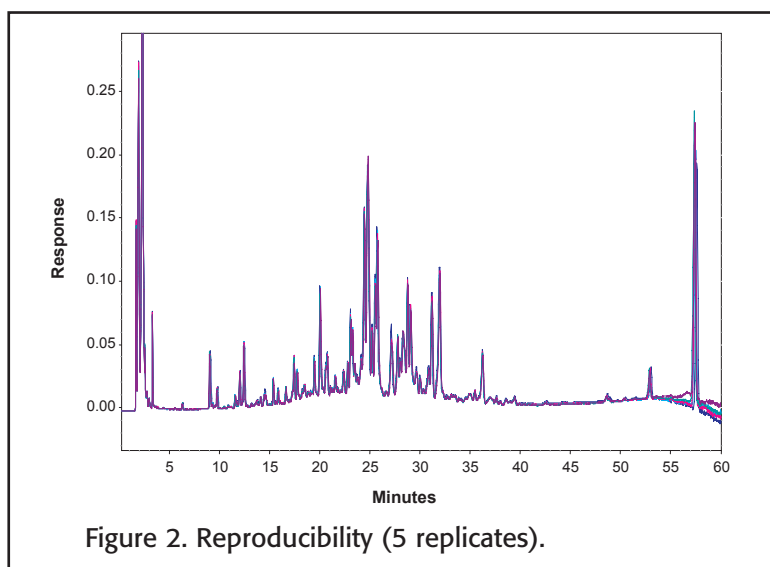


Figure 2. Reproducibility (5 replicates).

Sample preparation

Sample (1g powder from capsule) was sonicated in 10mL methanol for 30mins. The mixture was then passed through a CentrX 0.2µm nylon filter by centrifugation.

Conclusions

The Corona CAD provides universal detection of non-volatile analytes with response independent of chemical properties, a wide dynamic response range, high sensitivity and good precision. These characteristics, along with reliability and simple operation, make this a superior detector for a wide range of HPLC analyses.

For more information about this application, the Corona CAD, or charged aerosol detection visit www.coronacad.com. We are interested in your opinions and are available to answer any questions you may have: please contact a technical representative at 978.250.7082, or if e-mail is more convenient, send your questions to coronacad@esainc.com.

Ordering information

Description

Corona

Part Number

70-6350 (100/120V)

70-6351 (230/240V)

Thermal Organizer Module

70-5499TA

Nitrogen generator

70-6003

Pump, model 582

70-4050

Autosampler, model 542

70-4152

Quaternary low pressure gradient
and degasser

70-5260

Elite software including PC

70-5073

Column, Shiseido MG 100 C18

88-90104



ESA, Inc. • 22 Alpha Road
Chelmsford, MA 01824-4171
U.S.A.
Tel: (978) 250-7000
Fax: (978) 250-7090
www.esainc.com
www.coronacad.com

ESA Analytical • Brook Farm
Dorton, Aylesbury
Buckinghamshire
HP18 9NH
England
Tel: 44 (0)1844 239381
www.esainc.com

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The Corona CAD is covered by multiple patents