

Identification and quantification of preservative chemicals in common household products

Procedure for the extraction of parabens from household products suitable for analysis by HPLC

Step 1 Product

- Weigh 0.25g (approximate mass, but accurately known) of your chosen product into a 100 mL glass beaker

Step 2 Standards

- Prepare solutions containing your 4 paraben standards at concentrations of 1, 5 and 10 $\mu\text{g mL}^{-1}$ in water/acetonitrile (75/25; v/v)

Suggested procedure: Prepare a stock solution (solution 1) of the standard at a concentration of approximately 0.1 mg mL^{-1} . Weigh approximately 10 mg ($\pm 5 \text{ mg}$; carefully record the mass to 5 decimal places) of the standard using a weighing boat and transfer it carefully to a 100 mL volumetric flask. Make up to 100 mL using the 75/25 solution of water/acetonitrile and homogenise. Use solution 1 to obtain solutions of 1, 5, 10 $\mu\text{g mL}^{-1}$. This volume is dependent on the actual concentration of solution 1.

Step 3 Extraction

To your product:

- Add approximately 50 mL of water/acetonitrile (75/25; v/v) to the product and carefully homogenise the mixture.
- Transfer this mixture to a 100 mL volumetric flask and adjust to 100 mL using more water/acetonitrile.
- Filter the solution using a funnel and fluted filter paper into a further flask

Suggest: 0.45 μm HPLC filters can be used instead of a funnel and a fluted filter

Step 4 Purification

The samples can be analysed without any prior purification

Step 5 Analysis

Each solution (100 μL) will be analysed using an HPLC system equipped with a UV-Vis detector.

Suggested HPLC procedure: a 150 mm x 4.6 mm C_{18} column; isocratic conditions; flow rate 1 mL min^{-1} ; mobile phase: water/acetonitrile/acetic acid (74/25/1); UV-Vis detector set at 254nm.

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