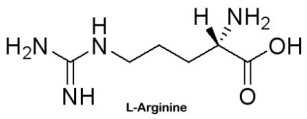
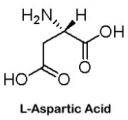
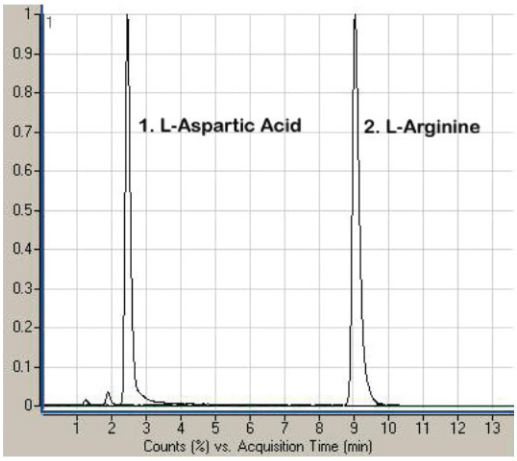
Easy Amino Acid Method

Reduced Sample Prep and Handling







Notes: L-Arginine is classified as a semi essential or conditionally essential amino acid, that plays an important function in the metabolism of organisms. It is used to remove waste products (for example ammonia) and to make other compounds (L–proline, creatine, cell signaling molecule: nitric oxide (NO) and L-glutamate). The nitric compound made from L-arginine relaxes blood vessels.
The Aspartic acid and glutamic acid levels increase in the midbrain with Parkinon's disease (PD) indicating participation of these amino acids in PD pathogenesis. The levels of these two amino acids are also relevant to other neurological diseases as Alzheimer disease (AD) and schizophrenia. Therefore the determination of the changes of the two amino acids levels in biological samples is essential to research the pathogenesis of the above mentioned diseases as well as establishment of the treatment scheme.

Method Conditions

Column: **Cogent Diamond Hydride™**, 4µm, 100Å

Catalog No.: 70000-15P-2

Dimensions: 2.1 x 150 mm

Solvents: A: DI H_2O/ 0.1% formic acid
B: Acetonitrile/ 0.1% formic acid/ 0.005% TFA

Mobile Phase: Isocratic 90%B/ 10%A

Flow rate: 400µL/min

Detection: ESI – pos - Agilent 6210 MSD TOF mass spectrometer

Sample: 1mg/mL of each: L – aspartic acid/ L - arginine dissolved in 50% acetonitrile/ DI H_2O/ 0.1 % TFA (Sample for injection: Stock solution diluted 1:100 with the mobile phase)

Peaks: 1. L–aspartic acid, 134 m/z, RT = 2.45 min
2. L–arginine, 175 m/z, RT = 9.05 min

Discussion

Two amino acids are adequately retained and can be easily quantified in this method with very little sample prep. There is no need for any derivatizing with this method because of the combination of the mass spectrometric detection and the Aqueous Normal Phase (ANP) method. Also, this method produces reliable and reproducible results. The column lifetime with this method is exceptionally good.

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