Analysis of Chemical Flavourings in Chewing Gum

Session 4

In the previous session, you carried out a purification of your chewing gum extract in preparation for analysis by GC. You also carried out a procedural blank for the combined purification and analysis (GC) on a mixture of carvone and camphor.

Aims and Objectives

In this final session, you will analyse your purified extract by GC with either FID or MS detection, and use the data from samples of 'normal' chewing gum and 'contaminated' gum to deduce the nature of the problem. To do this, you will determine the structures of any aroma chemicals and their abundances.

GC Analysis

Compile the GC data corresponding to:

   (a) Purified extracts of 'normal' chewing gum

   (b) Purified extracts of 'contaminated' gum

   (c) The procedural blank

   (d) A solution of 'Moor-Mint' flavourings

With reference to the two most likely explanations for the perceived problem with the 'contaminated' chewing gum, decide whether:

   1. Any of the batches of gum have been contaminated (e.g. with any of the other flavour chemicals used by *Pilgrims of Plymouth*).

   2. The abundance of carvone (spearmint flavouring) is significantly lower/higher between the different batches of chewing gum.

Use the outcomes of this analysis, together with any other information that you have, to obtain a solution to the problem.

Preparation for Final Report

Over the course of these sessions, you have designed and carried out some experiments, collected data, determined the limitations of the experimental methods, and refined the procedures to improve the quality of data obtained. This should have allowed you to identify the nature of the problem with one batch of 'Moor Mint' chewing gum.

As a preparation for your final report, complete your session-by-session flow diagram which summarises the information collected at each stage and the associated 'unknowns'.

OPTION:

1. **PROVIDE SOME ADDITIONAL GC AND/OR MS DATA AS APPROPRIATE.**

2. **PROVIDE REPORT TEMPLATE**

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