

RevealX™ Technology Allows Both Chromophoric and Non-chromophoric Component Isolation from Cat's Claw Extract

Reveleris® iES Flash Chromatography System

Introduction

Cat's claw, a tropical vine, is considered a valuable medicinal resource for scientific research. The active substances are alkaloids, tannins, and several other phytochemicals that may have the potential to boost the immune system.¹ The presence of alkaloids provides anti-hypertensive effects and may lower cholesterol, as well as contribute anti-inflammatory, antioxidant, and anticancer properties.²

Experimental

Run Conditions

Extract type: Powder

Weight: 3g

Extraction solvent: Methanol

Solvent volume: 10 mL

Ultra-sonication: 30 min at 60° C

Run Conditions

Cartridge: Reveleris® C18 media 12g

Flow rate: 30 mL/min

Equilibration: 5.0 min

UV1 wavelength: 254 nm

UV2 wavelength: 220 nm

ELSD carrier: Iso-proponal

Injection type: Liquid

Solvent A: Water

Solvent B: Methanol



Results and Discussion

Gradient Method		
Step	Time (min.)	%B
1	0	30
2	3	30
3	3	100
4	4	100

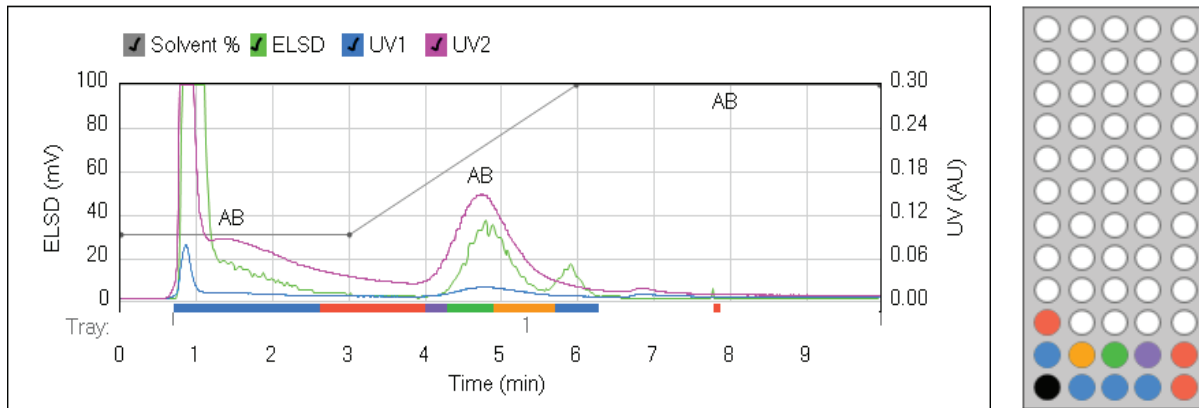


Figure 1: Using the Reveleris® iES flash system and RevealX™ technology, Cat's Claw extract has been purified on a reversed phase Reveleris® 12g cartridge. The chromatogram shows the benefits of detecting peaks using the UV and the ELSD detectors.

Gradient Method		
Step	Time (min.)	%B
1	0	30
2	3	30
3	9	100
4	1	100

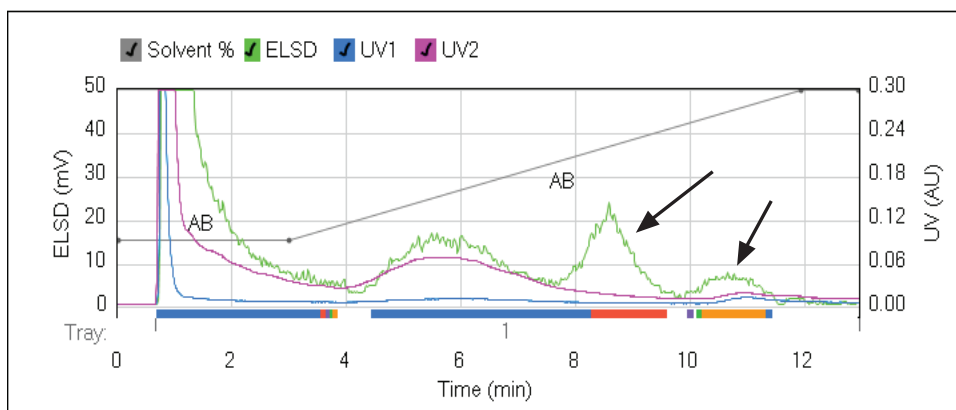


Figure 2: Optimized gradient method improves resolution for higher purity fractions.

Results and Discussion

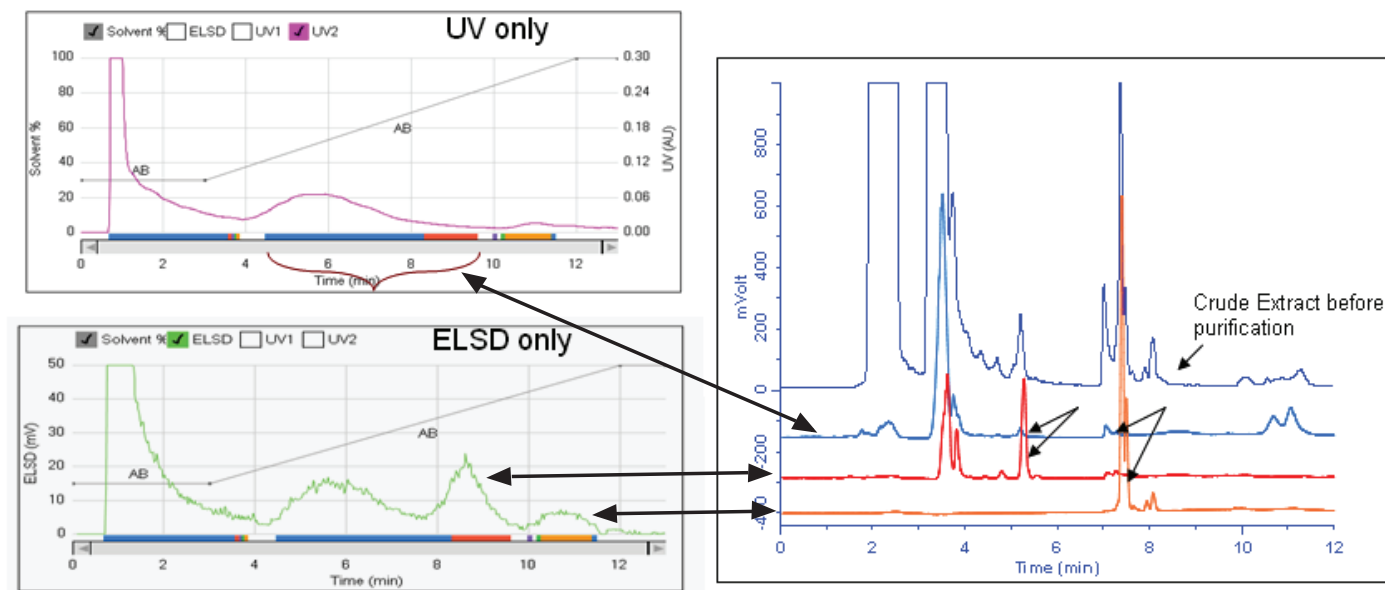


Figure 3: Samples purified using UV signal only fails to detect non-chromophoric peaks leading to impure and diluted fractions. Fractions collected using ELSD isolate components with higher recovery and purity.

Conclusion

Natural products play a dominant role in the development of new drugs for medicinal purposes. Crude extract typically contains lead compounds, requiring multiple steps to isolate and purify. Purification bottlenecks encountered when using traditional flash chromatography can be eliminated by using the Reveleris® iES system, which independently collects peaks detected from multiple

detectors, including UV and ELSD for both chromophoric and non-chromophoric compounds. This leads to fractions with pure compounds and higher recovery. Equipped with universal RevealX™ detection and the Navigator technology, chemists can isolate target compounds and low-level components from their crude extracts, saving time and labor.

References

1. Cat's Claw; Technical Literature, Raintree Nutrition, Carson City, Nevada.
2. Medicinal natural products; a biosynthetic approach, 3rd edition; Dewick, P.; John Wiley & Sons, Inc., Hoboken, New Jersey, 2009.

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