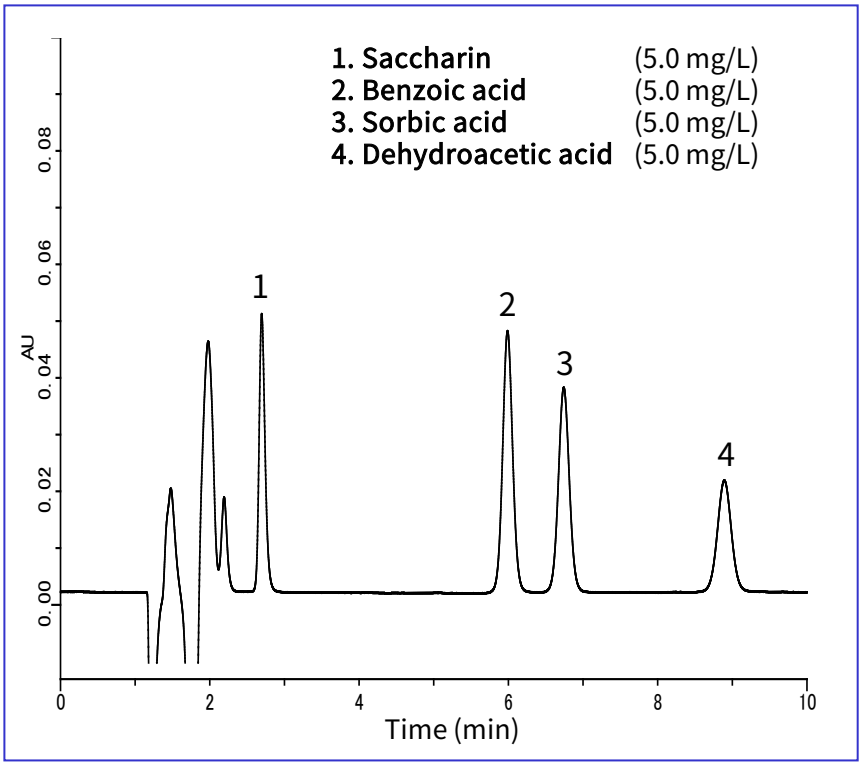
# HPLC Analysis of Preservatives in Foods

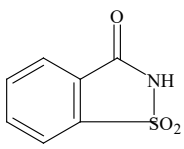
This application note describes the analysis of preservatives in foods. Preservatives are used to suppress the growth of microorganisms that cause spoilage. The following preservatives were analyzed in accordance with the Food Sanitation Inspection Guidelines: Benzoic acid, sorbic acid, and dehydroacetic acid.
The elution order was determined for highly water-soluble saccharin (a sweetener) used as a reference. The results show excellent data for the analysis of preservatives.

(K.Suzuki)

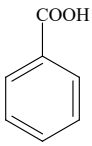
## Example: Measurement of standards



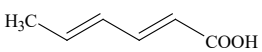

Structural Formula



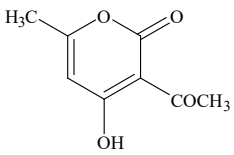

Saccharin




Benzoic acid




Sorbic acid



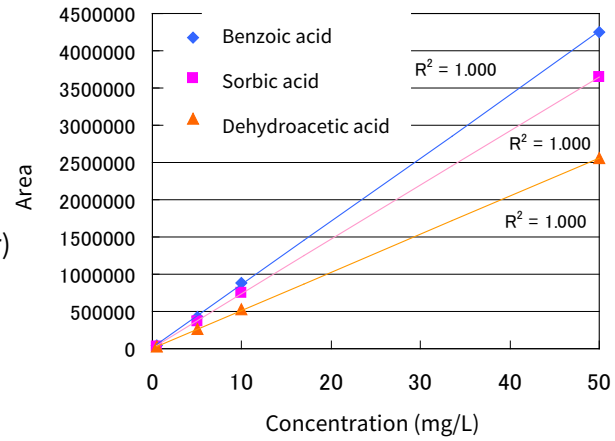

Dehydroacetic acid

Structures are created using Chemistry 4-D Draw which is provided By ChemInnovation Software, Inc.

### HPLC conditions

| | |
|---|---|
| **Column** | : Inertsil ODS-3 (5 µm, 150 x 4.6 mm I.D.) |
| **Eluent** | : A) $CH_3CN$<br>B) $CH_3OH$<br>C) Citric acid Buffer<br>A/B/C = 2/1/7, v/v<br>(Mixed using a gradient mixer) |
| **Flow rate** | : 1.0 mL/min |
| **Column temperature** | : 40 ˚C |
| **Detected** | : UV 230 nm |
| **Injection volume** | : 20 µL |

Citric acid Buffer:
0.6 g of 3 sodium citrate-2-hydrate and 0.7 g of citric acid-1-hydrate dissolved in 1 L of ultrapure water




Calibration curve

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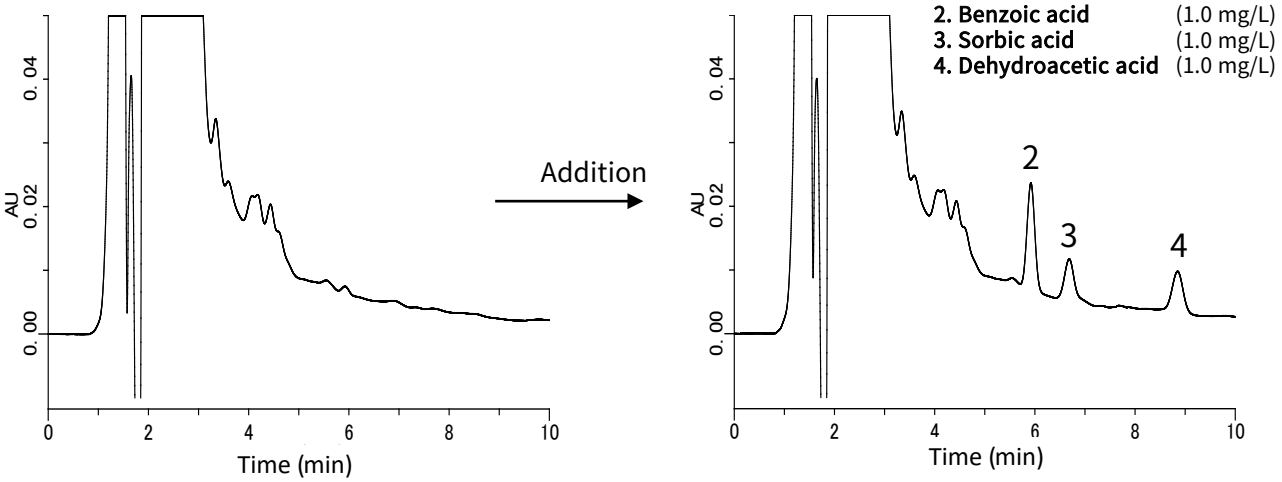
# Example: Analysis of soy sauce

For pretreatment, steam distillation is typically used in the test method. However, in this test, samples were diluted and filtered through a 0.45 µm filter. Pretreatment using solid-phase extraction can also be done.

In the separation shown below, saccharin could not be detected because of the effects of contaminants. For these ionic substances, it is recommended that the eluent conditions be modified for enhanced analysis.



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