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APPENDIX

Silica gel GF₂₅₄/ethyl
acetate : ethanol (8:2)

Silica gel GF₂₅₄/acetone

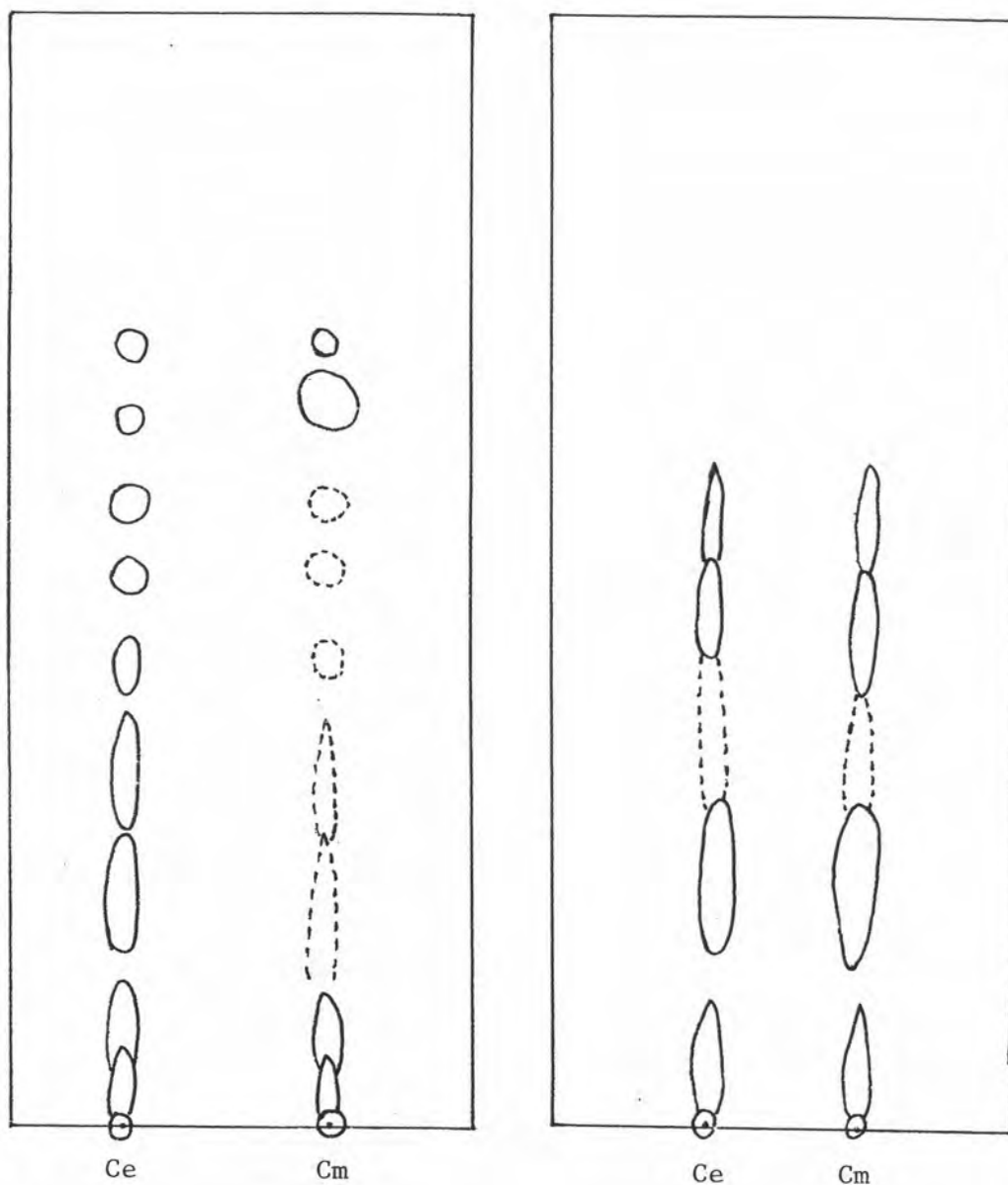


Figure 23 Thin layer chromatograms of crude ethyl acetate alkaloidal extract (Ce) and crude methanolic alkaloidal extract (Cm)

Aluminium oxide G/benzene :
ethyl acetate (1:1)

Aluminium oxide G/ethyl
acetate : n-hexane (1:1)

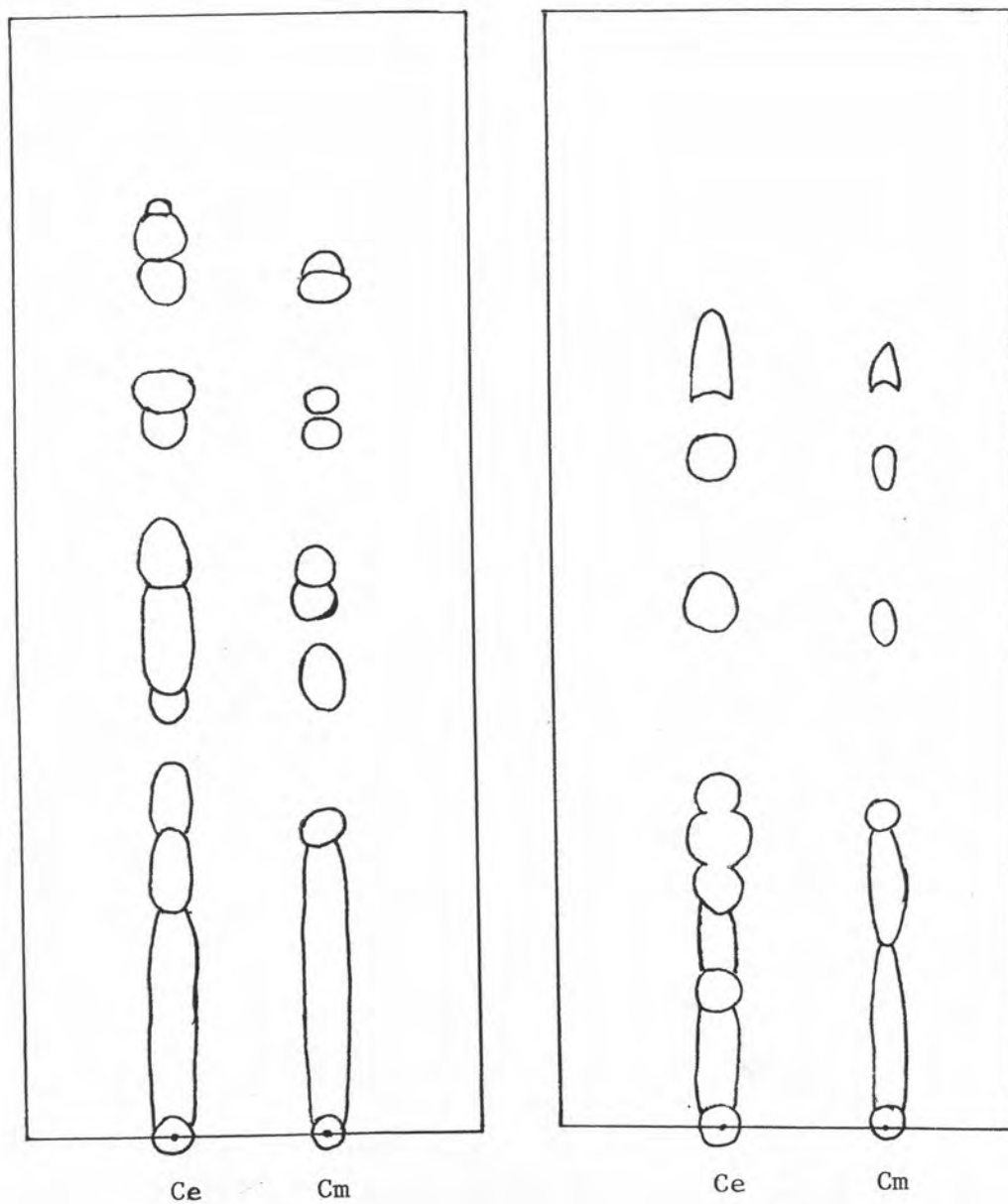


Figure 24 Thin layer chromatograms of crude ethyl acetate alkaloidal extract (Ce) and crude methanolic alkaloidal extract (Cm)

Silica gel GF₂₅₄/ethyl acetate : methanol (9:1)

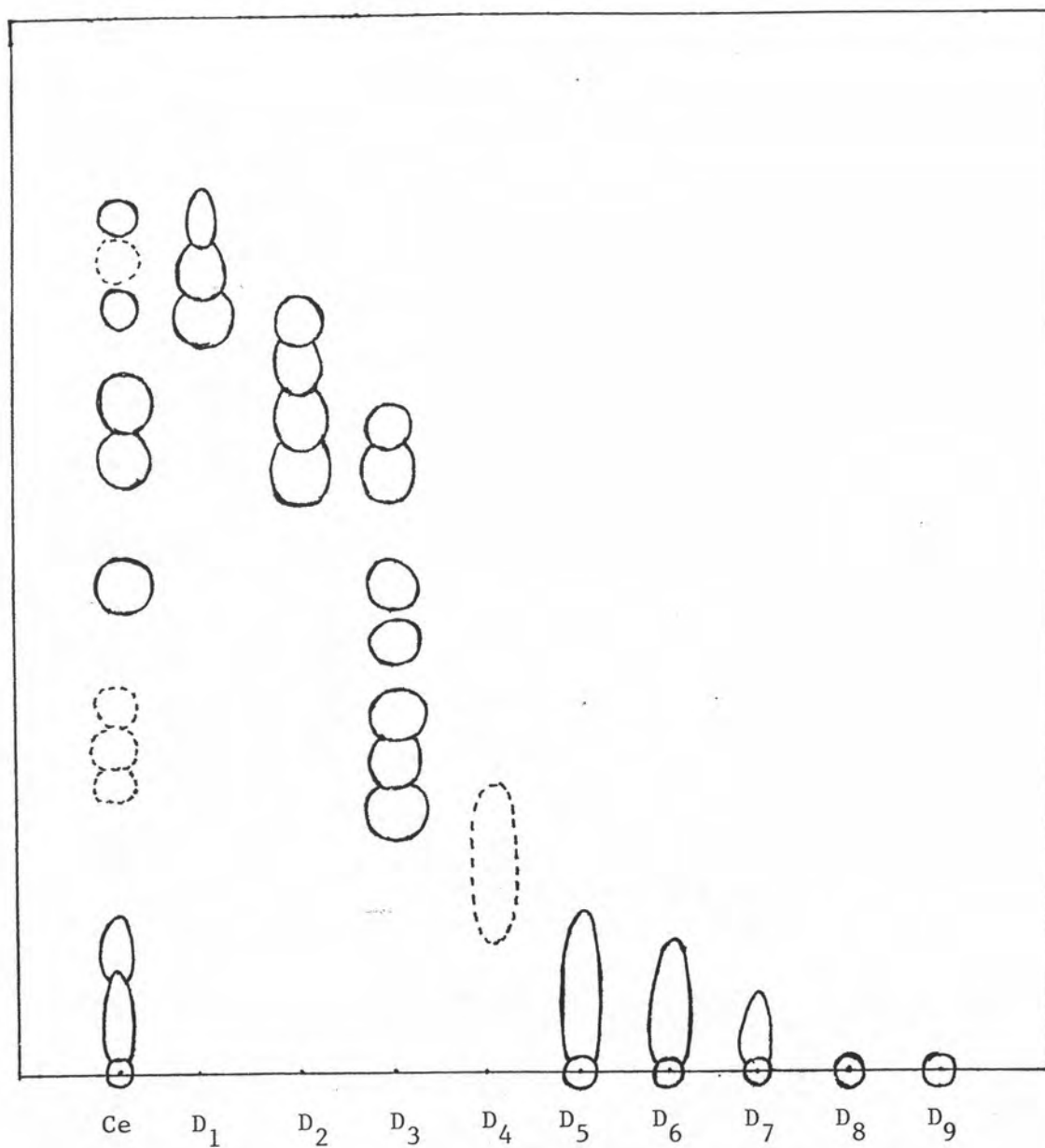


Figure 25 Thin layer chromatogram of crude ethyl acetate alkaloidal extract (Ce) and the Fractions D₁ to D₉

Silica gel GF₂₅₄/chloroform : methanol (7:3)

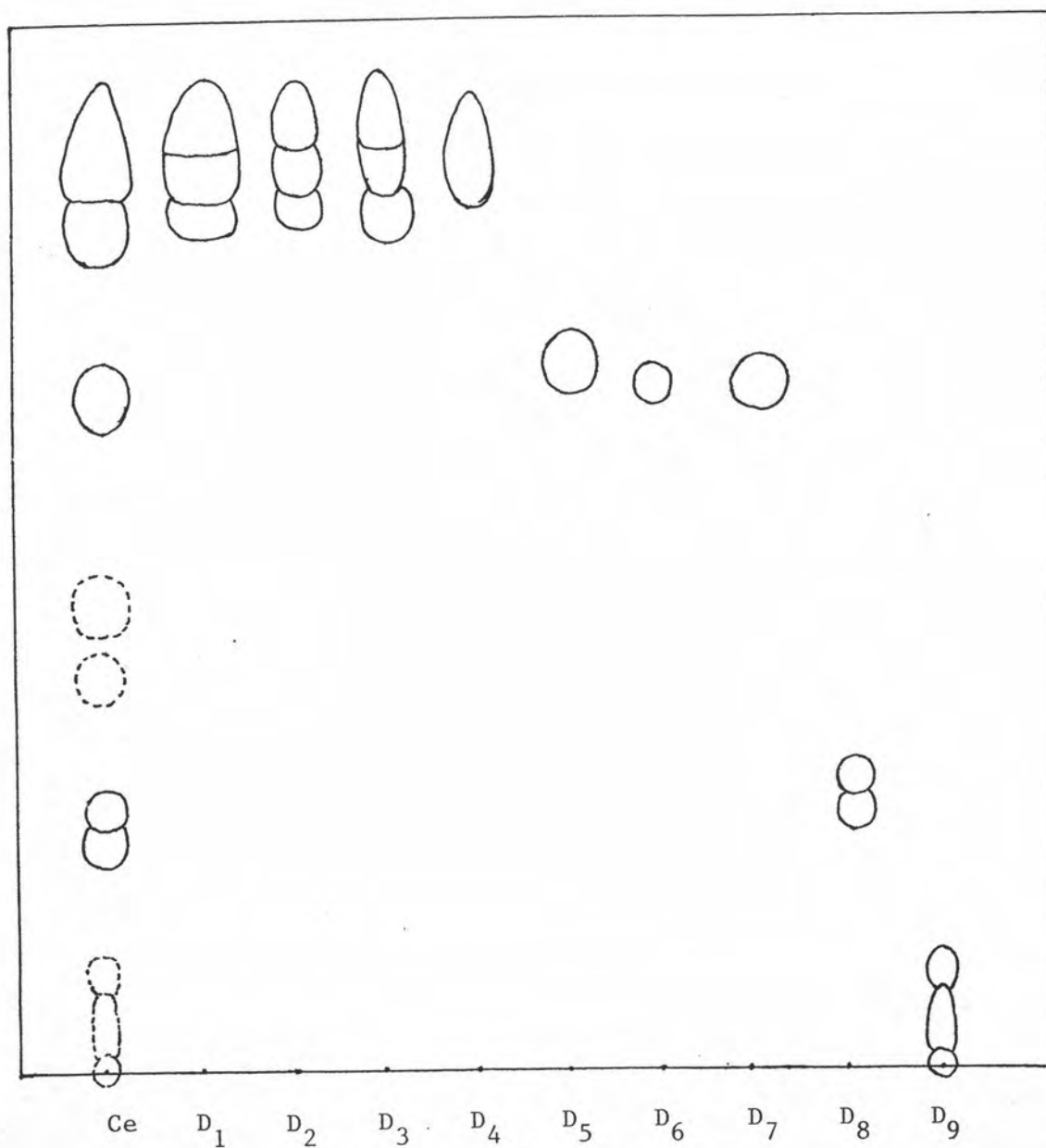


Figure 26 Thin layer chromatogram of crude ethyl acetate alkaloidal extract (Ce) and the Fractions D₁ to D₉

Silica gel GF₂₅₄/ethyl acetate : n-hexane (1:1)

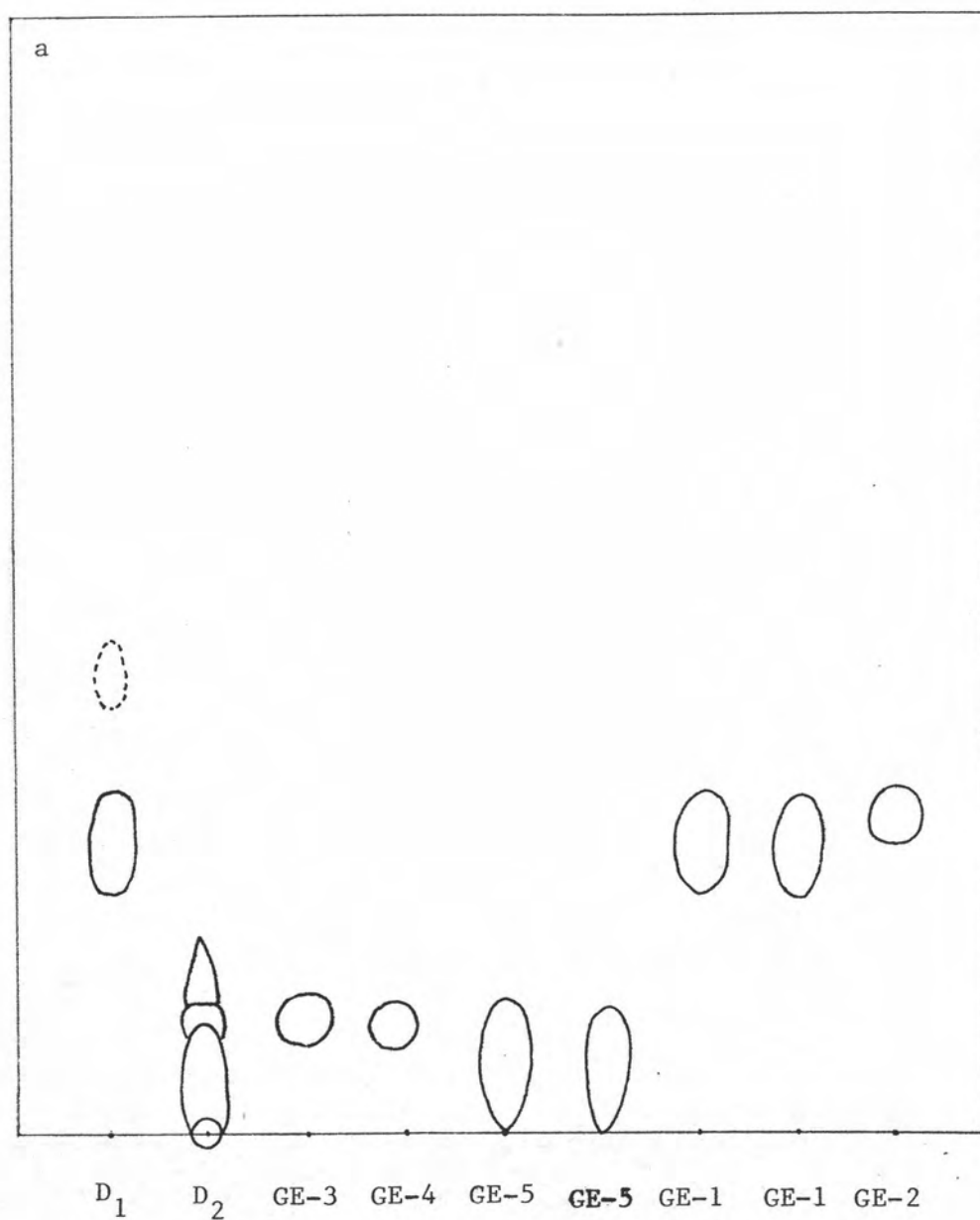


Figure 27 Thin layer chromatogram of the isolated alkaloids,
GE-1 to GE-5

Silica gel GF₂₅₄/acetone : n-hexane (4:6)

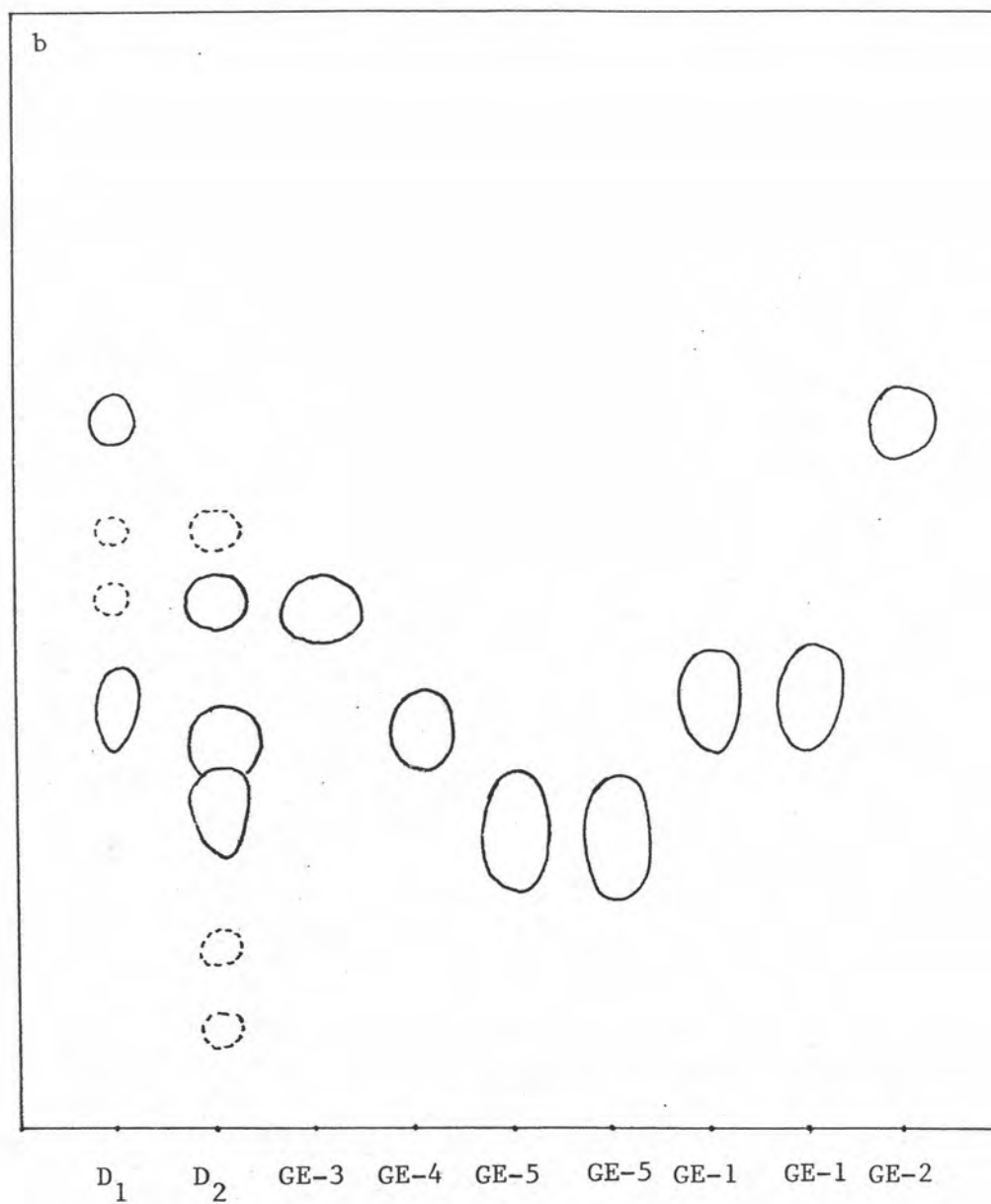


Figure 28 Thin layer chromatogram of the isolated alkaloids,
GE-1 to GE-5

Silica gel GF₂₅₄/diethyl ether GR

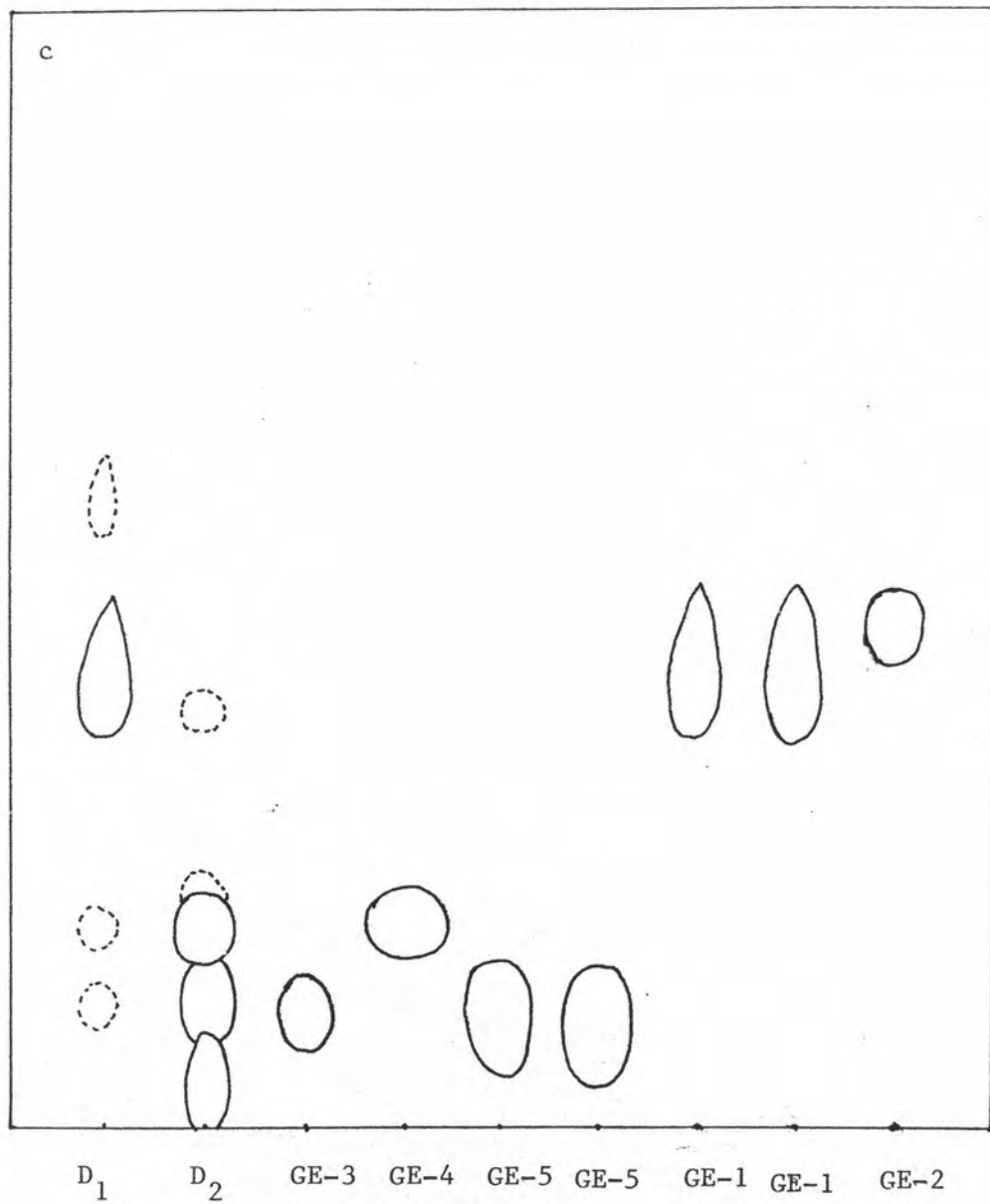


Figure 29 Thin layer chromatogram of the isolated alkaloids, GE-1 to GE-5

Silica gel GF₂₅₄/chloroform : ethyl acetate (6:4)

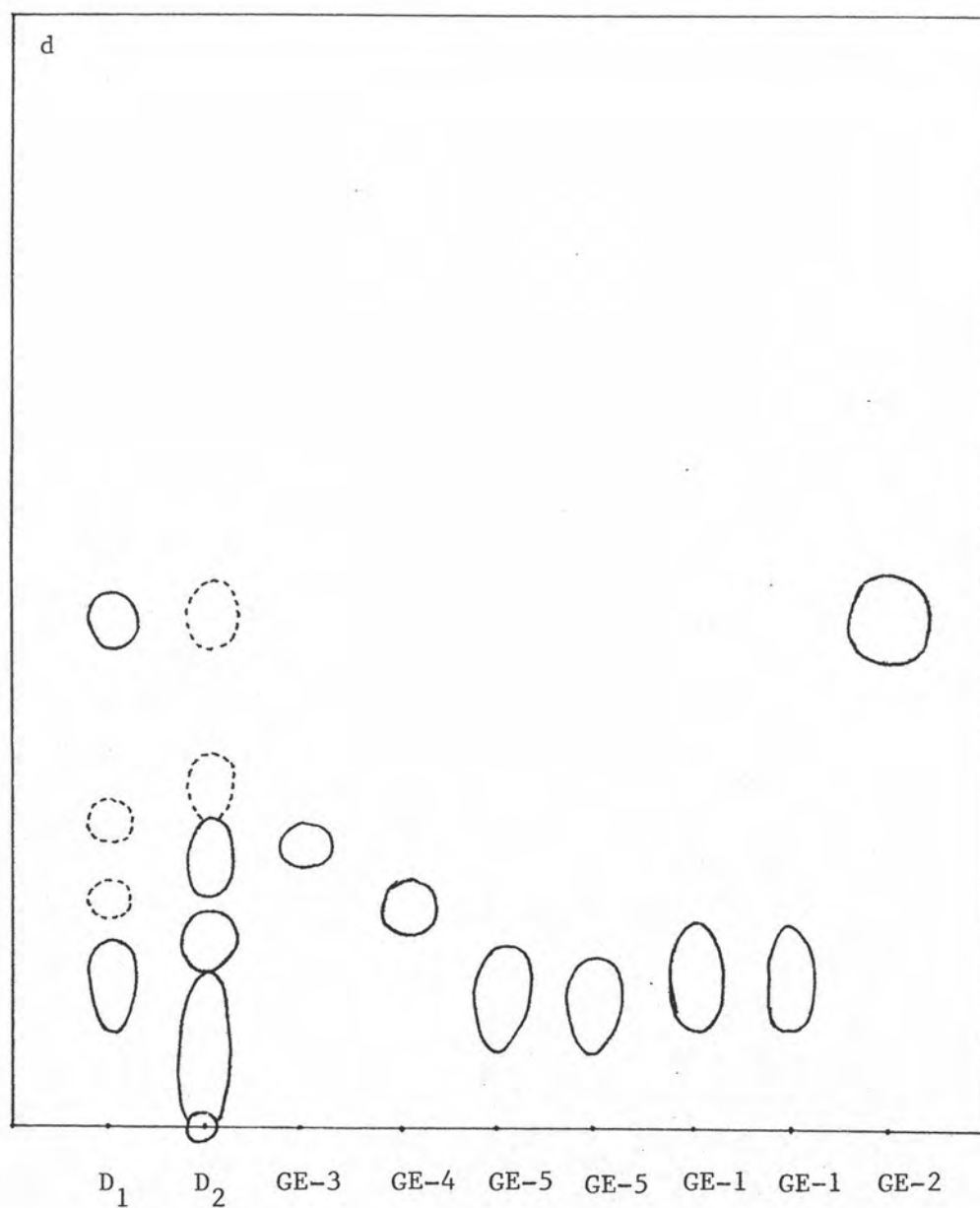


Figure 30 Thin layer chromatogram of the isolated alkaloids,
GE-1 to GE-5

Silica gel GF₂₅₄/ethyl acetate : methanol (9:1)

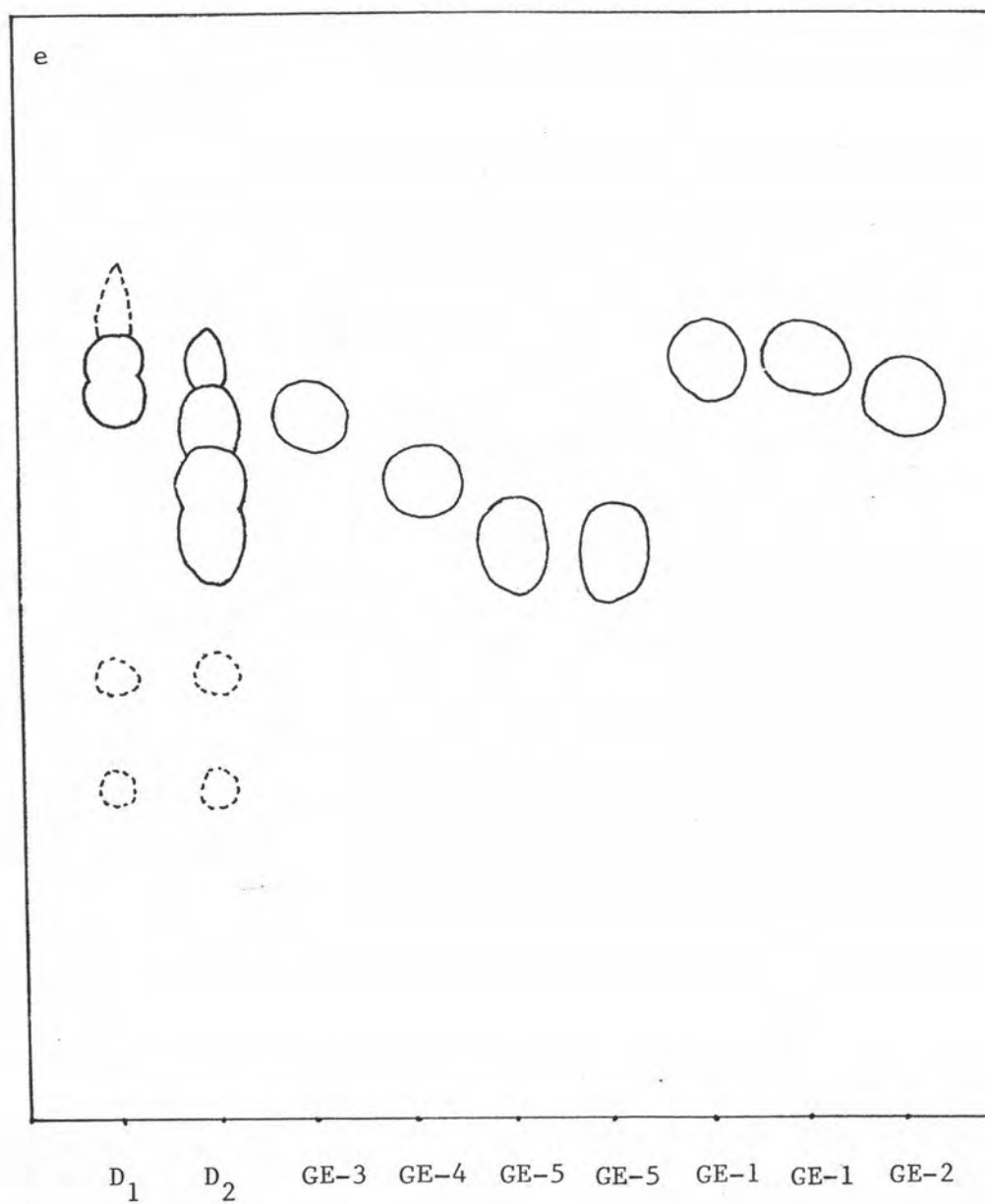


Figure 31 Thin layer chromatogram of the isolated alkaloids,
GE-1 to GE-5

Aluminium oxide G/ethyl
acetate : n-hexane (6:4)

Silica gel GF₂₅₄/ethyl
acetate : ethanol (8:2)

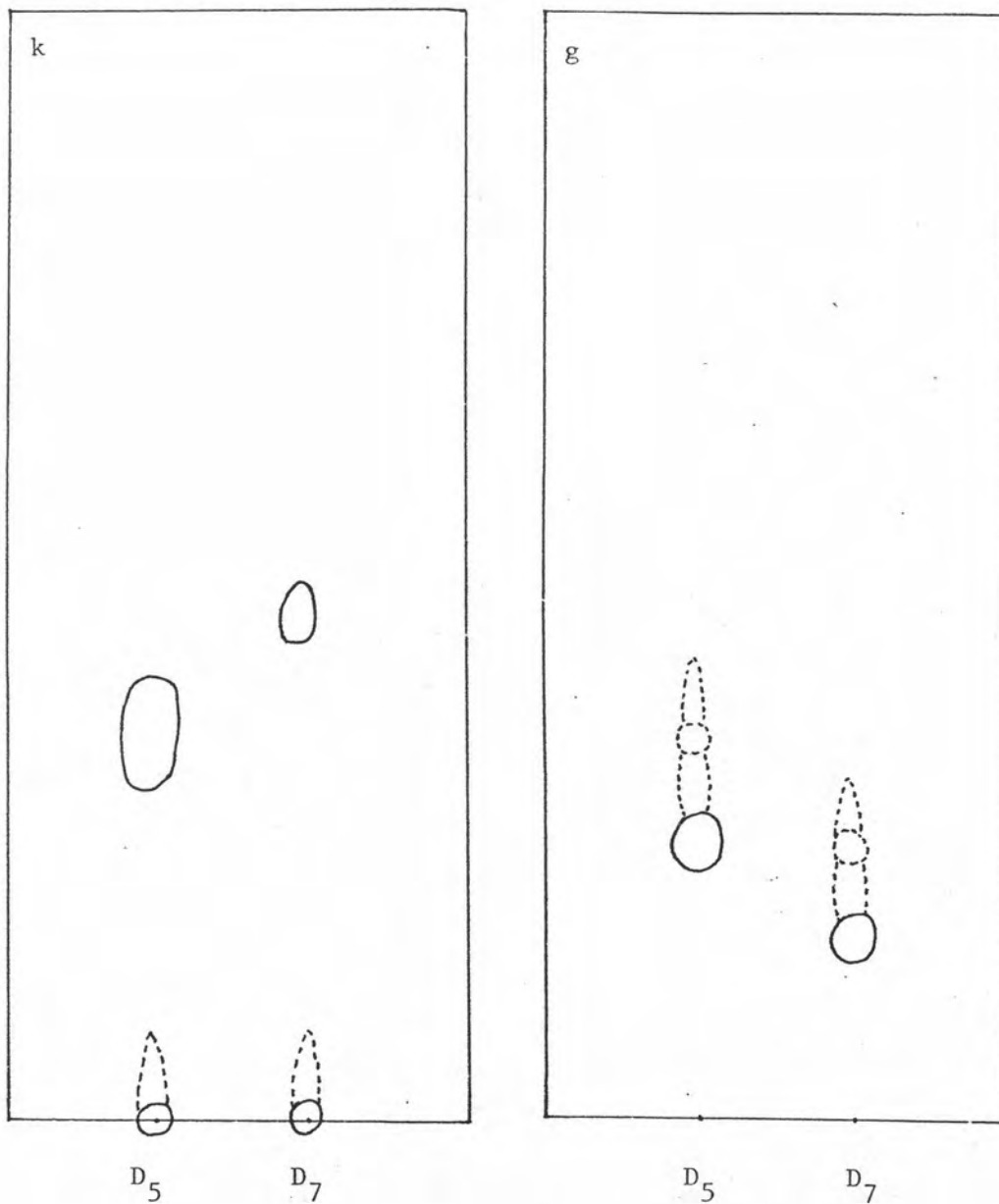


Figure 33 Thin layer chromatograms of the Fractions D₅ and D₇



Silica gel GF₂₅₄/ethyl acetate : methanol (8:2)

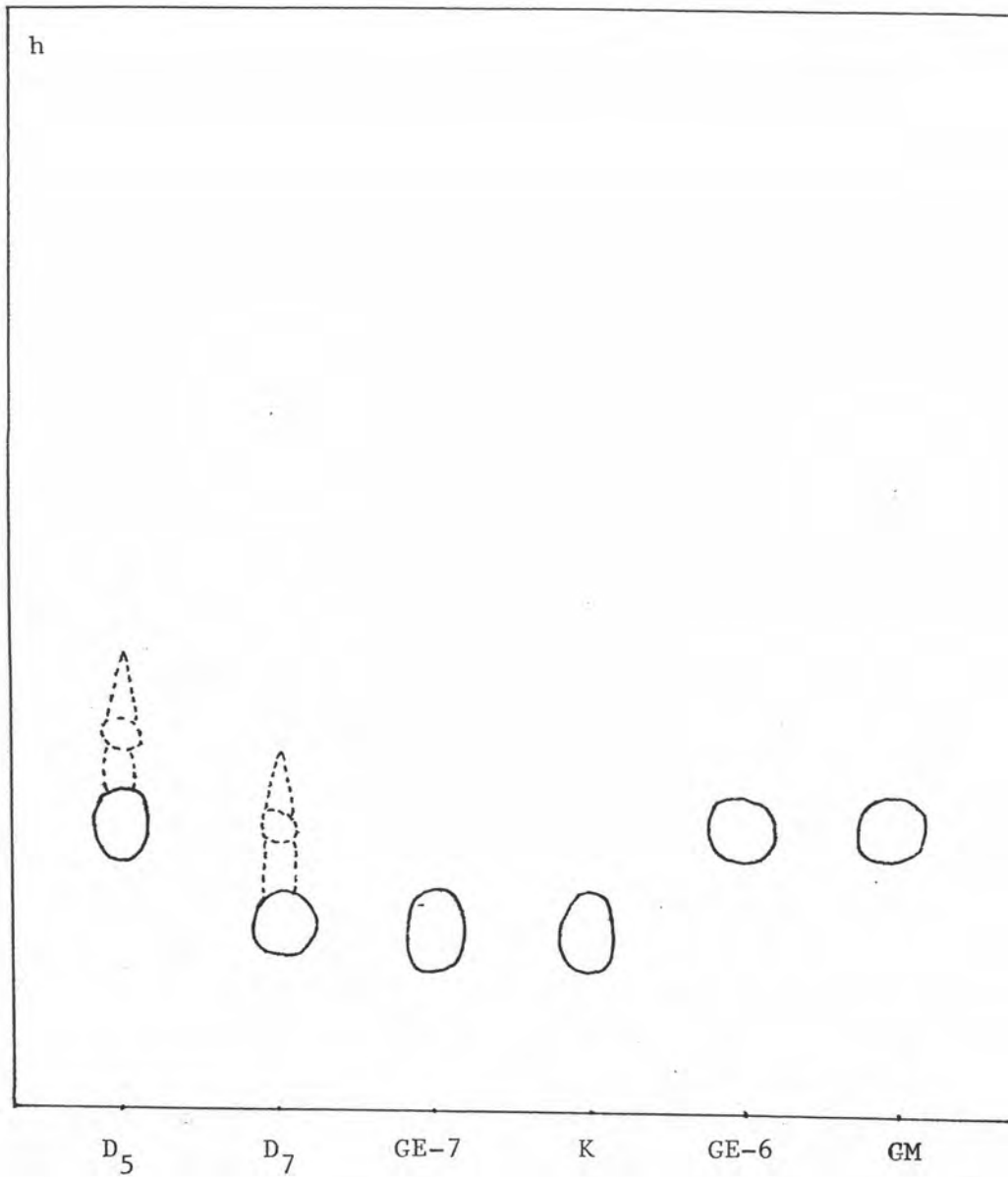


Figure 34 Thin layer chromatogram of the Fractions D₅ and D₇ the isolated alkaloids : GE-6 and GE-7 and authentic koumine (K) and gelsemine (GM)

Silica gel GF₂₅₄/chloroform : methanol (8:2)

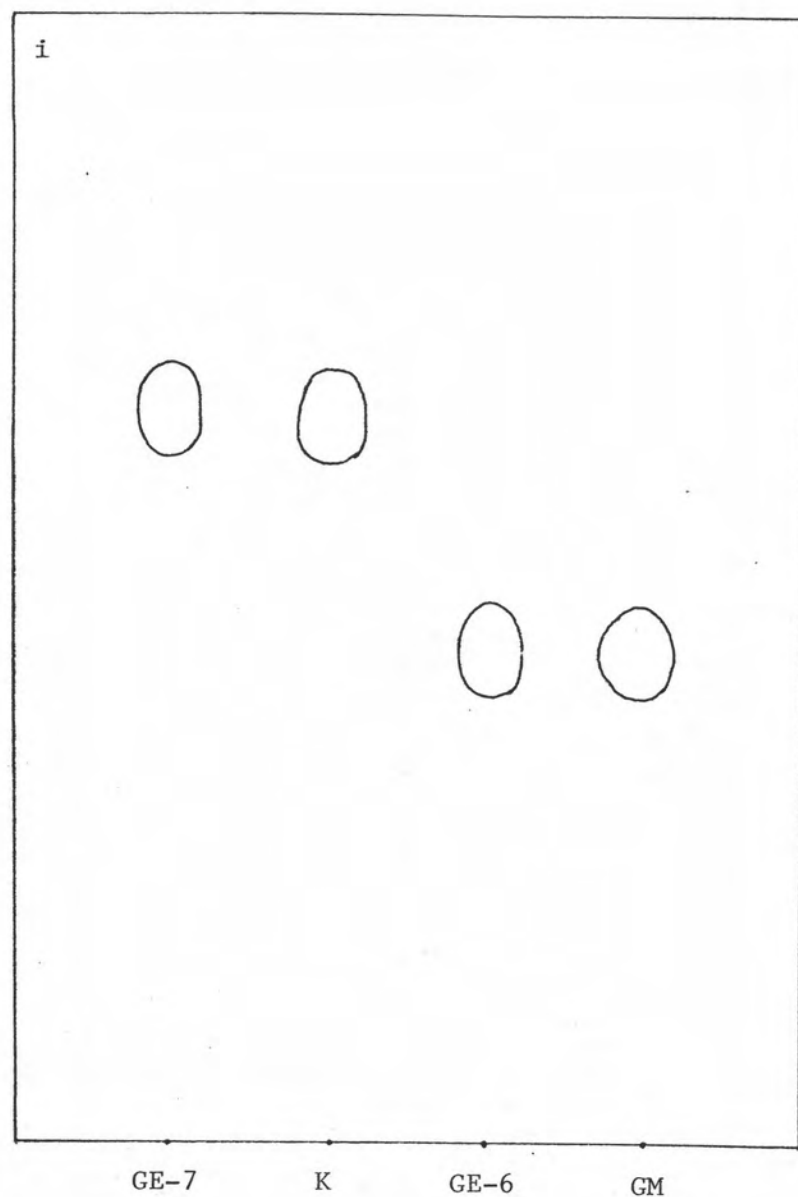


Figure 35 Thin layer chromatogram of the isolated alkaloids : GE-6 and GE-7, authentic koumine (K) and gelsemine (GM).

Silica gel GF₂₅₄/acetone : methanol (8:2)

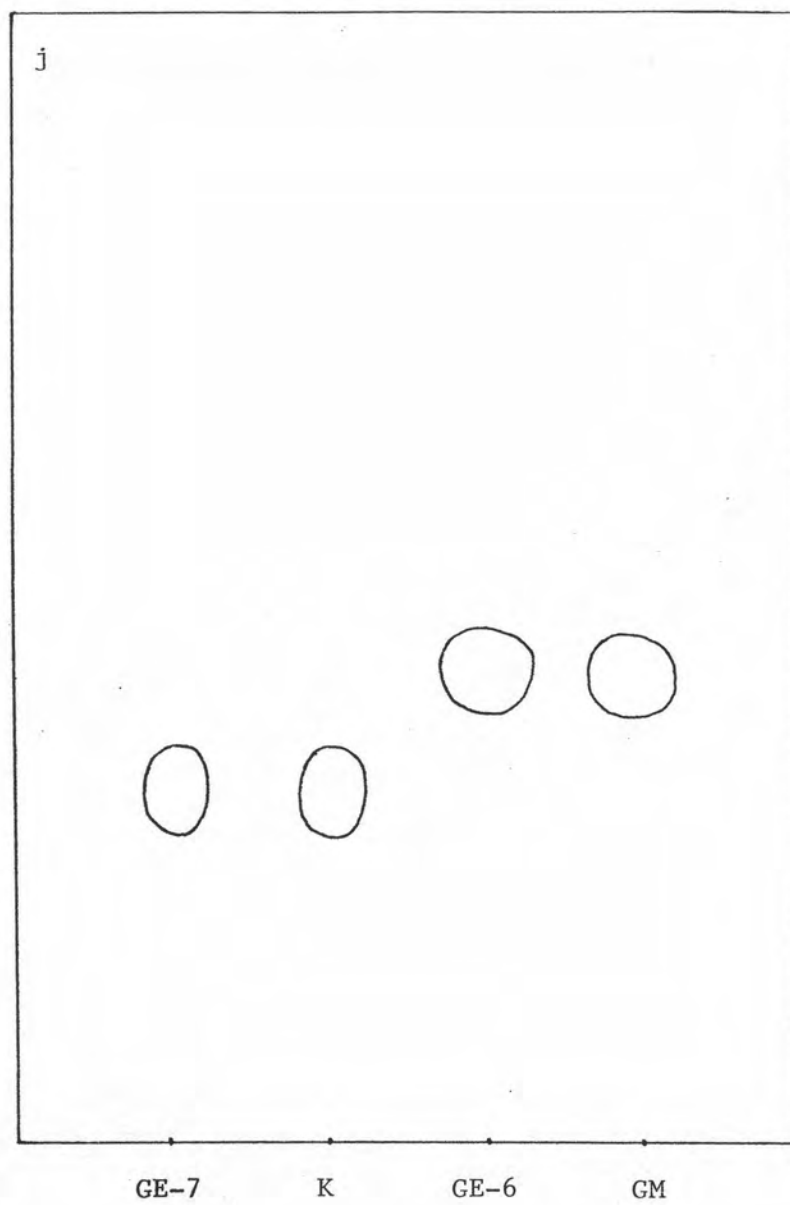


Figure 36 Thin layer chromatogram of the isolated alkaloids : GE-6 and GE-7, authentic koumine (K) and gelsemine (GM).

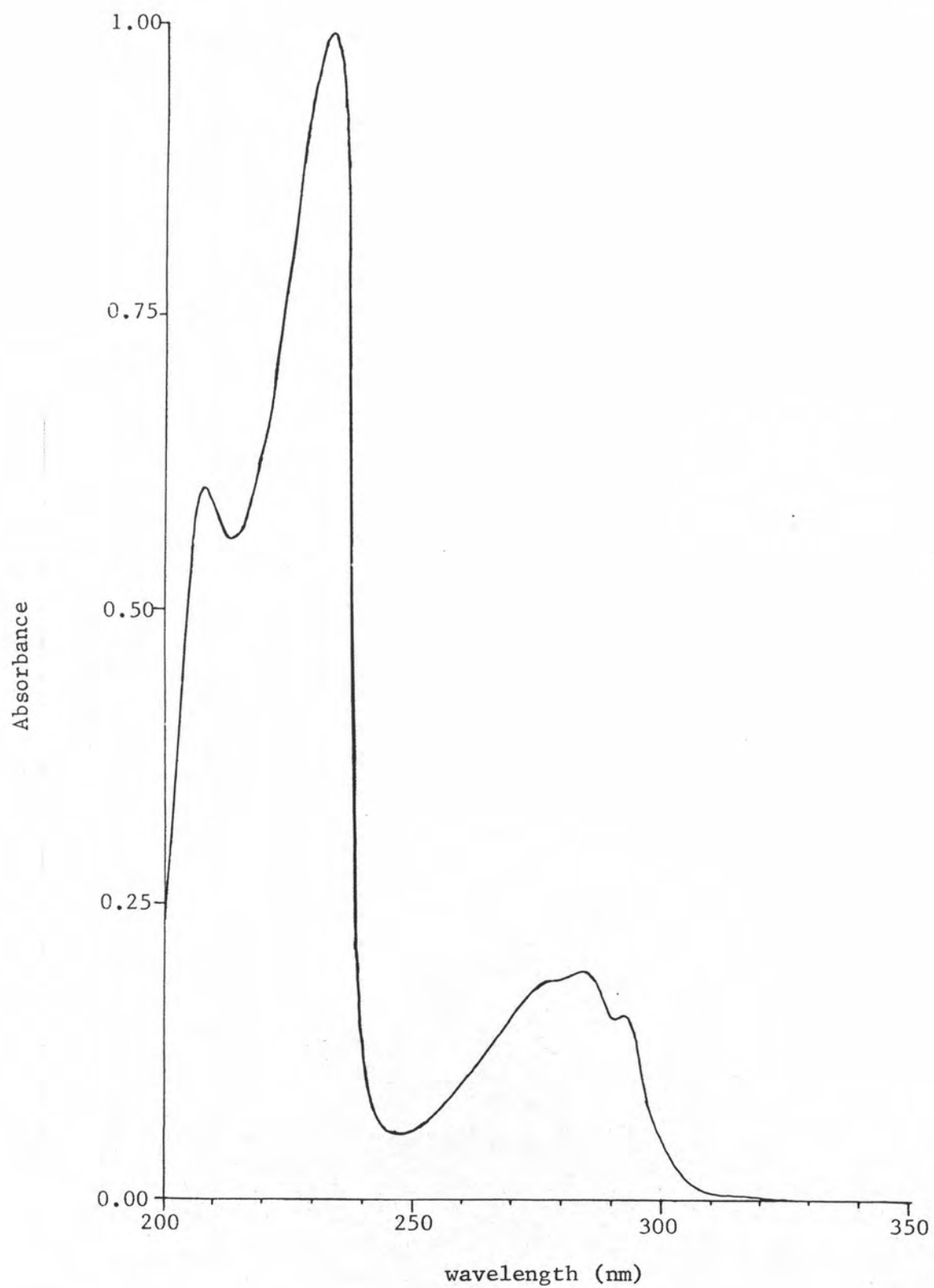


Figure 37 Ultraviolet absorption spectrum of GE-1 (16-epi-voacarpine) in ethanol

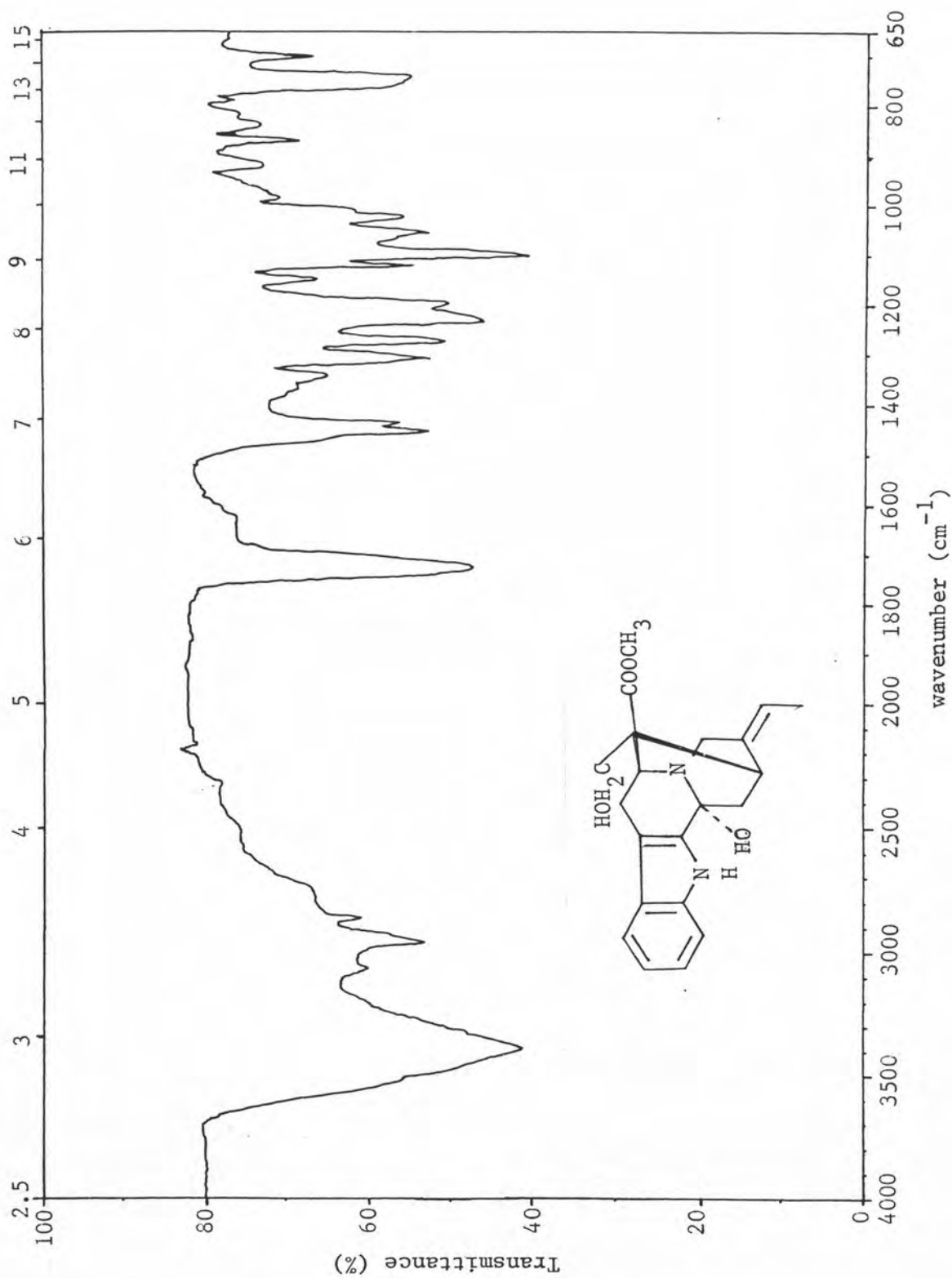


Figure 38 Infrared absorption spectrum of GE-1 (16-epi-voacarpine) in potassium bromide disc

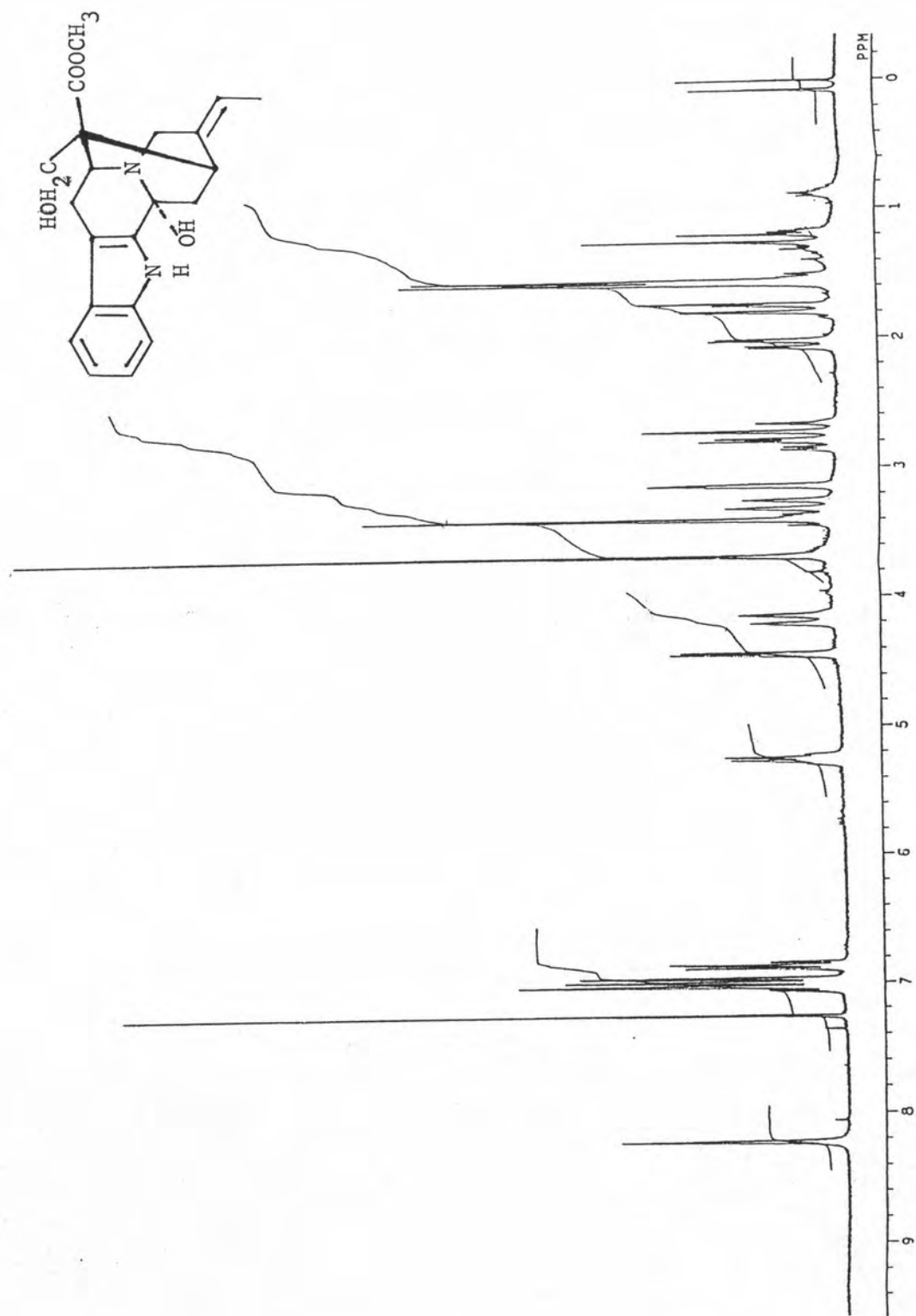


Figure 39 ^1H -Nuclear magnetic resonance spectrum (CDCl_3) of GE-1 (16-epi-voacarpine)

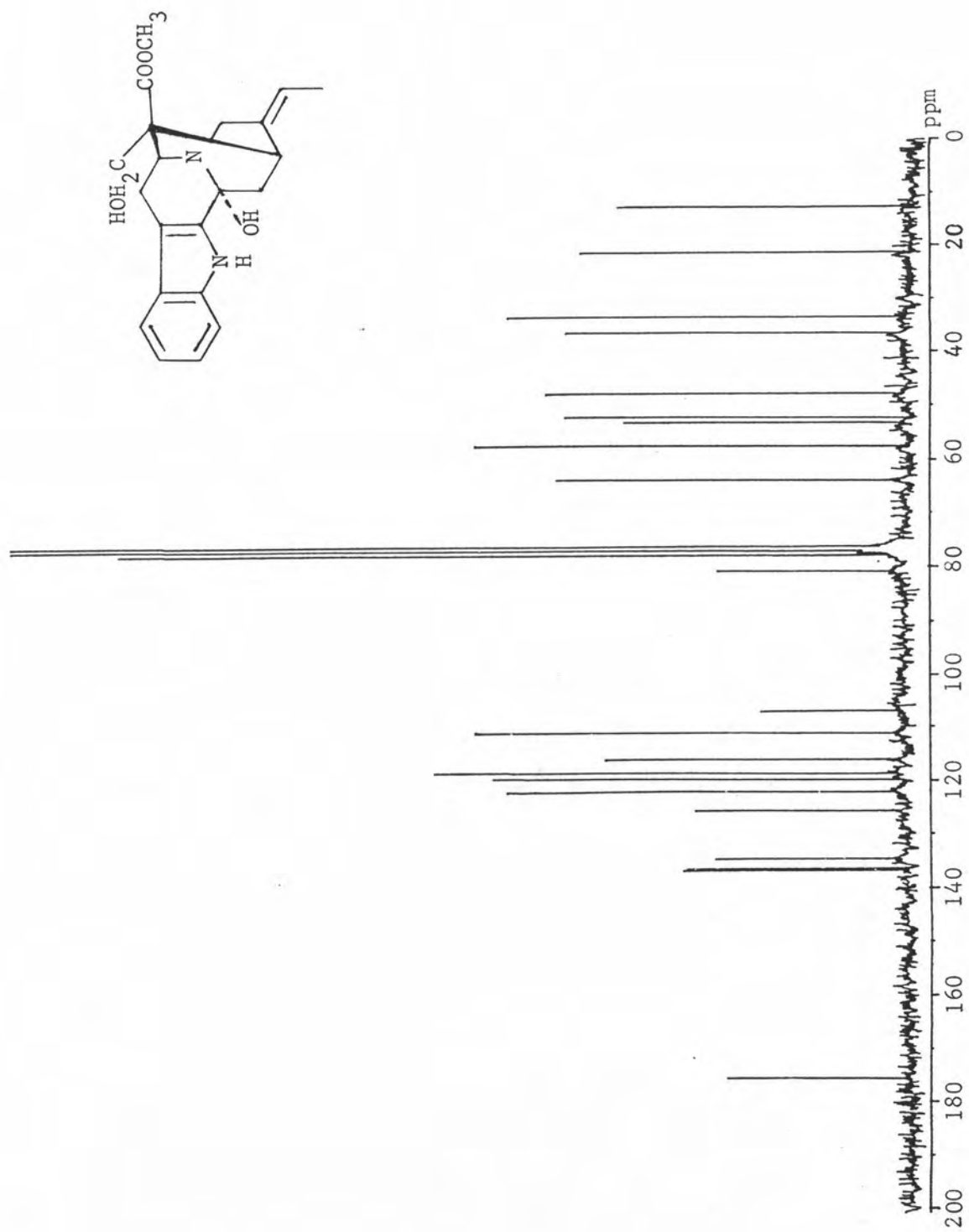


Figure 40 ^{13}C -Nuclear magnetic resonance spectrum (CDCl_3) of GE-1 (16-epi-voacarpine)

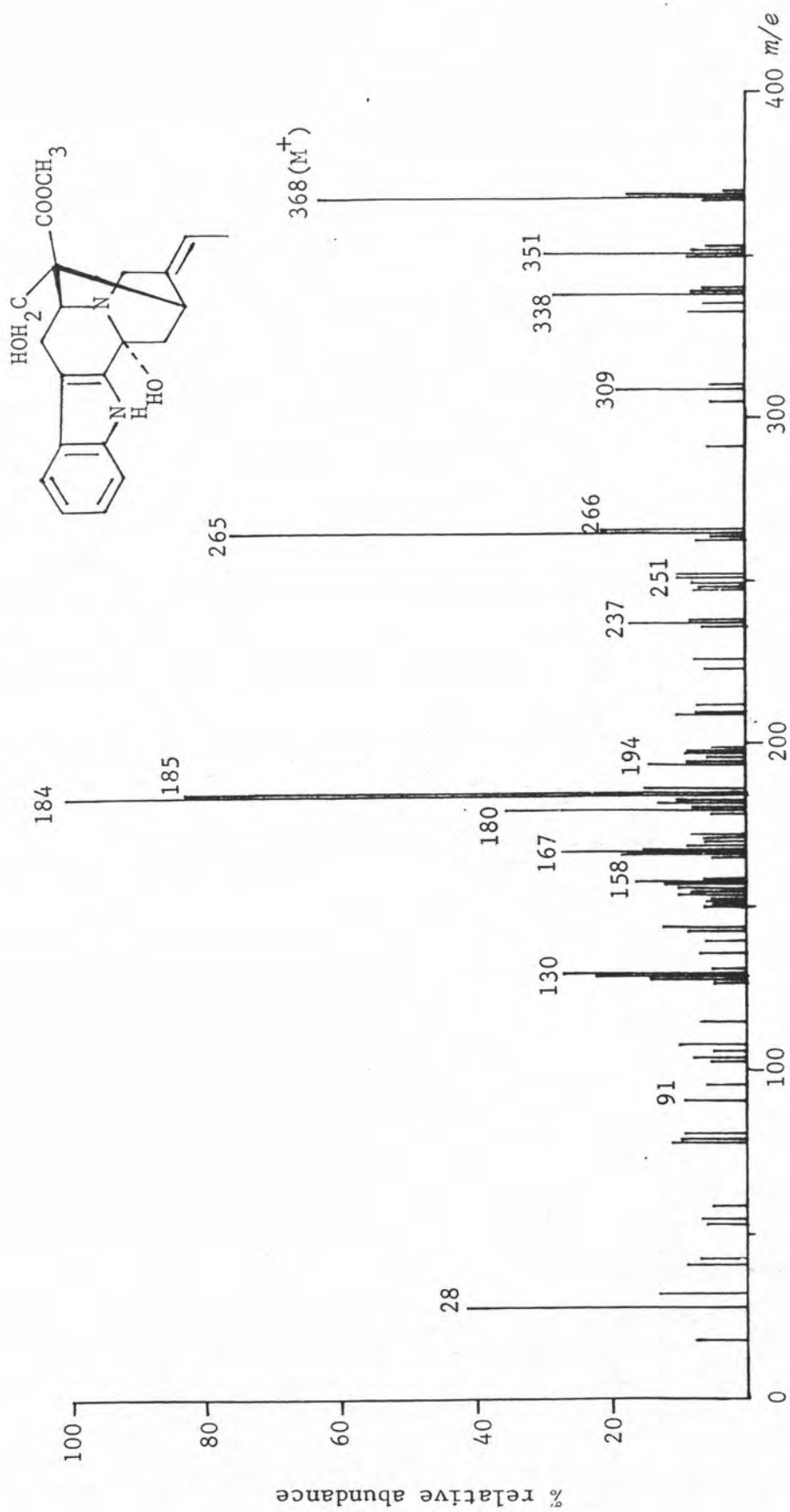


Figure 41 Mass spectrum of GE-1 (16-epi-voacarpine)

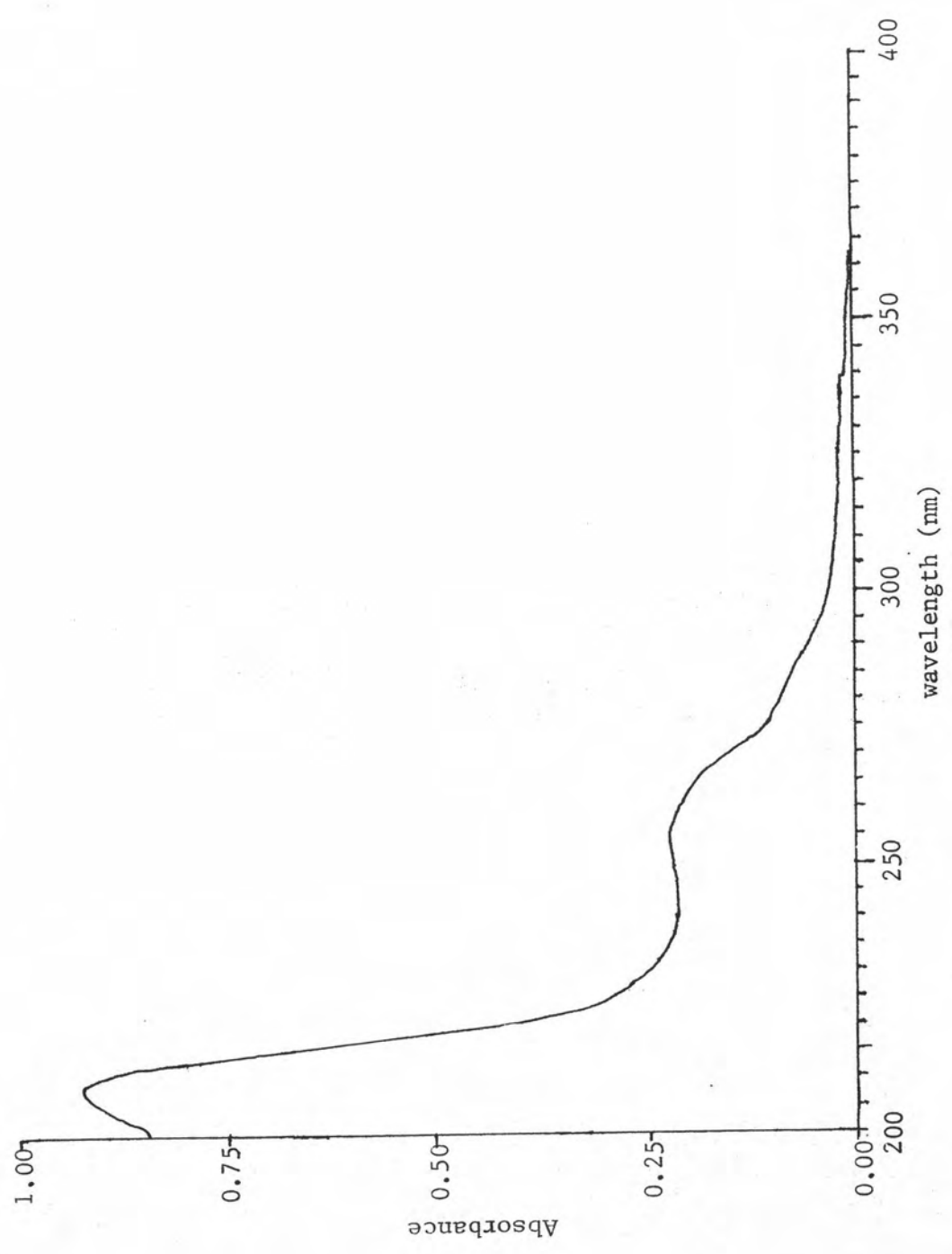


Figure 42 Ultraviolet absorption spectrum of GE-2 (19-oxogelsenicine) in ethanol

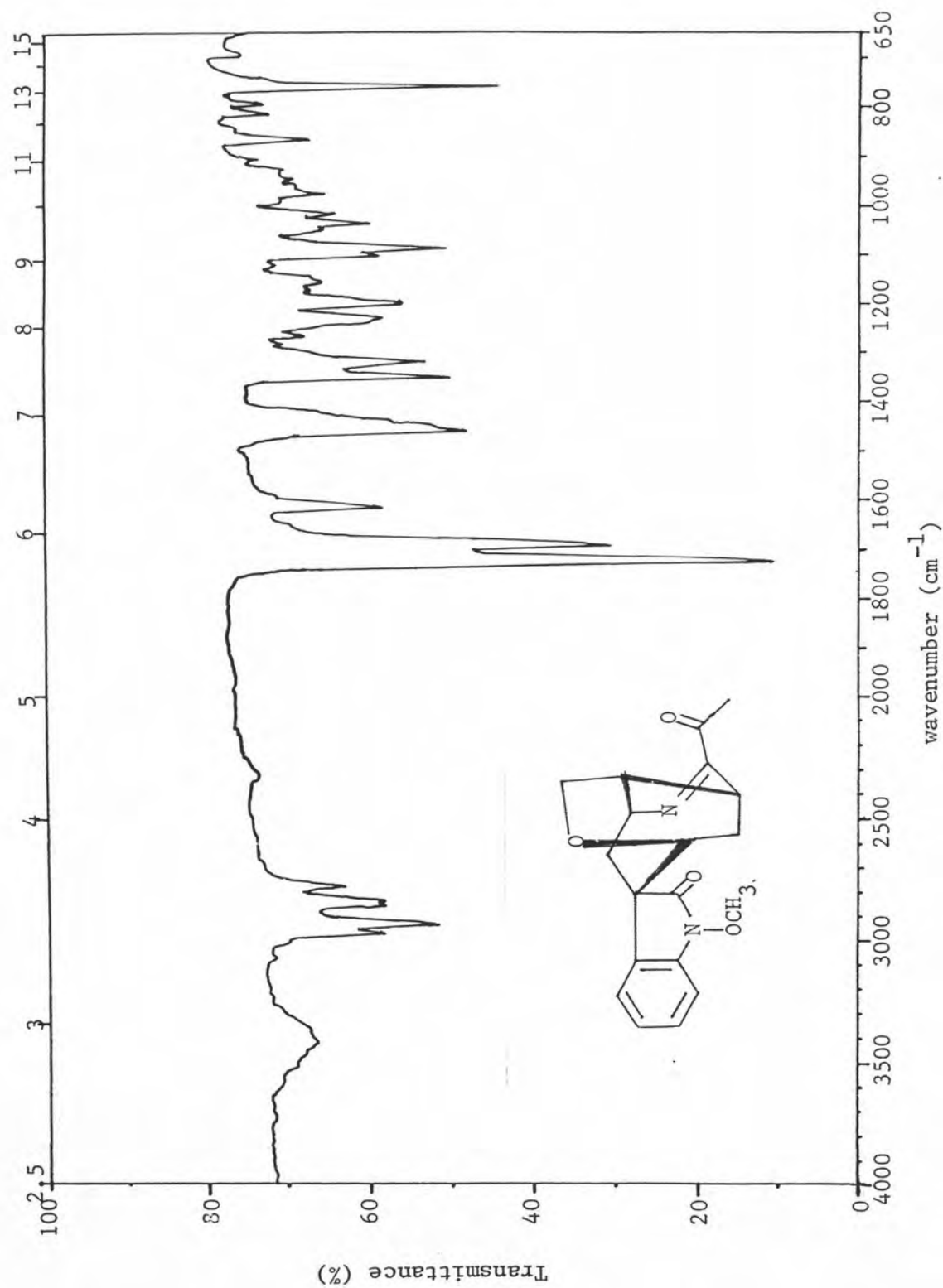


Figure 43 Infrared absorption spectrum of GE-2 (19-oxogelsenicine) in potassium bromide disc

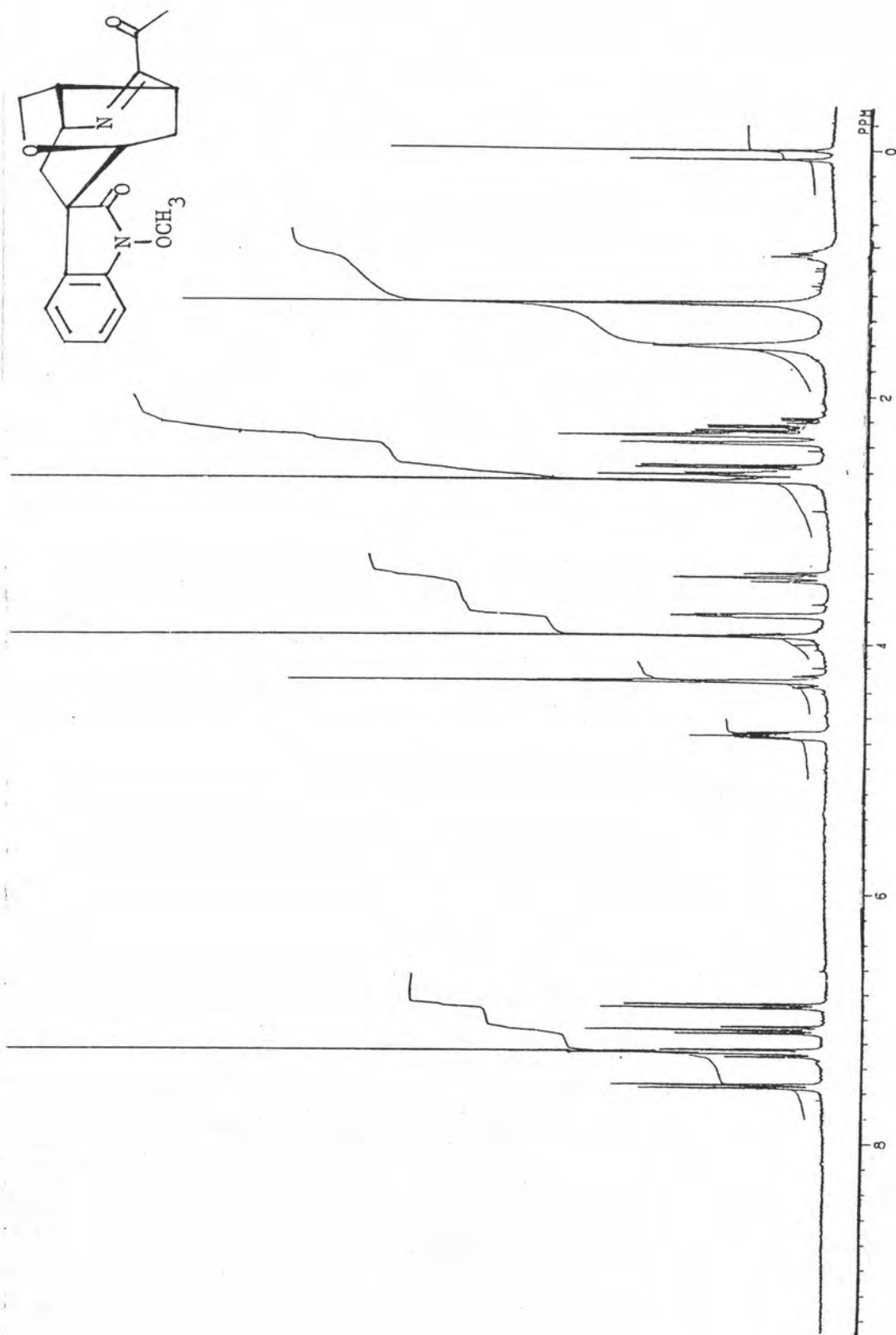


Figure 44 ^1H -Nuclear magnetic resonance spectrum (CDCl_3) of GE-2 (19-oxogelsenicine)

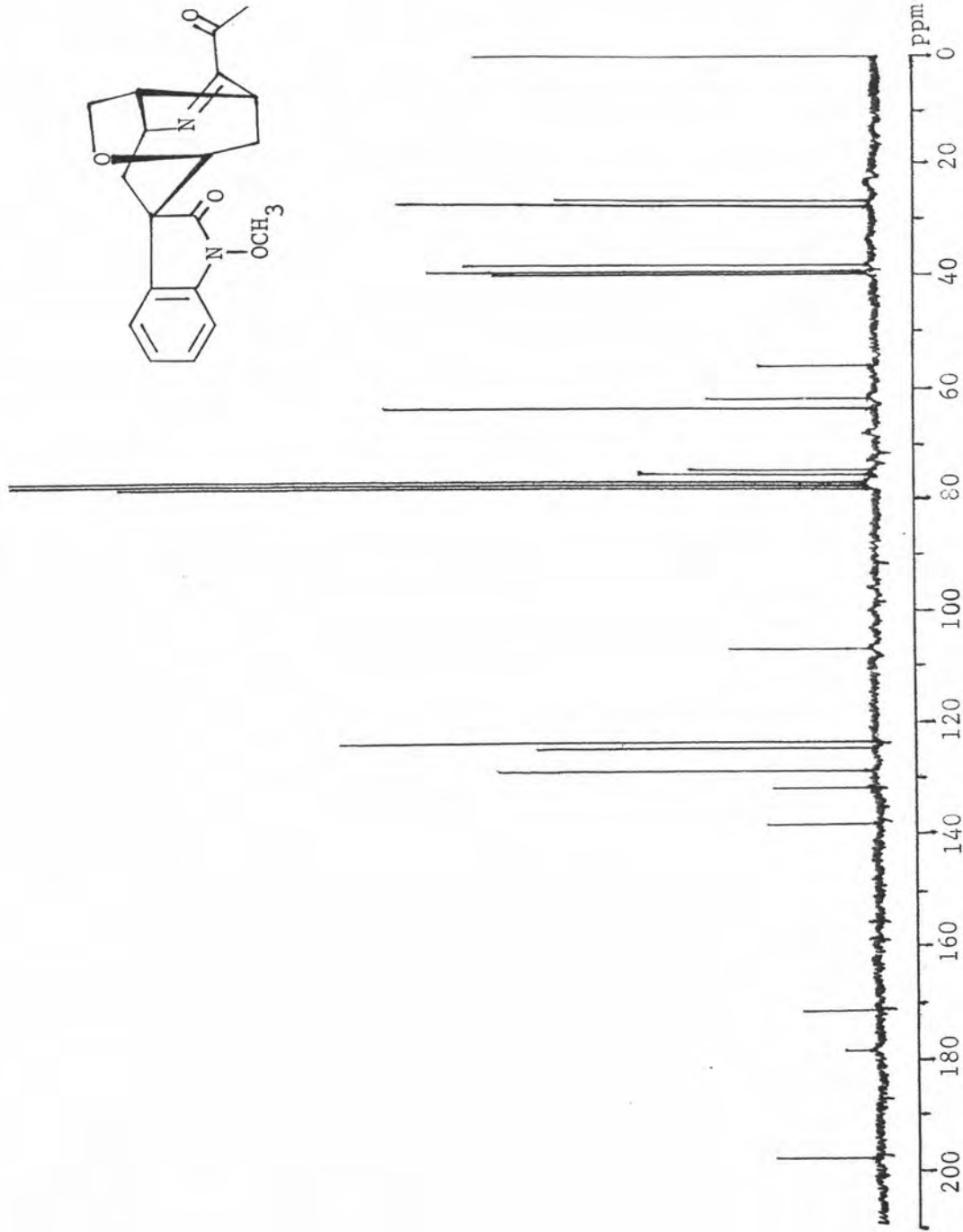


Figure 45 ^{13}C -Nuclear magnetic resonance spectrum (CDCl_3) of GE-2 (19-oxogelsensenicine)



Figure 46 Mass spectrum of GE-2 (19-oxogelsenicine)

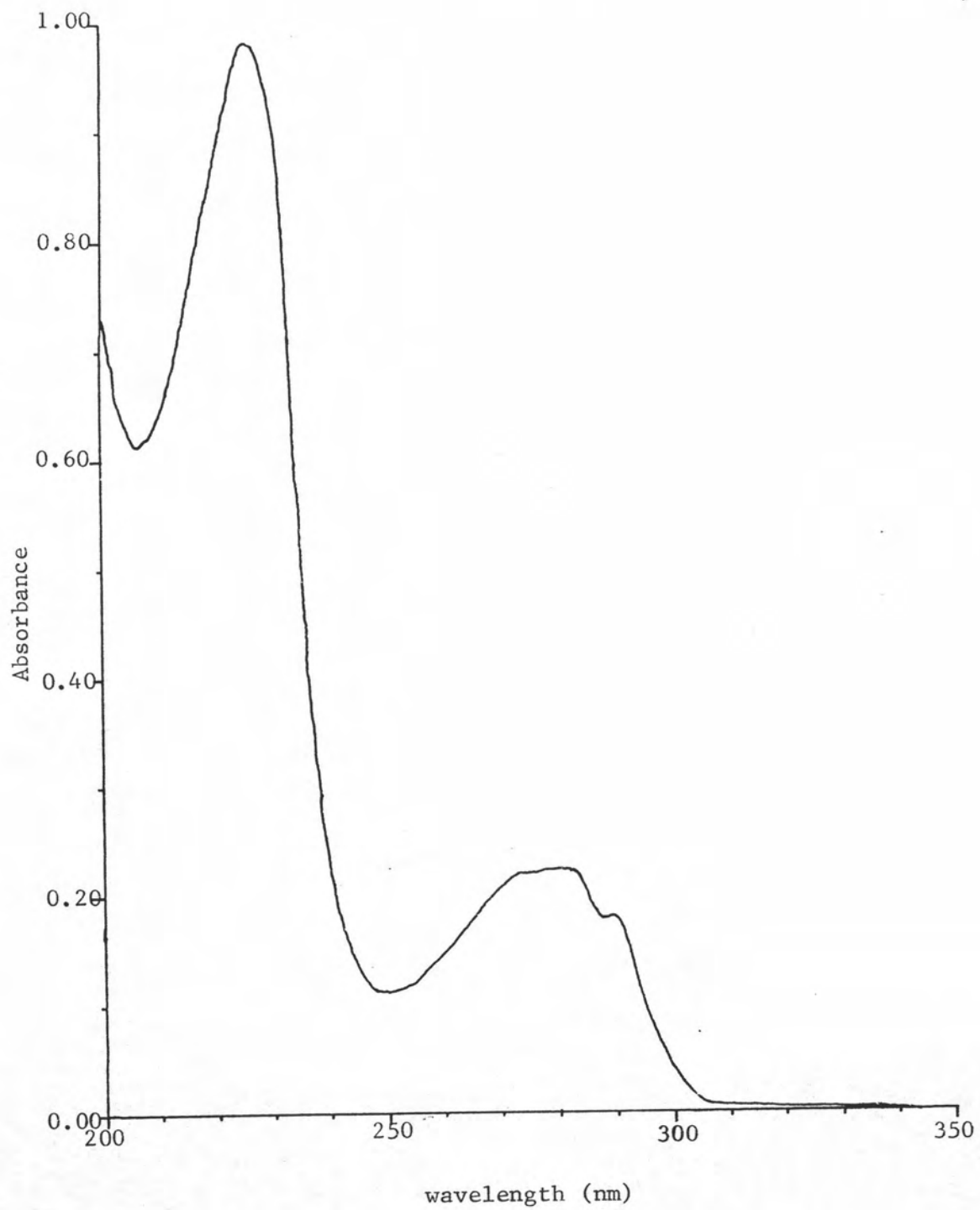


Figure 47 Ultraviolet absorption spectrum of GE-5
(19-(Z)-akuammidine) in ethanol

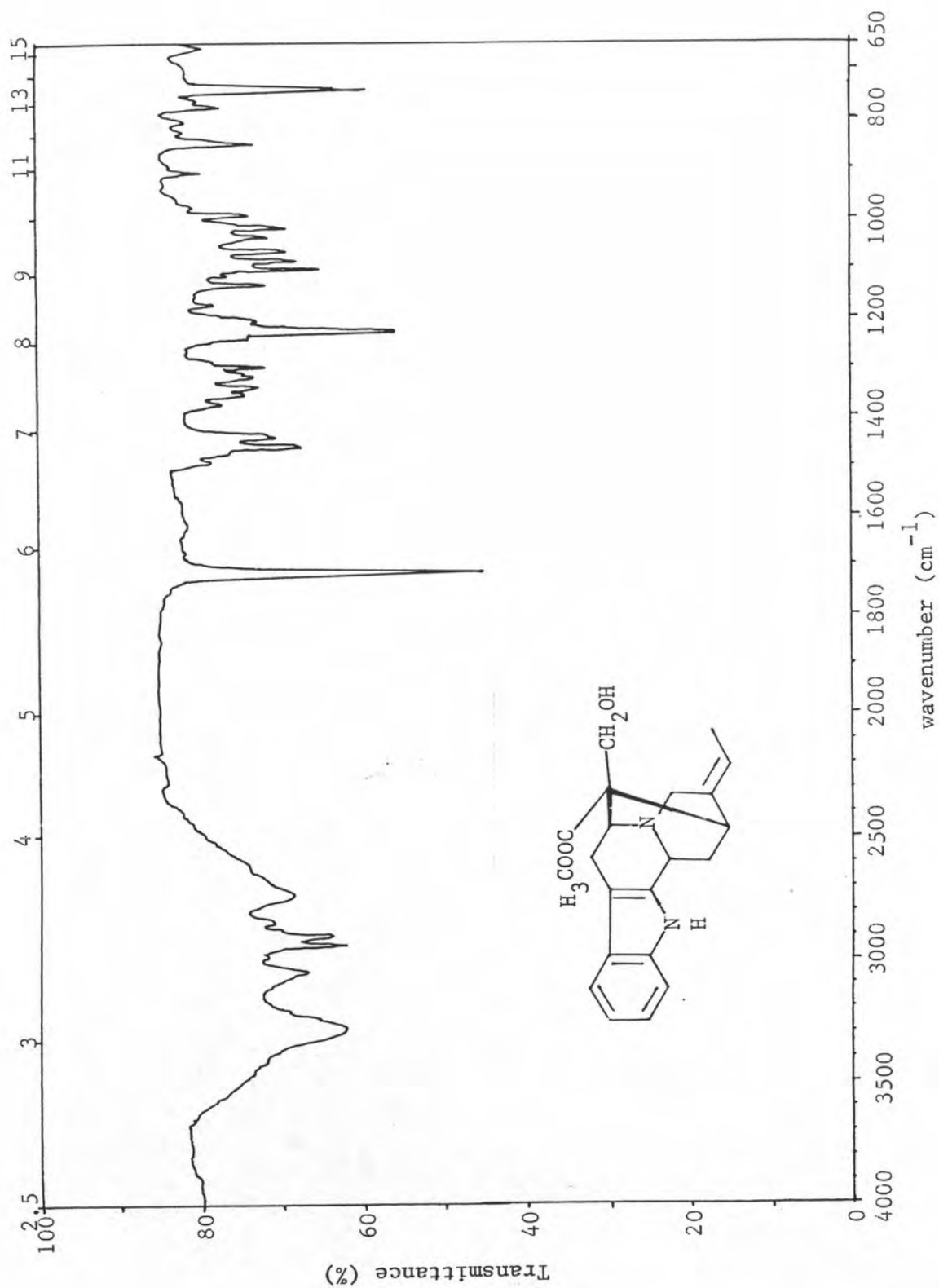


Figure 48 Infrared absorption spectrum of GE-5 (19-(Z)-akuammidine) in potassium bromide disc

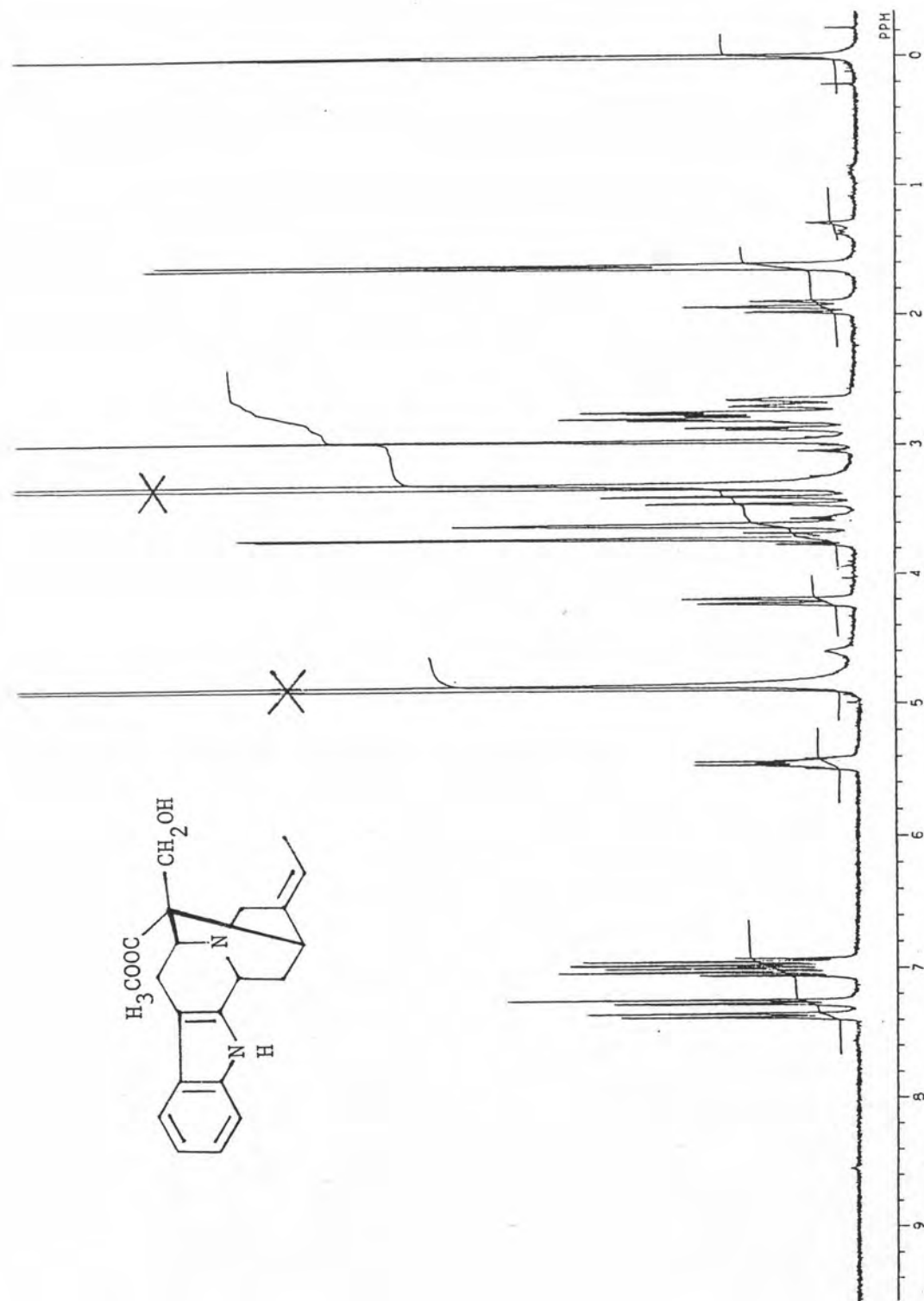


Figure 49 ^1H -Nuclear magnetic resonance spectrum (CD_3OD) of GE-5 (19-(Z)-akuanmimine)

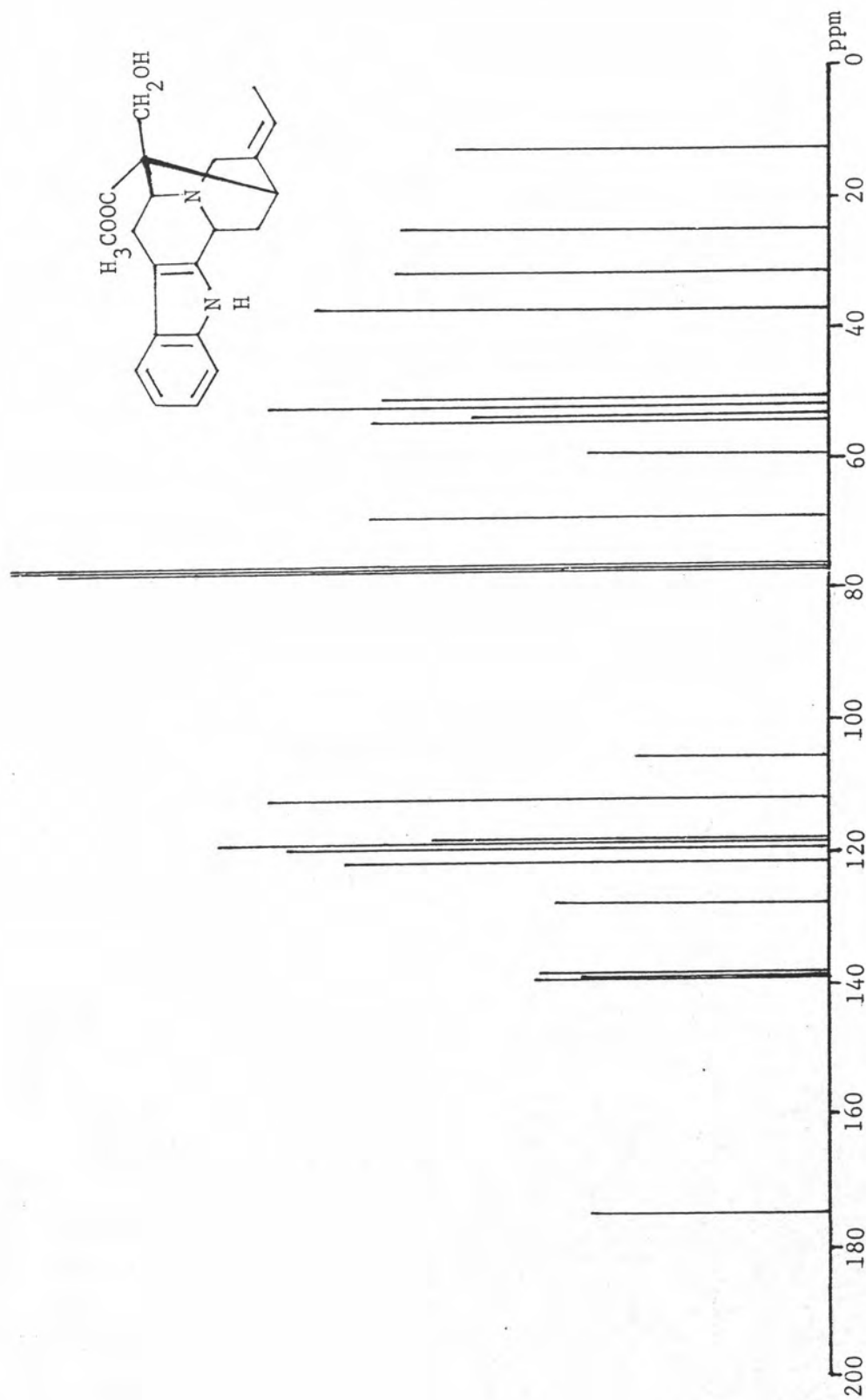


Figure 50 ^{13}C -Nuclear magnetic resonance spectrum (CD_3OD) of GE-5 (19-(Z)-akuammidine)

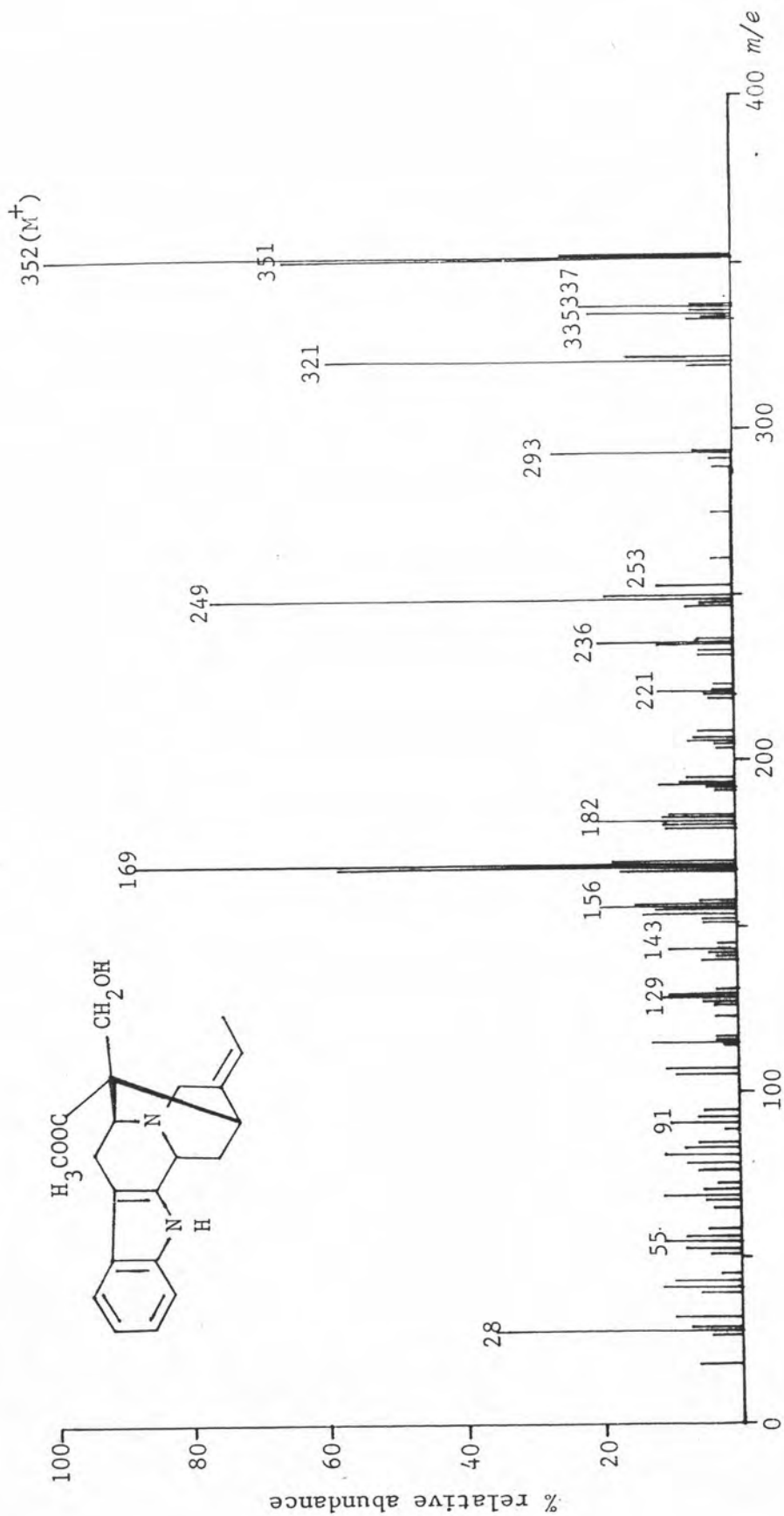


Figure 51 Mass spectrum of GE-5 (19-(Z)-akuammidine)

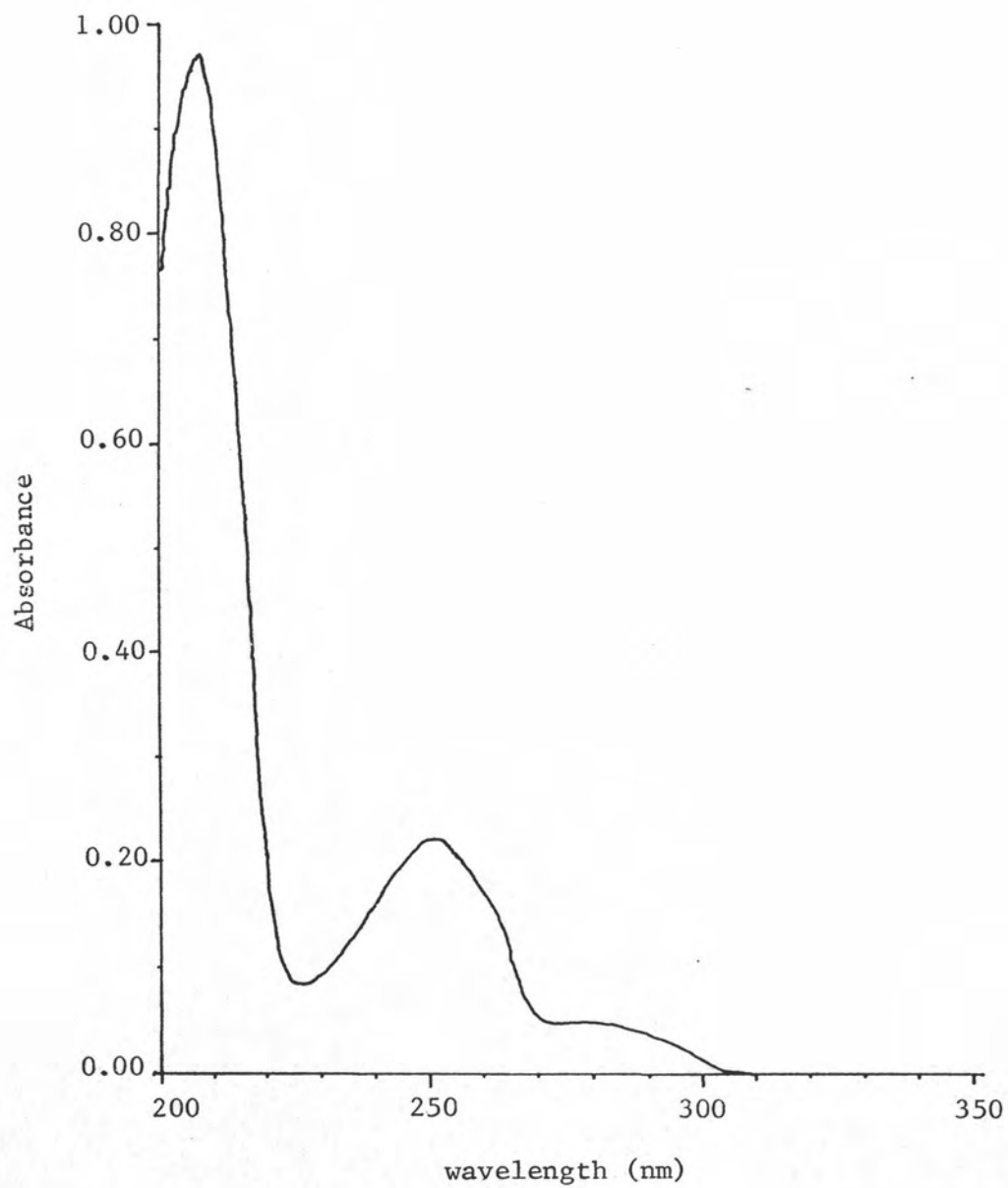


Figure 52 Ultraviolet absorption spectrum of GE-6 (gelsemine) in ethanol

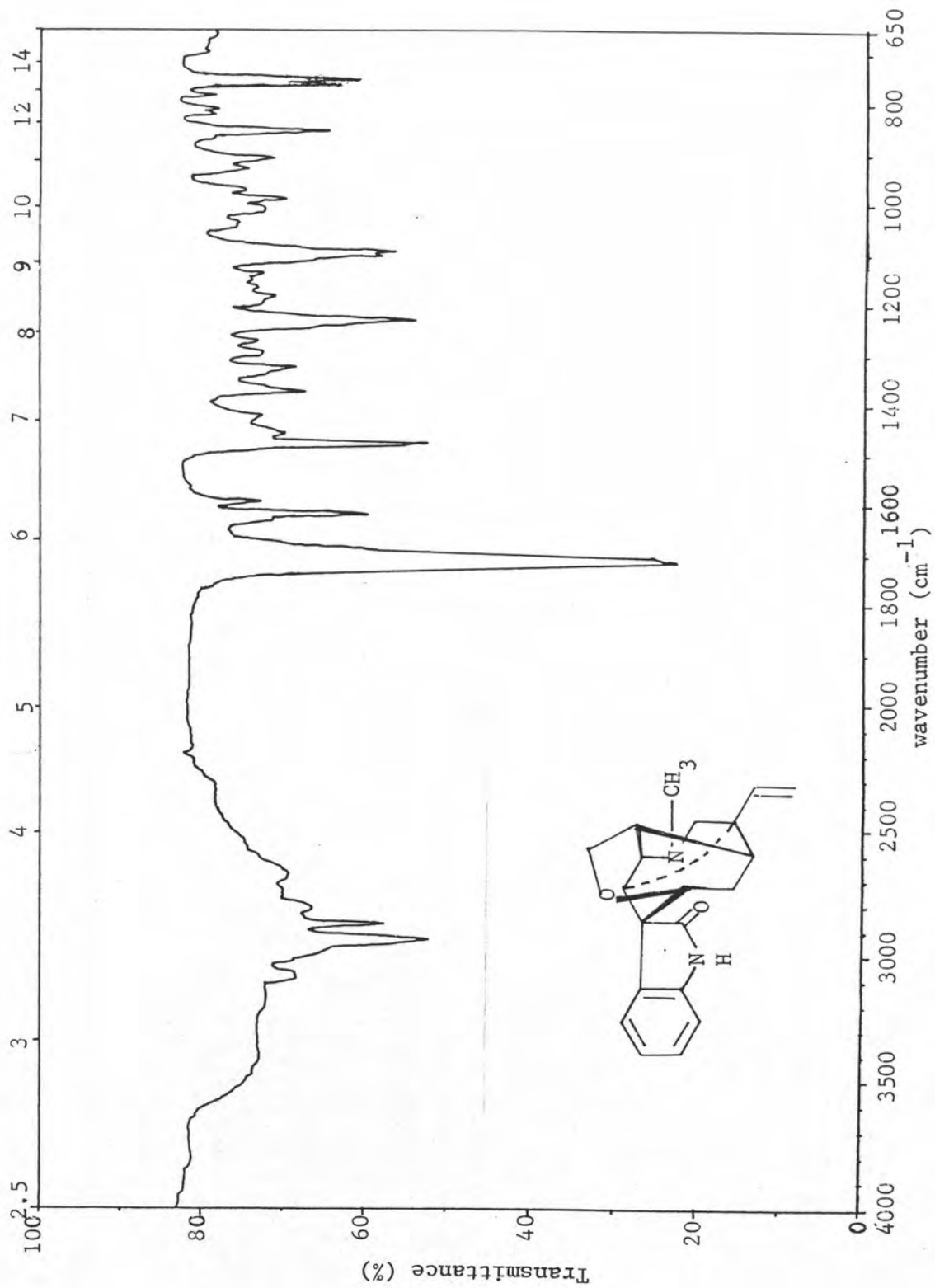


Figure 53 Infrared absorption spectrum of GE-6 (gelsemine) in potassium bromide disc

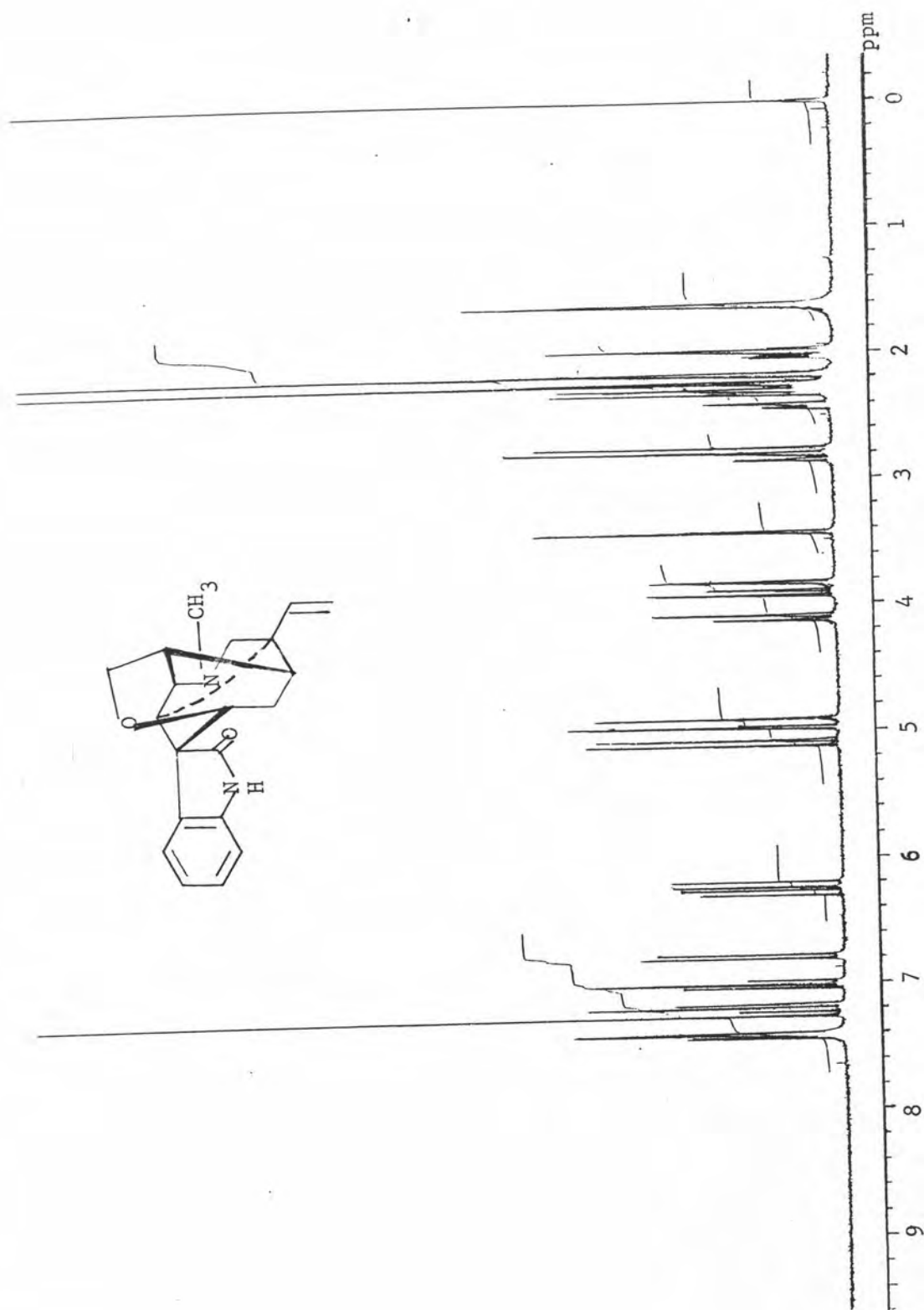


Figure 54 ^1H -Nuclear magnetic resonance spectrum (CDCl_3) of GE-6 (gelsemine)

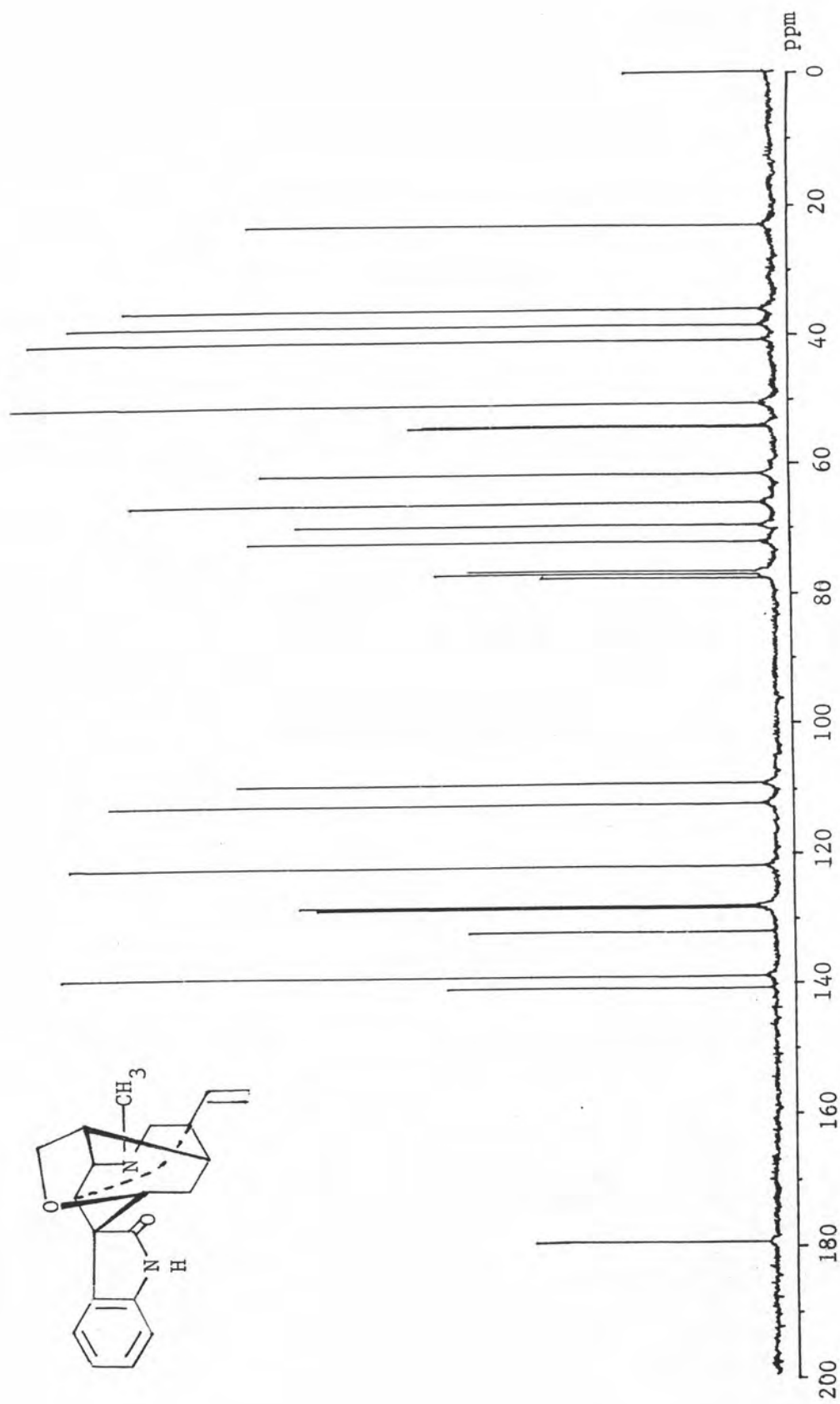


Figure 55 ^{13}C -Nuclear magnetic resonance spectrum (CDCl_3) of GE-6 (gelsemine)

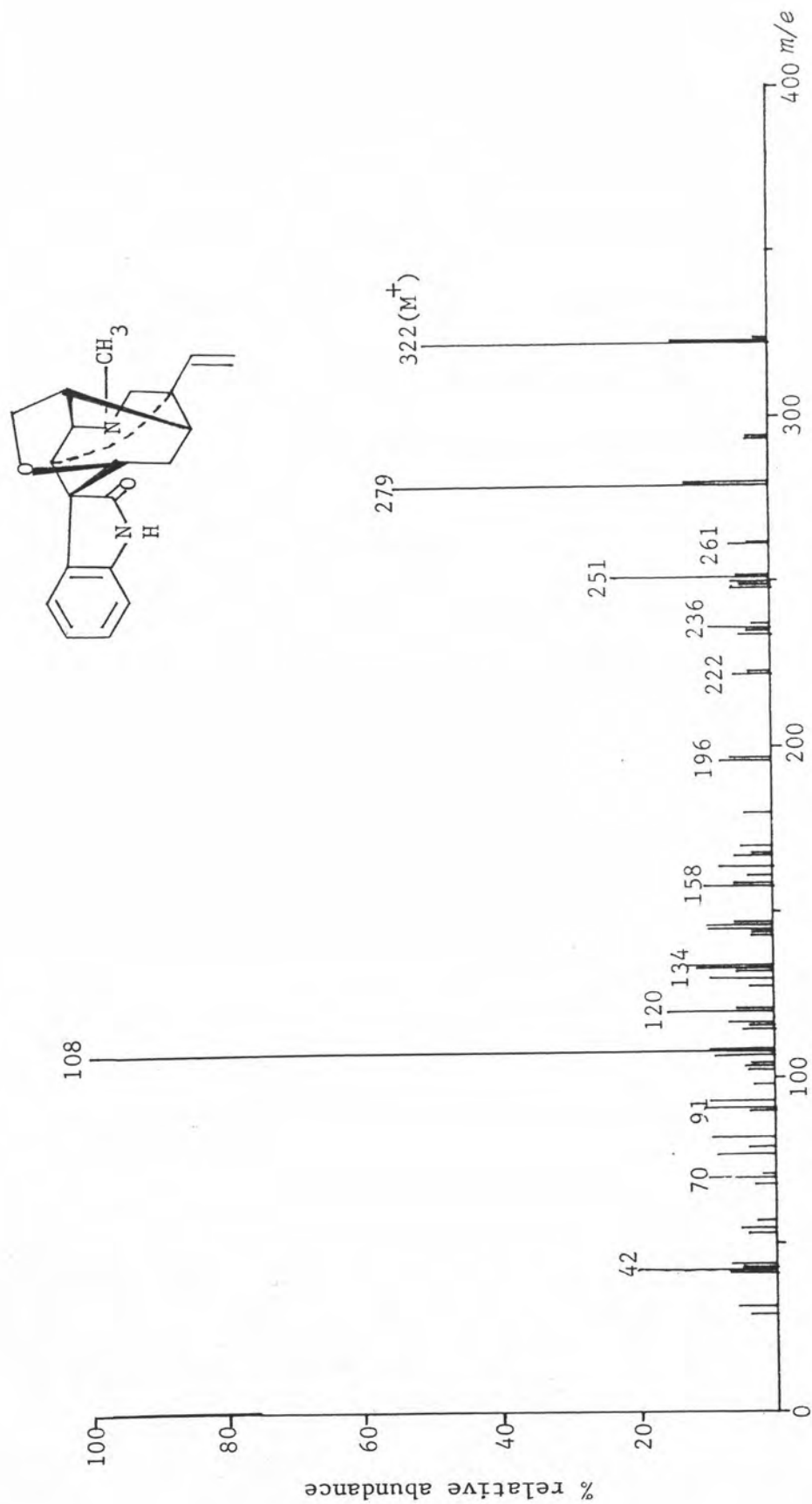


Figure 56 Mass spectrum of GE-6 (gelsemine)

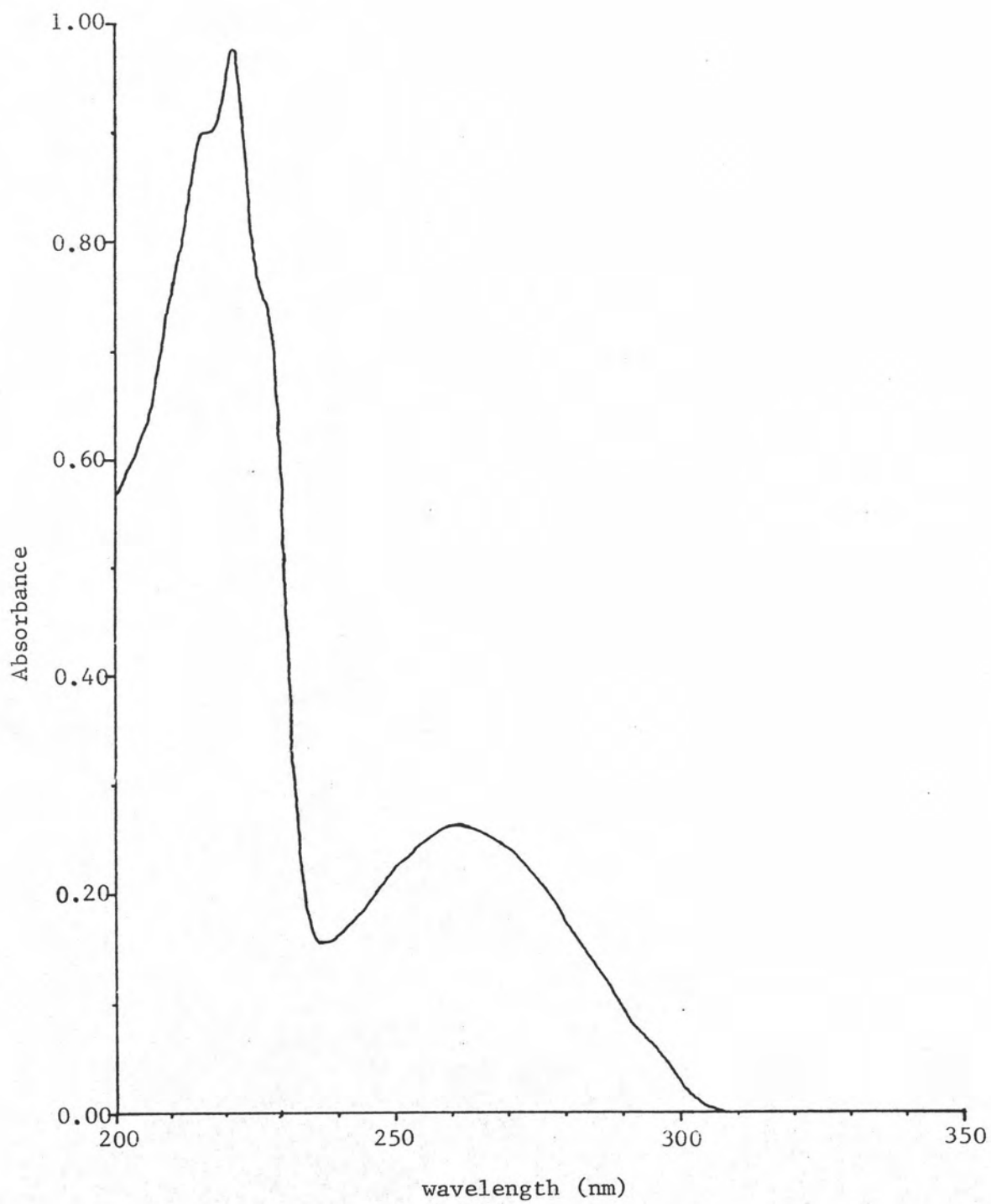


Figure 57 Ultraviolet absorption spectrum of GE-7 (koumine)
in ethanol

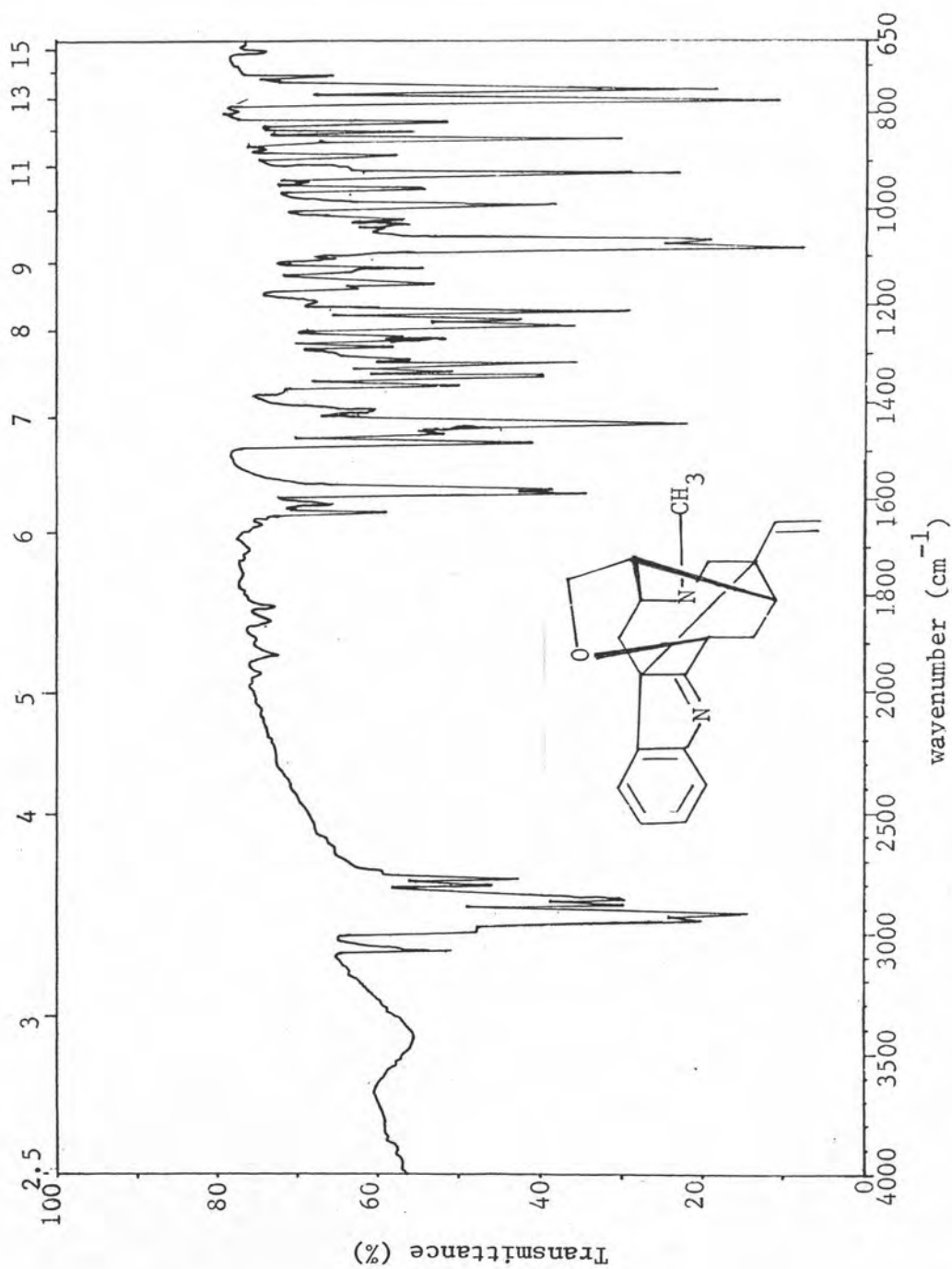


Figure 58 Infrared absorption spectrum of GE-7 (koumine) in potassium bromide disc

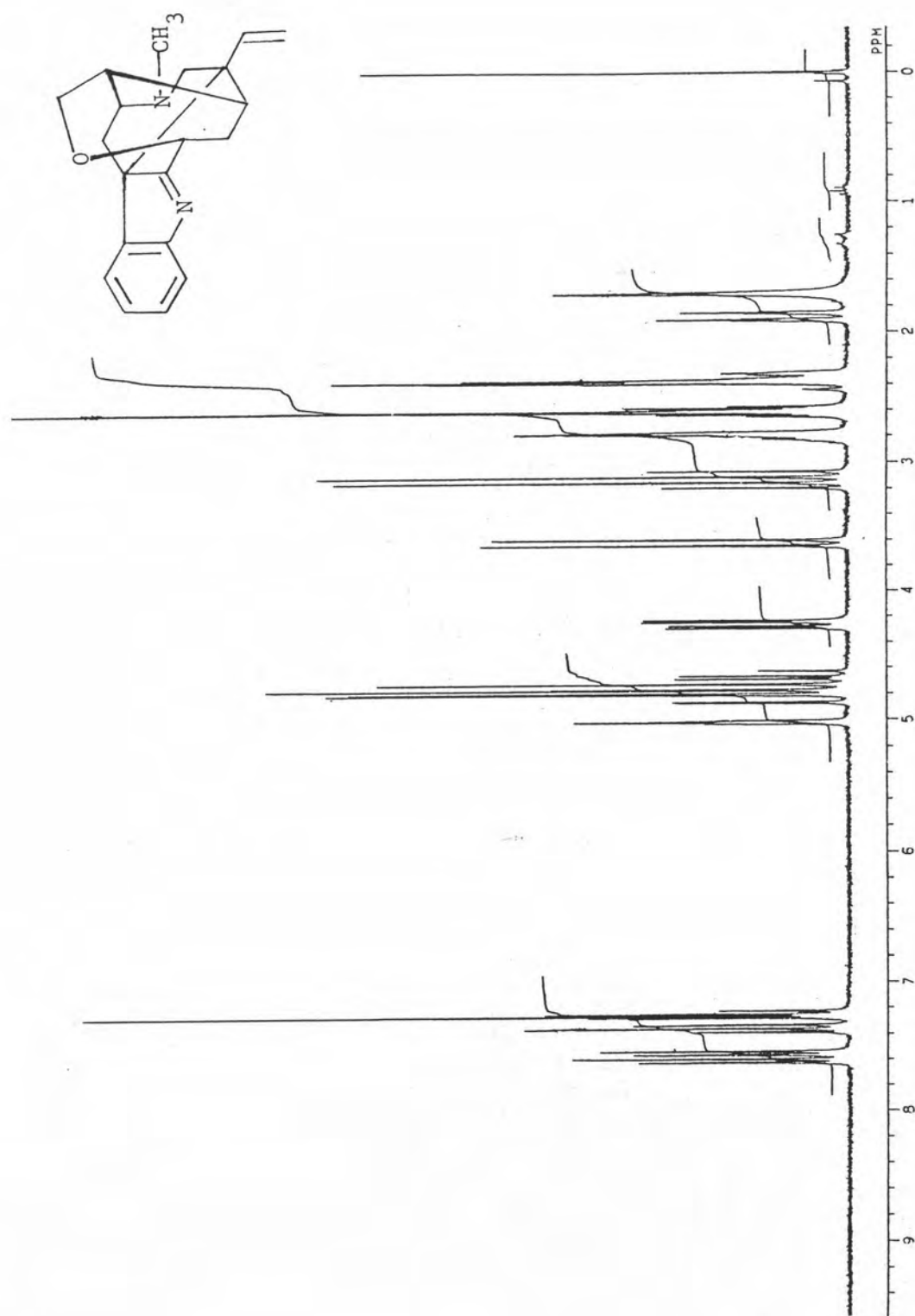


Figure 59 ^1H -Nuclear magnetic resonance spectrum (CDCl_3) of GE-7 (koumine)

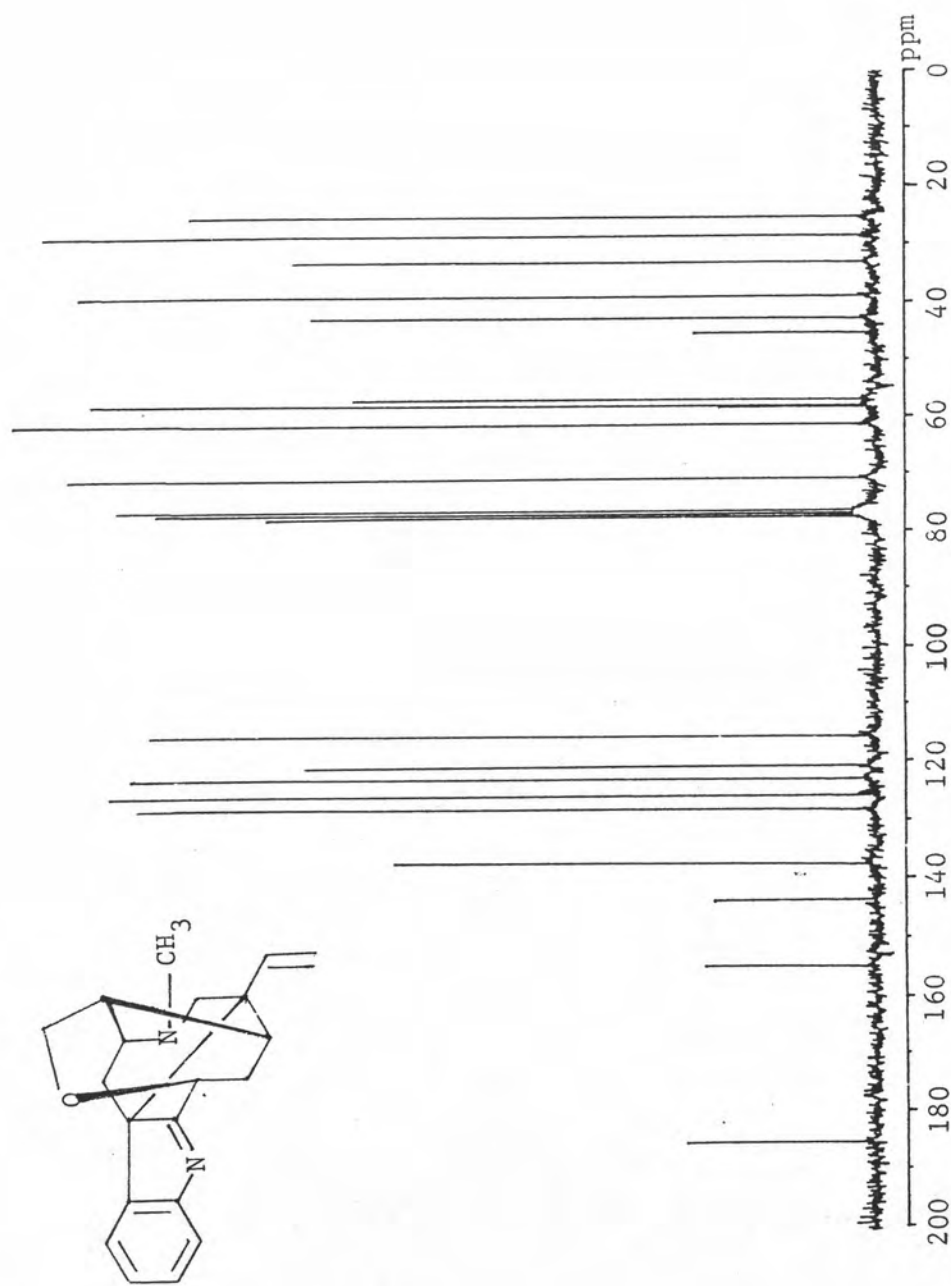


Figure 60 ^{13}C -Nuclear magnetic resonance spectrum (CDCl_3) of GE-7 (koumine)

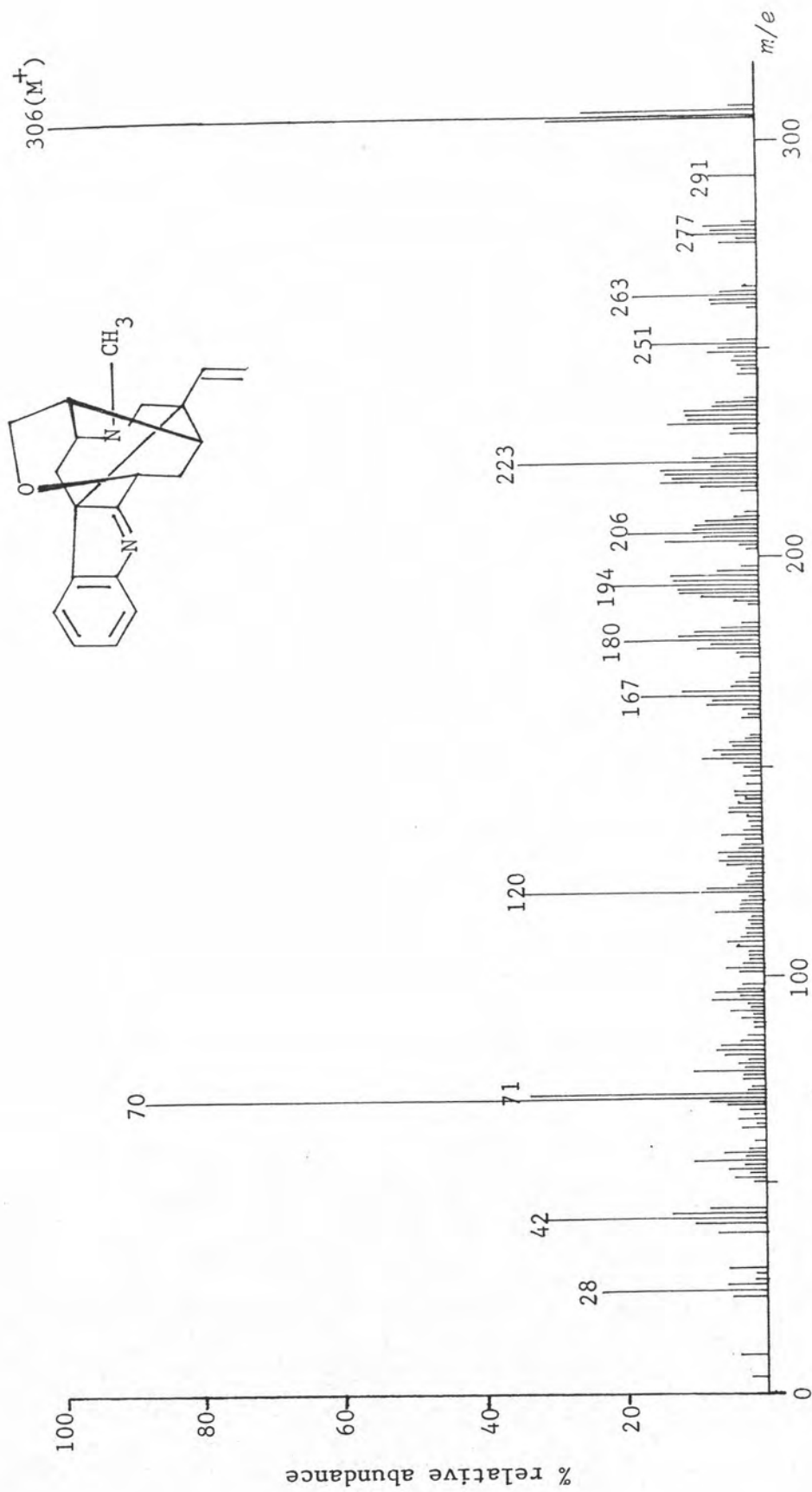


Figure 61 Mass spectrum of GE-7 (koumine)

VITA

Mr. Sanan Boonpitak was born on February 27, 1960 in Nakhon Si Thammarat, Thailand. He received his Bachelor of Science in Pharmacy (Second Class Honors) in 1984 from the Faculty of Pharmacy, Prince of Songkla University, Thailand. Since graduation, he has been appointed as an instructor in the Department of Pharmacognosy and Pharmaceutical Botany, Faculty of Pharmacy, Prince of Songkla University, Songkla, Thailand.

