

Customer Application Note

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Determination of the Punicalagins Found in Pomegranate by High Performance Liquid Chromatography

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Introduction

Antioxidants found in fruits and vegetables or the juices of fruits and vegetables are known to provide our bodies with many health benefits. Pomegranate is one such fruit that contains high levels of antioxidants; studies have shown that pomegranate contains more antioxidants than green tea, cranberries, and even red wine. The antioxidants in pomegranates include polyphenols, such as tannins and anthocyanins. The most abundant polyphenols in pomegranate juice are the hydrolyzable tannins called punicalagins that have free-radical scavenging properties in laboratory experiments.

For more details on pomegranate antioxidant properties click the following link:

<http://pomegranateinformation.com/pomegranate/antioxidant-properties/>

Summary

Samples

	Lot #	CDXA #
Punicalagins A & B Chromadex	16983-1218	CDXA-119.113

Results

See chromatograms in Data section:

Analytical Method

Laboratory Supplies

Analytical Balance
Ultrasonication Bath
Assorted Volumetric glassware
Syringes and Syringe Filters
HPLC/GC glass vials and caps

Solvents and Reagents

Formic Acid
Milli-Q® Water
Acetonitrile (CH₃CN)

Solution Preparation

Mobile Phase: 1 % Formic Acid in Milli-Q water

The solution was prepared by adding 10 mL of Formic Acid to 1 L of Milli-Q water and mixing well.

Stock Standard Preparation

The stock standard was prepared by weighing 5.42 mg of punicalagins A & B into a 10 mL volumetric flask. 5 mL of Milli-Q water were added and sonicated. The solution was then allowed to re-equilibrate to ambient temperature, brought to volume with Milli-Q water, and mixed well.

Instrument Parameters

Instrument: Dionex HPLC System
Detection: UV-vis
Mobile Phase A: 1% Formic Acid in Milli-Q Water
Mobile Phase B: Acetonitrile
Gradient Program:

Time (min)	%A	%B
0	95	5
18	85	15
20	35	65
25	95	5
30	95	5

Column: Dionex Acclaim® Polar Advantage PA II
150 × 3.0 mm, 3 µm particle

Flow Rate: 1.0 mL/min

Temperature: 30 °C

Injection Volume: 10 µL

UV Detection: 260 nm

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Data Figures

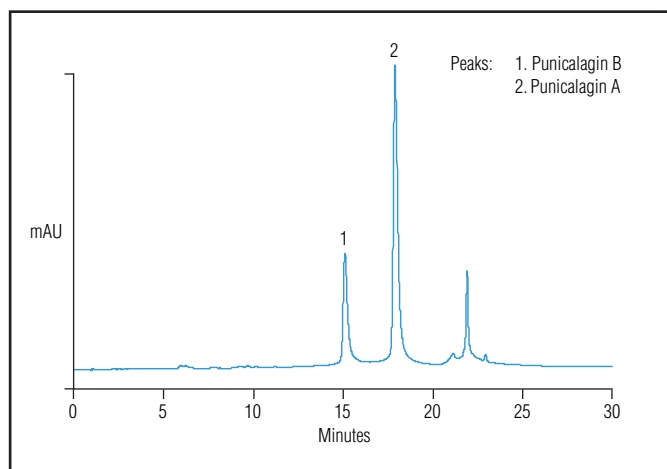


Figure 1. Punicalagins mixed standard injection.

Structure

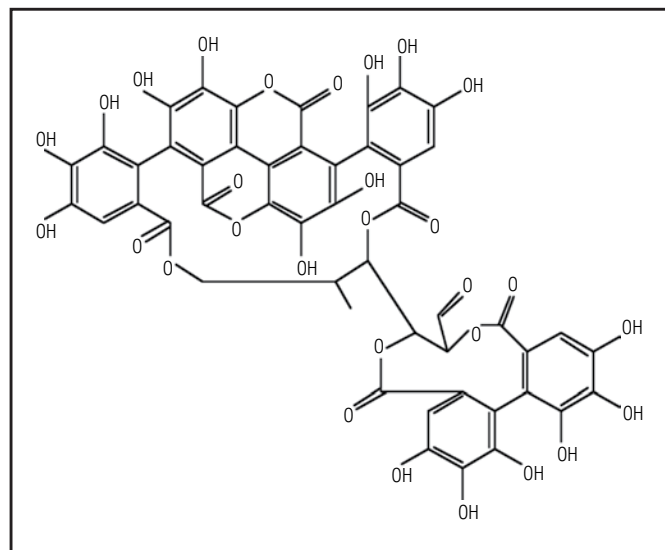


Figure 2. Punicalagin.

References

1. ChromaDex Analytics Laboratory Notebook 73, pages 114–115.
2. ChromaDex Analytics Laboratory Notebook 119, page 113.
3. ChromaDex SOP "Routine Laboratory Calculations."
4. Analytical Method: 99.1-CD-1.0-000216.

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