CONCEPT LIFE SCIENCES

METHOD STATEMENT - PAHS IN FRUIT, HERBS AND VEGETABLES BY GC/MS

INTRODUCTION

This procedure describes the determination of target polyaromatic hydrocarbons (PAHs) in fruit, herbs and vegetables by solvent extraction/concentration followed by analysis of extracts by gas chromatography with mass spectrometric detection (GC/MS).

PRINCIPLE

1.0 g to 10 g aliquots of 'as received' samples are spiked with labelled internal standards. The sample is extracted using a suitable organic solvent and concentrated to *ca.* 1 ml and then analysed by GC/MS. Where necessary the samples may be chemically dried dependant on moisture content present in the samples or subject to extract clean-up techniques to isolate the PAHs from potential interferences.

PERFORMANCE CHARACTERISTICS

SUBSTANCES DETERMINED

This method is suitable for the analysis of the 'EPA 16' PAHs. These are naphthalene, acenaphthene, acenaphthylene, fluorene, phenanthrene, anthracene, pyrene, fluoranthene, chrysene, benz(a)anthracene, benzo(b/k)fluoranthene, benzo(a)pyrene, dibenz(ghi)perylene, indeno(1,2,3,-cd)pyrene and dibenz(a,h)anthracene.

RANGE OF APPLICATION

- 1 to 100 ug/kg (compound dependent)

LIMIT OF DETECTION

- 1 ug/kg

ANALYTICAL QUALITY CONTROL

Analytical quality control is maintained by a number of measures:

- Multi-point calibration with authentic standards (with defined minimum performance characteristics)
- Analysis of control samples within each analytical batch, such as independent standards, matrix spikes or reference materials
- Analysis of reagent/method blanks within each analytical batch

REFERENCES

US EPA Method 8270, Revision C, Semivolatile Organic Compounds by Gas Chromatography – Mass Spectrometry (GC/MS).
US EPA Method 3510C, Separatory Funnel Liquid-Liquid Extraction, Revision 3, December 1996.