



1.8 Analysis of Pharmaceutical (Acetate Ester of Vitamin E) Using a Mass Spectrometer - GCMS

•Explanation

Acetate ester of vitamin E (DL- α -tocopherol acetate) is used in prevention and treatment of vitamin E deficiency as well as being effective for peripheral vascular disturbance.

A **commercially available cream** with methylsiloxane base was dissolved in methanol and the contained acetate ester of vitamin E acetate confirmed.

•Analytical Conditions

Instrument : GCMS-QP5050A

— GC —

Column : DB-5 (30m $\times$ 0.25mm i.d. df=0.1 μ m)

Column Temp. : 100°C (2min) — 10°C/min — 300°C

— MS —

Interface Temp. : 280°C

Ionization Method : EI

Scan Range : m/z 35-900

Scan Interval : 0.5sec

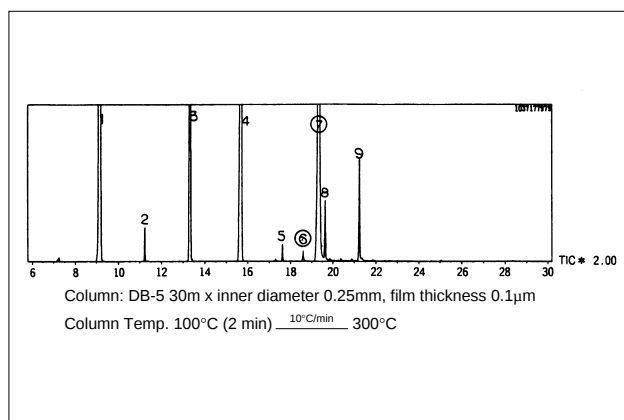


Fig. 1.8.1 Total ion chromatogram of cream

Chart 1.8.1 Qualitative results for cream

No.	Molecular Weight	Chemical Formula	Si	O	-CH ₃	-C ₆ H ₅
1	360	C ₁₈ H ₂₈ O ₂ Si ₃	3	2	6	2
2	582	C ₂₄ H ₄₆ O ₅ Si ₆	6	5	12	2
3	570	C ₂₇ H ₄₂ O ₄ Si ₅	5	4	9	3
4	558	C ₃₀ H ₃₈ O ₃ Si ₄	4	3	6	4
5	780	C ₃₆ H ₅₆ O ₆ Si ₇	7	6	12	4
8	768	C ₃₉ H ₅₂ O ₅ Si ₆	6	5	9	5
9	756	C ₄₂ H ₄₈ O ₄ Si ₅	5	4	6	6
No.	Molecular Weight	Chemical Formula	Compound Name			
⑥	472	C ₃₁ H ₅₂ O ₃	Vitamin E acetate (α -tocopherol acetate)			
⑦	584	C ₃₄ H ₆₄ O ₇	Docosanoic acid triethyl citrate			

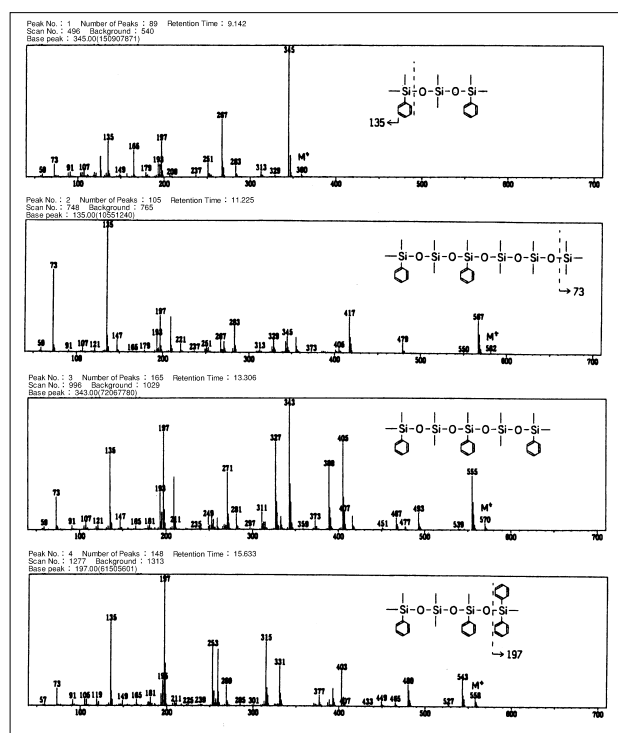


Fig. 1.8.2 Mass spectra of peaks 1 to 4

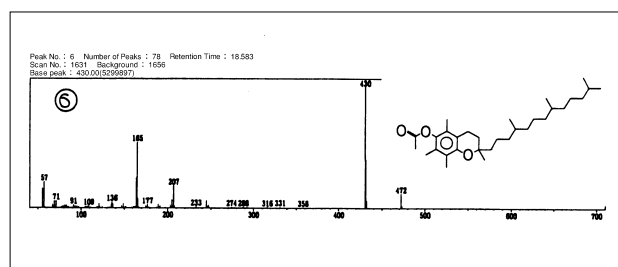


Fig. 1.8.3 Mass spectra of peak (6)