PRP-C18, Unlock the Spice

Isolation of Garlic Components by Reversed-Phase HPLC

Cells beyond their sell-by date exhibit a higher probability to propagate damaged cellular components like DNA, which leads to disease. It is therefore necessary for the body to remove these old malfunctioning cells.[1] One method the body uses to remove these cells is programmed cell death, or apoptosis. Garlic has shown a remarkable ability to induce apoptosis of damaged or malfunctioning cells in multiple studies.[2] Induction of senescent cell death is not the only role garlic plays in the body. It has also been documented as providing proliferative benefits in the digestive, cardiac, and neural areas of the body. These wonder chemicals have shown positive affects in the fight against the number one killer of people in the United States: cardiac complications. The compounds in garlic inhibit the aggregation of platelets in the blood stream and reduce the likelihood of thrombotic events.[3]

With a multitude of health applications, garlic separations appear to be a necessary quest. All of the active components of garlic are easily isolated using the 5 µm PRP-C18 HPLC column from Hamilton Company. Good peak shape is observed on both the hydrophilic and hydrophobic regions of the chromatogram. The beauty of garlic is the multitude of active components containing both lipophilic and lipophobic properties all combined into one clove. Isolation of any of the active components is easily achieved due to the high analyte loading capacity associated with this column, making it a great choice when scaling up from analytical to preparatory isolation is desired. An added benefit when using the PRP-C18 column is the ability to easily regenerate the column if previous separations had fouled the surface chemistry. The regeneration can restore the media back to the original peak shape and reproducibility, thereby enhancing the longevity and value of the column.

1) *Gebreyohannes, G. Gebreyohannes M. Int. J. Med. Med. Sci. 2013; 5(9):401–408.*
2) *Wu X, Kassie F, Mersch-Sundermann V. Mutat Res. 2005; 589(2):81–102.*
3) *Bradley J, Organ C, Lefer DJ. J Nutr. 2016; 146(2):403S–409S.*

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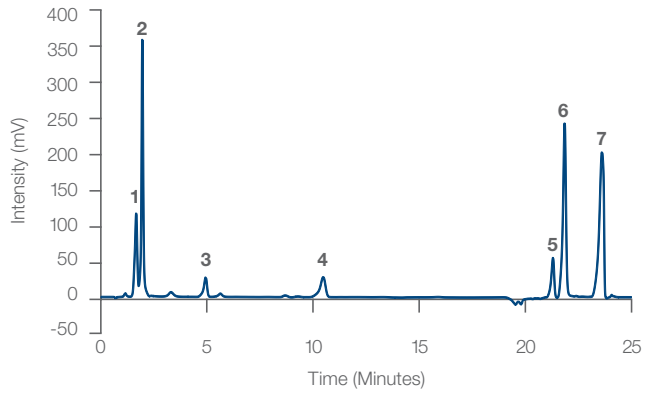

Compounds:

1. Cysteine
2. Alliin
3. Allyl Cysteine
4. Diallyl Trisulfide
5. Allyl Methyl Sulfide
6. Allyl Sulfide
7. Dipropyl Disulfide

Column Information

Packing Material	PRP-C18, 5 µm
Dimensions	150 x 4.6 mm
P/N	79676

Chromatographic Conditions

Gradient	0.00 – 12.5 min. 2–30% B 12.51 – 17.0 min. 30% B 17.01 – 19.0 min. 30–99% B 19.01 – 22.0 min. 99% B 22.01 – 25.0 min. 2% B
Temperature	35°C
Injection Volume	5 µL
Detection	UV at 215 nm
Eluent A	Water
Eluent B	Acetonitrile
Flow Rate	1.0 mL/min

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