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Letter to the Editor

Estimation of peppermint oil constituents by capillary gas chromatography

Sir,

In a recent article published in this Journal, Sang[1] criticised techniques reported by Clark and Menary[2].

Sang suggested that "peppermint oil (from *Mentha piperita* L.) contains over thirty known compounds with many minor compounds as yet unidentified". The identification of compounds in peppermint oil has advanced far beyond this stage. For example, Takahashi *et al.*[3] identified more than eighty minor compounds in peppermint oil.

The column used for analysis by Sang was a "SCOT glass capillary column (43 m × 0.5 mm I.D.) from Chromalytic Technology (Melbourne, Australia), coated with SP-1000". In technical information provided by the manufacturer, it is apparent that SP-1000 is similar to FFAP. It is therefore very surprising that Sang draws some distinction between the two columns and their ability to separate the components of peppermint oil. The only significant difference between the two columns used by Sang is the number of effective plates (FFAP = 50,000 and SP-1000 = 60,500). Clark and Menary (Fig. 3 in ref. 2) obtained excellent separation of menthone and menthofuran using a FFAP column having 47,400 effective plates (S.G.E., Australia).

Sang reported that Clark and Menary assumed equal detector response for all compounds in their oil. Contrary to this suggestion, Clark and Menary reported oil composition in terms of percentage total peak area and not in terms of percentage (w/w). When reporting percentage total peak area, it is not necessary to assume a detector response factor.

In the technique detailed by Clark and Menary, the separation shown in Figs. 2 and 3 was obtained using a programme requiring *ca.* 20 min. The programme described by Sang requires 60 min per run, and gives no improvement in separation. The make-up gas (nitrogen) did not pass through the column and the need for oxygen and moisture traps to prevent oxidation of the SP-1000/FFAP phases appears unnecessary. Diffusion of make-up gas into the column would be prevented by the positive flow of carrier gas (2 ml/min) through the column.

It is our opinion that the paper by Sang does not add to existing techniques in gas chromatography and does not recognise existing published work on peppermint oil composition.

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