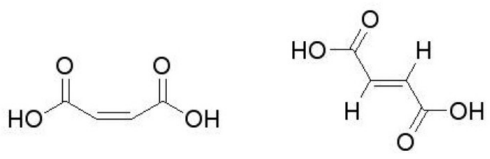
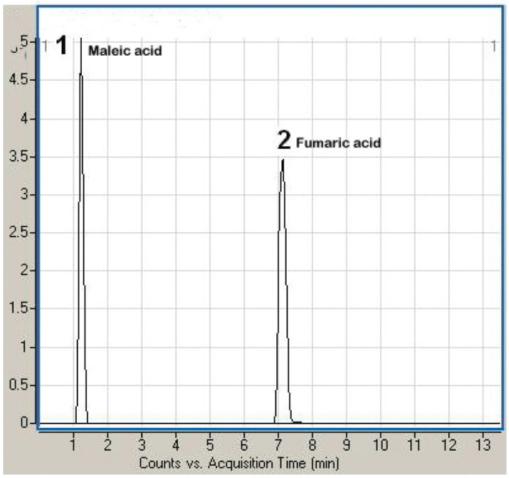
# Isobaric Compounds

## Organic Acids Separated in ANP



**1. Maleic acid** **2. Fumaric acid**




**Notes:** The method presented was found to be superior to other classical assays and HPLC methods, and to be an attractive choice for the analysis of these compounds. Fumaric and maleic acids are impurities found in tartaric and malic acids and their amounts are officially limited by the FDA.

## 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% ammonium formate
B: 90% Acetonitrile/ 10% DI $H_2O$/ 0.1% ammonium formate

**Gradient:**

| time (min.) | %B |
|---|---|
| 0 | 90 |
| 3 | 90 |
| 6 | 70 |
| 7 | 70 |
| 7.1 | 30 |
| 8 | 30 |
| 8.1 | 90 |
| 10 | 90 |

**Flow rate:** 0.4 mL/min

**Detection:** ESI – neg - Agilent 6210 MSD TOF mass spectrometer

**Sample:** Sample mixture was prepared in 50% DI $H_2O$/ 50% acetonitrile

**Peaks:** 1. Maleic acid 115.0031 m/z $(M-H)^-$
2. Fumaric acid 115.0031 m/z $(M-H)^-$

## Discussion

Low molecular mass isobaric acids were retained and separated using a Cogent Diamond Hydride column in the Aqueous Normal Phase (ANP) mode of LC-MS chromatography. The method described above was able to resolve two acids which have identical molecular mass.

The separation of the two compounds may be necessary in order to determine which of the acids is present in the sample matrix by the Mass Spectrometer.



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