



Conclusion and Recommendation

Thorn Apple Leaves (*Datura metel* Linné)

The isolation of alkaloids from the leaves of *Datura metel* Linné by using 13% calcium sulphate silica gel preparative layer chromatography has been made.

Scopolamine (main alkaloid), hyoscyamine, 2 unidentified alkaloids and the unidentified substance(s). There has been no report of the latter alkaloids.

It was reported that during the second World War more than 200 kg. of scopolamine were isolated from *Duboisia myoporoides* R.Br.

for using in the treatment of 'bomb shock'.⁵⁶ It is suggested that *Datura metel* Linné leaves may be used as a source for scopolamine production and inserted in the future Pharmacopoeia of Thailand as 'Datura Leaves (FOLIA DATURAE)'.
Wild Yam Tubers (*Dioscorea hispida* Dennst.)

There are many cases of intoxication annually by ingesting wild yam (*Dioscorea hispida* Dennst.) tuber as a substitute for staple in many parts of Thailand, particularly during famine.

The principal alkaloid of wild yam tubers (*Dioscorea*

hispida Dennst.) grown in Thailand was found to be Dioscorine.

Making known that dioscorine is a toxic principle in wild yam tuber, the treatment of intoxication is more efficacy.

APPENDIX

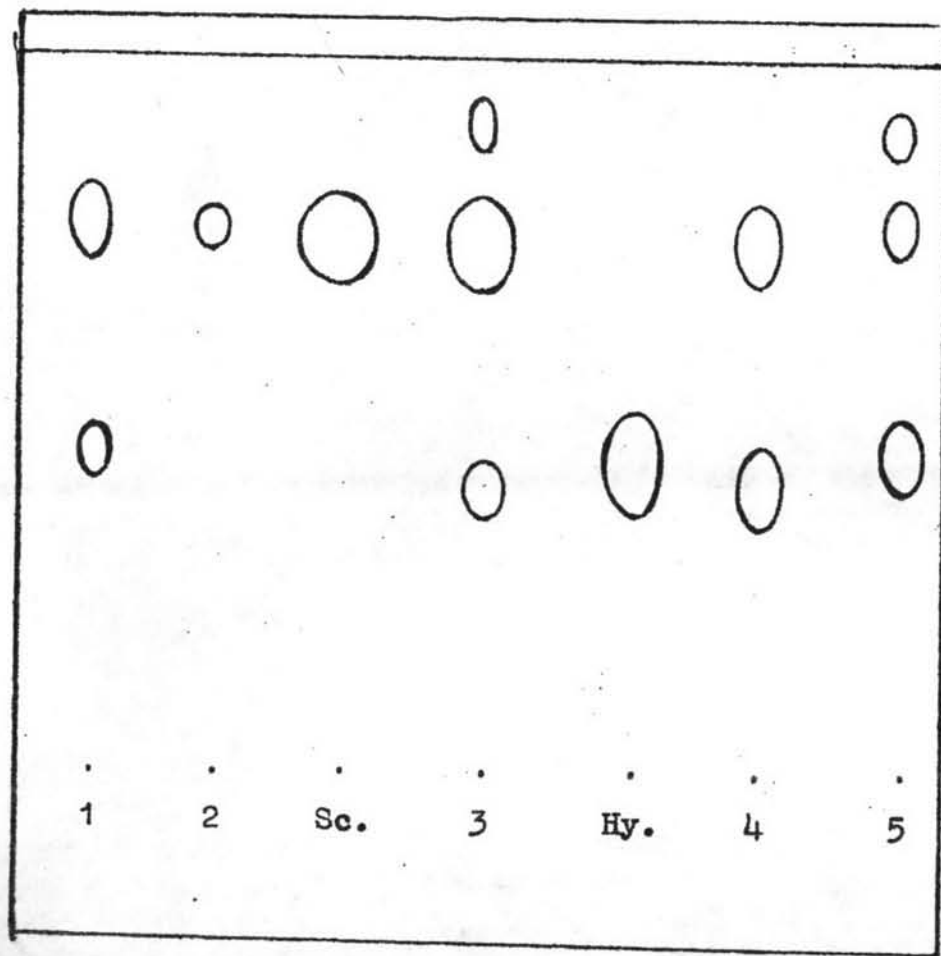
Figure 1

Thin layer chromatogram of alkaloids from various parts of

Datura metel Linné.

Silica gel G. / chloroform:acetone:diethylamine (5:4:1)

Dragendorff's spray reagent



1 = Crude alkaloid from root

2 = Crude alkaloid from stem

3 = Crude alkaloid from flower

4 = Crude alkaloid from seed

5 = Crude alkaloid from leaf

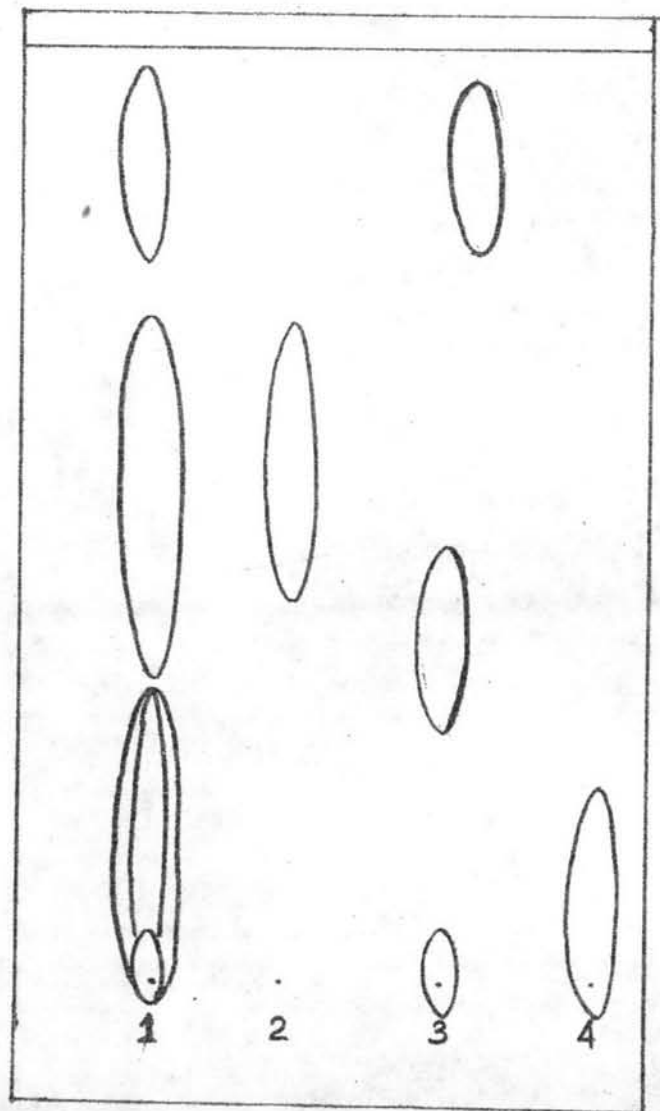
Sc. = Reference scopolamine

Hy. = Reference hyoscyamine

Figure 2

Thin layer chromatogram of alkaloids from the flowers of Datura metel Linné.

Silica gel G./diethyl ether : ethanol (1:1) ; Dragendorff's spray reagent



1 = Crude alkaloid extracted at pH9-11

2 = Reference scopolamine

4 = Reference hyoscyamine

3 = Crude alkaloid extracted at pH 5

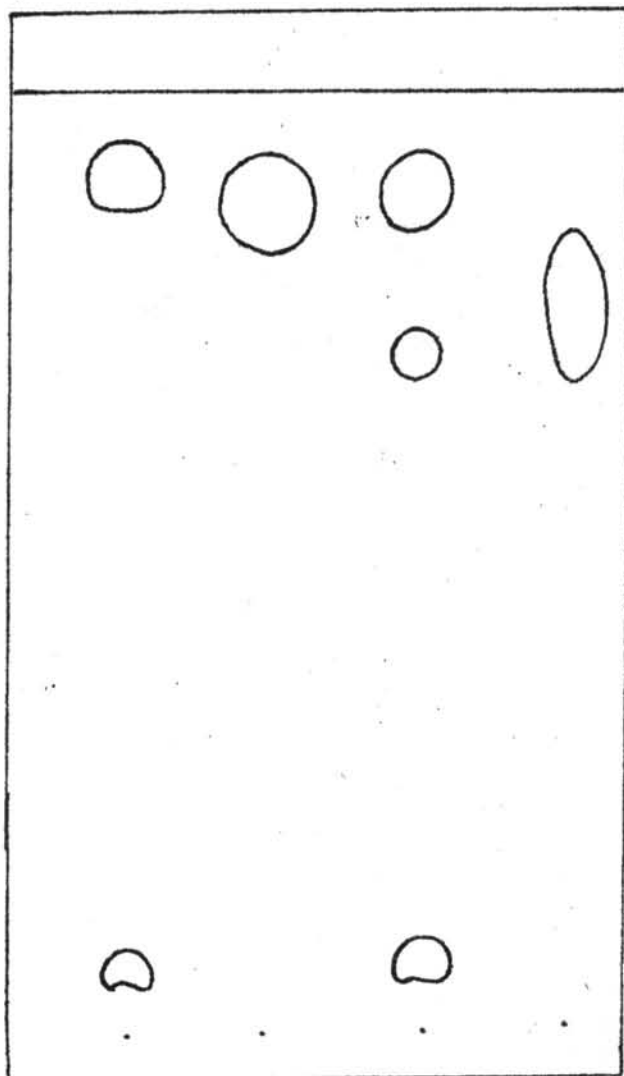
Figure 3

Thin layer chromatogram of alkaloids from the flowers of

Datura metel Linné

Silica gel G./ chloroform : diethylamine (9 : 1)

Dragendorff's spray reagent



I = Crude alkaloid

extracted at pH 9 - 11

Sc = Reference scopolamine

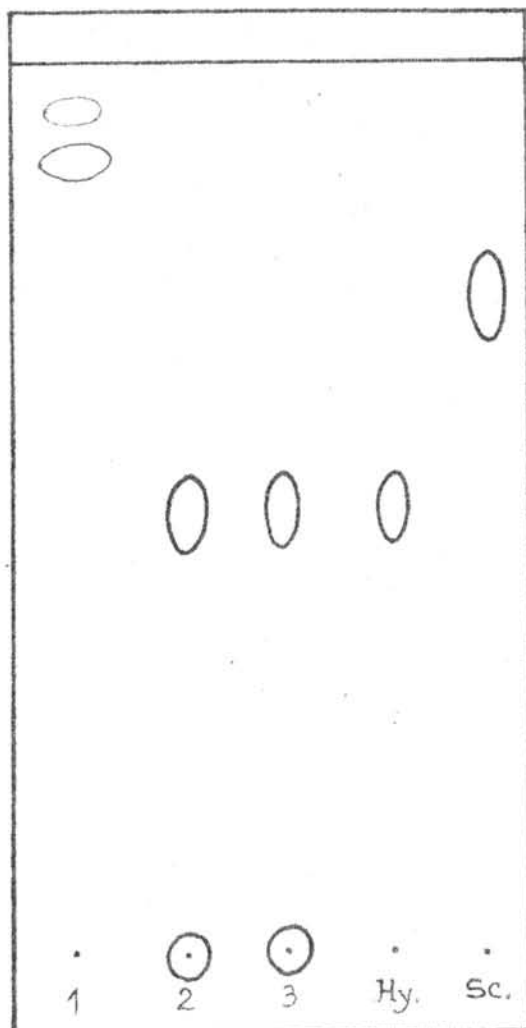
Hy = Reference hyoscyamine

Figure 4

Thin layer chromatogram of alkaloids from the flowers of
Datura metel Linné

Alumina G. / 3% methanol in chloroform

Dragendorff's spray reagent



1 = Combined diethyl ether
eluates (1-7)

2 = Combined chloroform
eluates (9-16)

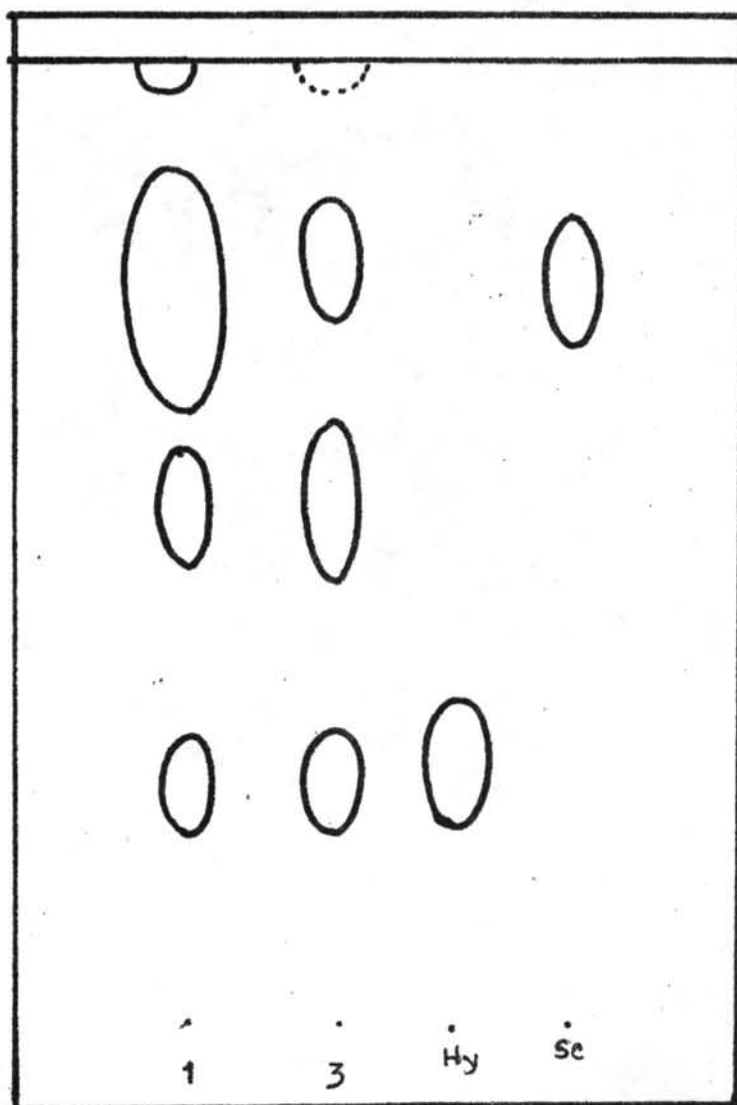
3 = Combined 10% methanol in
chloroform eluates (18-21)

Hy. = Reference hyoscyamine

Sc. = Reference scopolamine

Figure 5

Thin layer chromatogram of alkaloids from the flowers of
Datura metel Linné
Alumina/2% methanol in chloroform
Dragendorff's:



1,3 are diethyl ether eluate

Hy.= Reference hyoscyamine

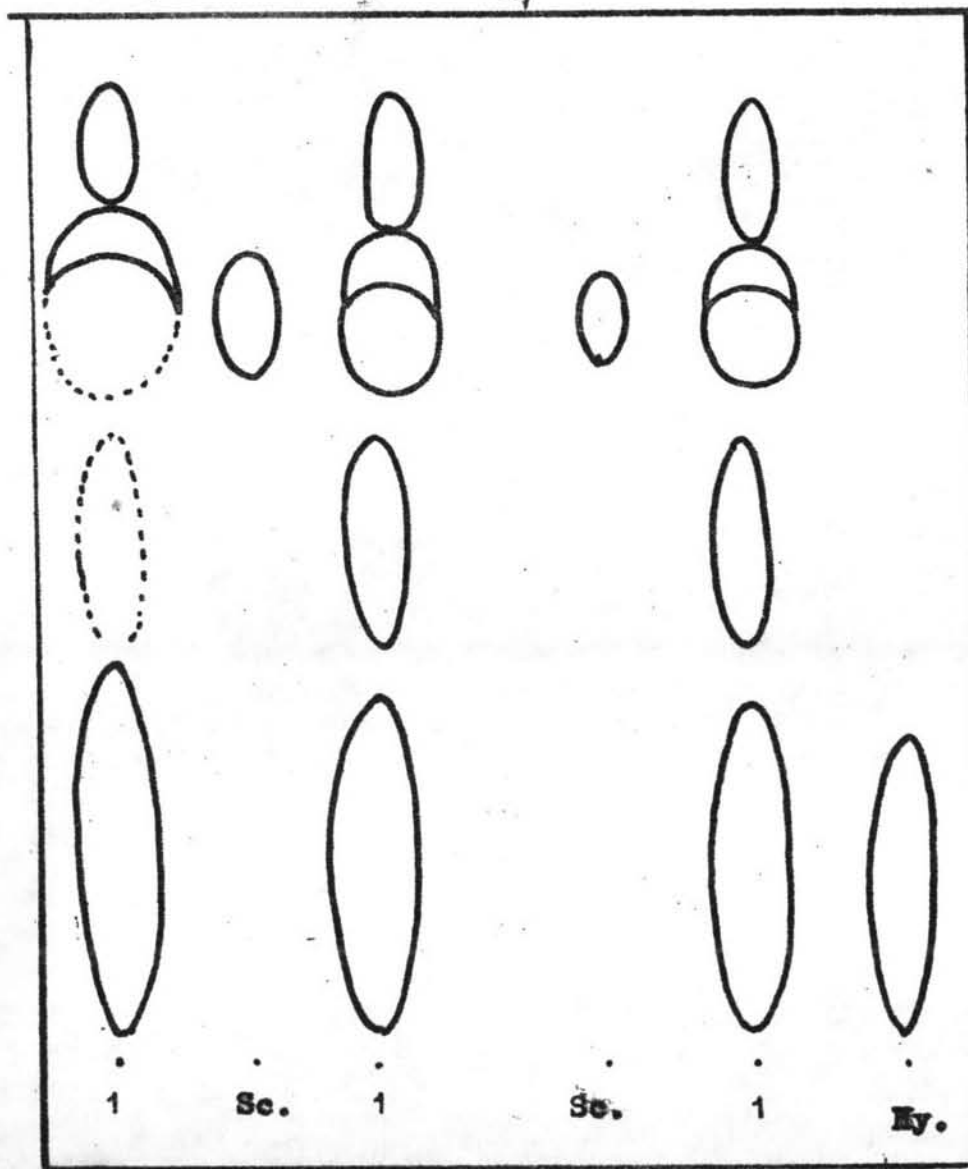
Sc.= Reference scopolamine

Figure 6

Thin layer chromatogram of alkaloids from the flowers of

Datura metel Linnae'

Silica gel G./ diethyl ether:ethanol (1:1); Dragendorff's spray reagent



1 =Crude total alkaloid

Sc. = Reference scopolamine

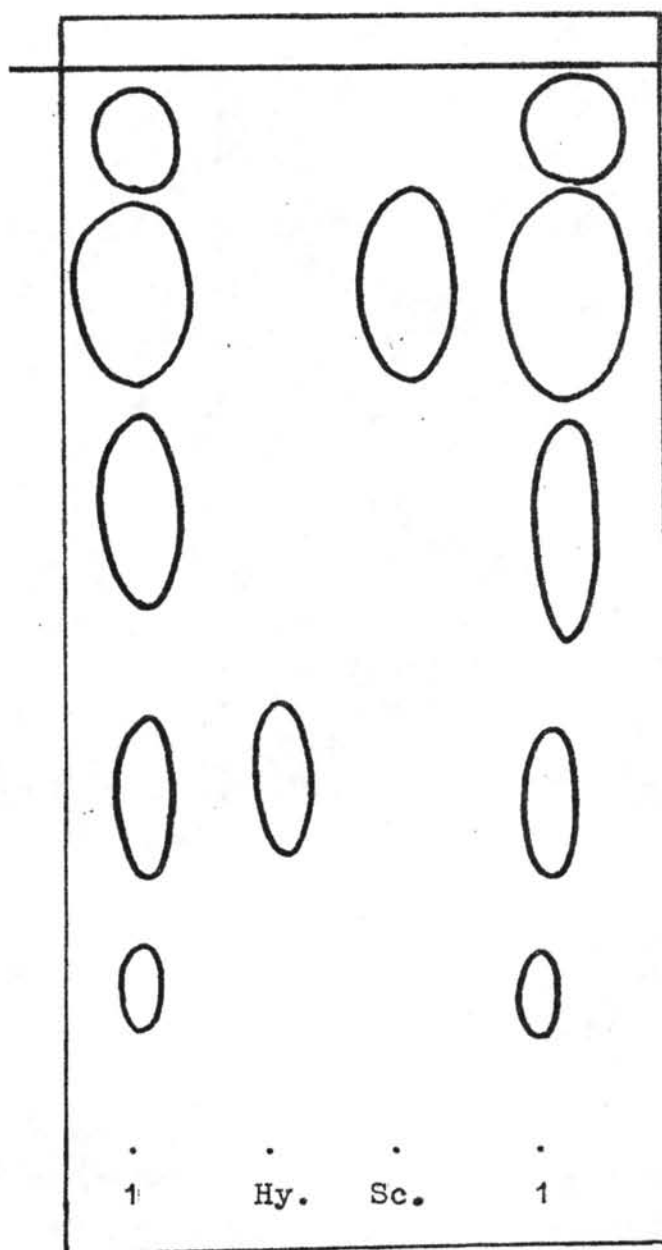
Hy.= Reference hyoscyamine

Figure 7

Thin layer chromatogram of alkaloids from the flowers of
Datura metel Linne'

Alumina G. / chloroform : ethanol (1:1)

Dragendorff's spray reagent.



1 = Crude total alkaloid

Hy. = Reference hyoscyamine

Sc. = Reference scopolamine

1

Hy.

Sc.

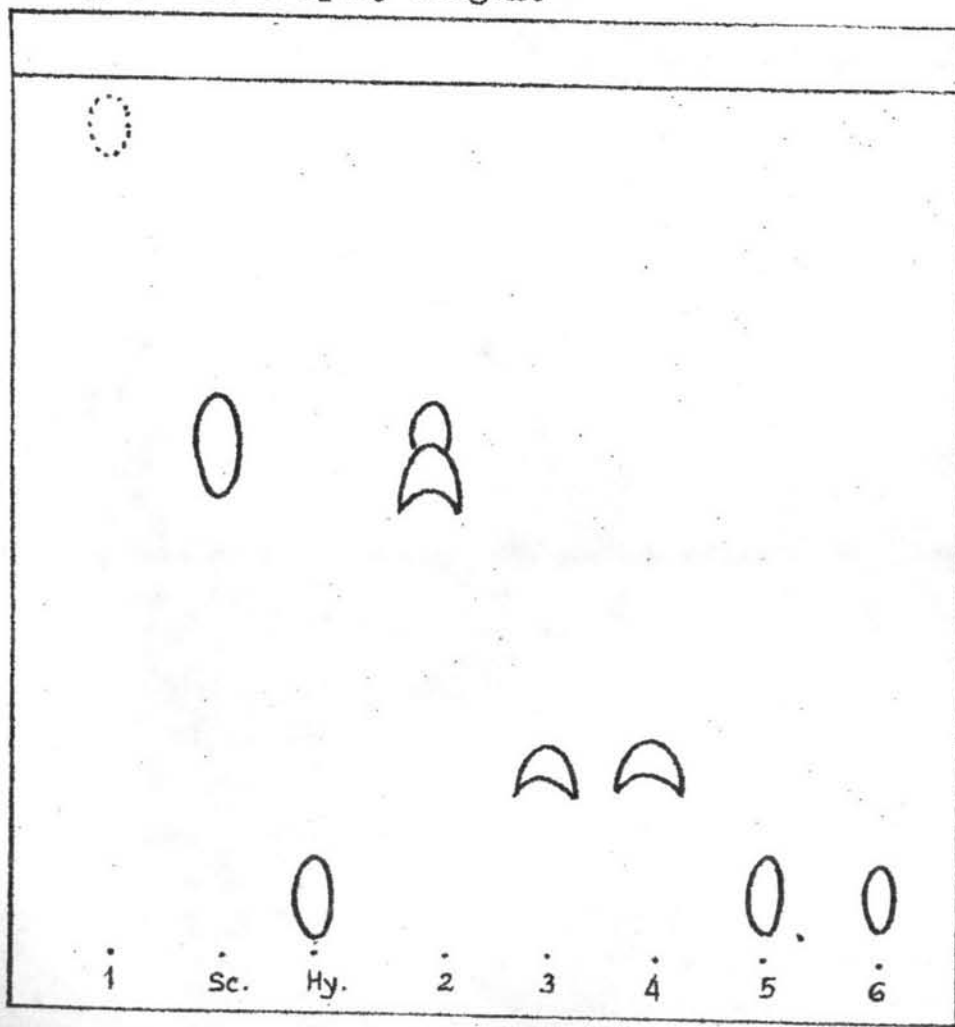
1

Figure 8

Thin layer chromatogram of alkaloids from the flowers of Datura metel Linné

Silica gel G./ diethyl ether : ethanol (1:1)

Dragendorff's spray reagent



1 = Combined diethyl ether eluates
(1-5)

2 = Combined diethyl ether eluates
(8) and
diethyl ether : methanol(8:2)
eluates (1-2)

3 = Combined diethyl ether : methanol
(8:2) eluates (3-5)

4 = Crystals obtained from 3

5 = Diethyl ether : methanol (8:2) eluate
(fraction 8)

6 = Combined methanol eluates

Hy.= Reference hyoscyamine

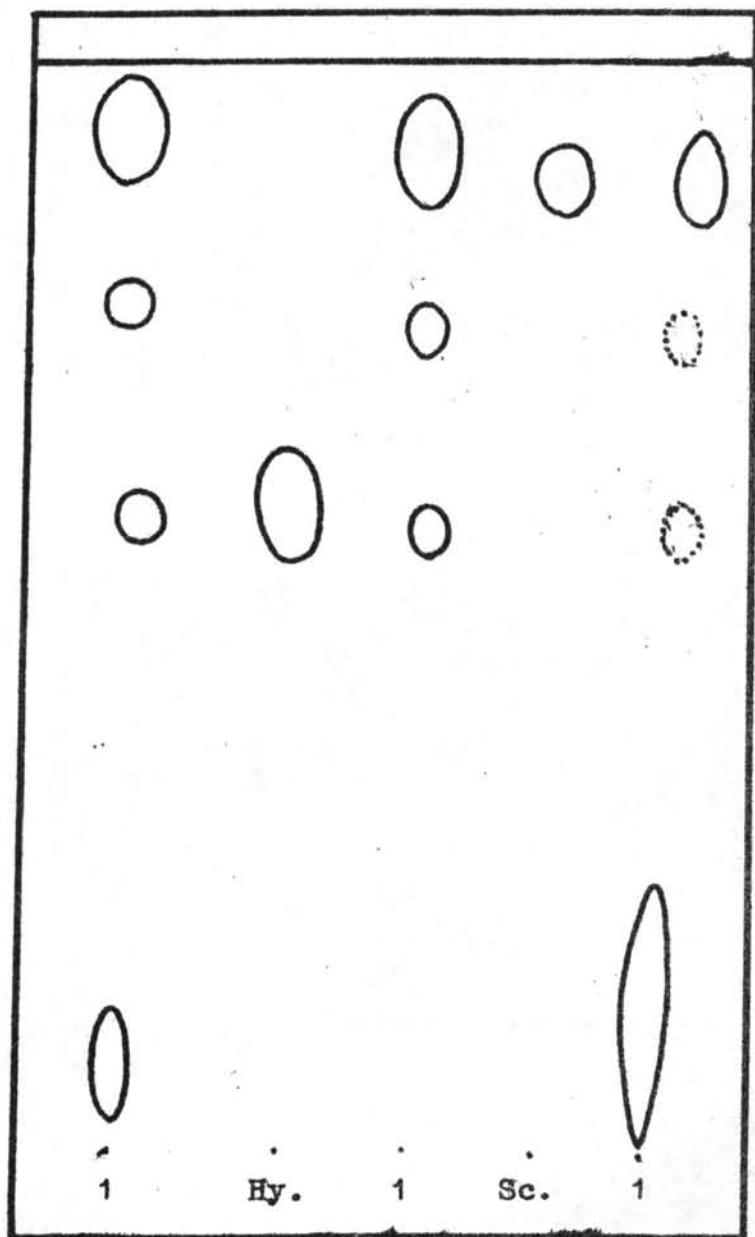
Sc.= Reference scopolamine

Figure 9

Thin layer chromatogram of alkaloid from the leaves of
Datura metel Linné.

Silica gel G. acetone:water:ammonia 25%(90 :7 :3)

Dragendorff's spray reagent



1= Crude alkaloid

Hy.=Reference hyoscyamine

Sc.=reference scopolamine

Figure 10

Thin layer chromatogram of alkaloids from the leaves of

Datura metel Linné

Alumina G. / diethyl ether : ethanol (1:1)

Dragendorff's spray reagent

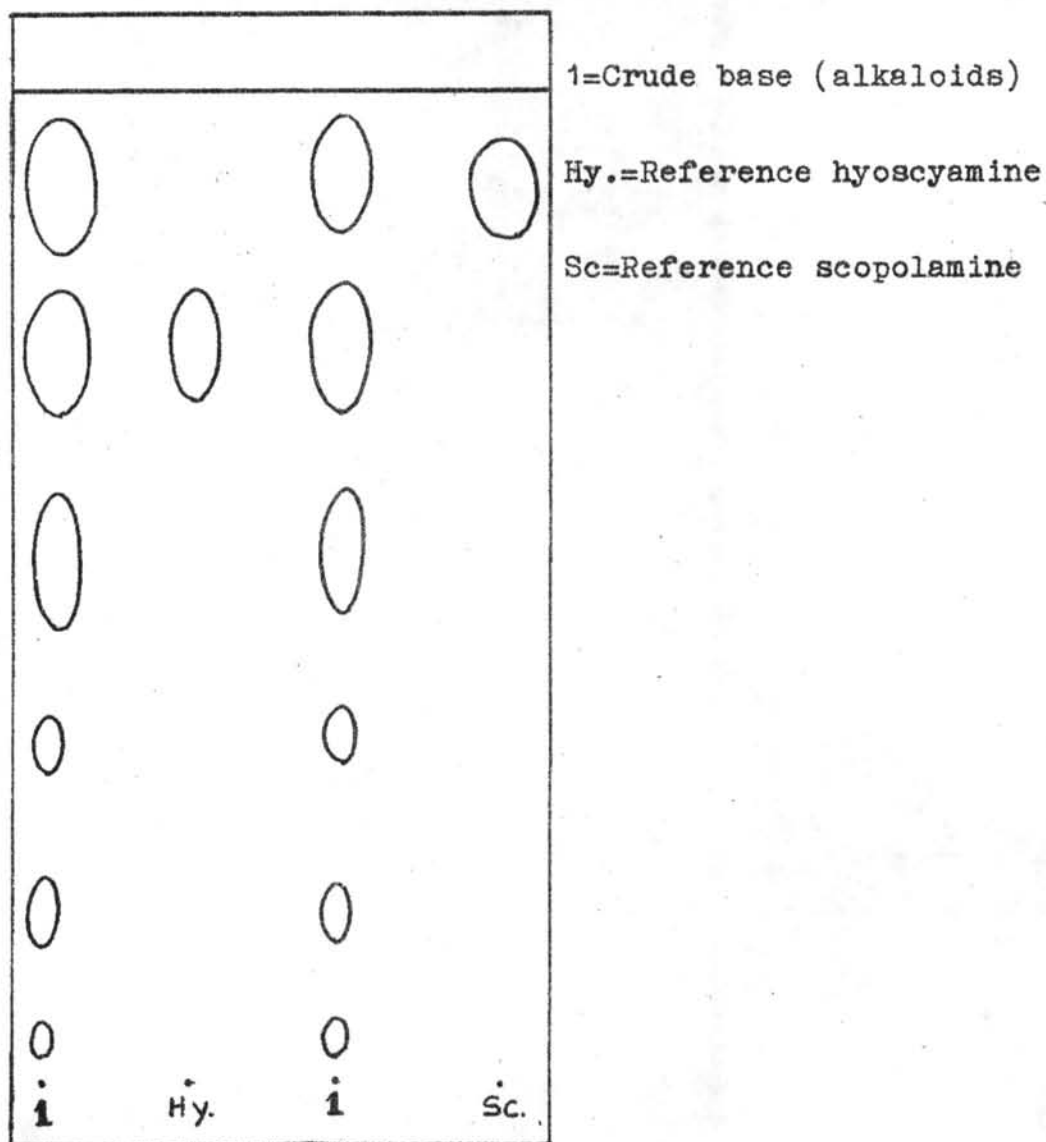


Figure 11

Preparative layer chromatogram of alkaloids from the leaves of Datura metel Linne'

Silica gel G. / twice developed with 5% methanol in diethyl ether/ Dragendorff's spray reagent

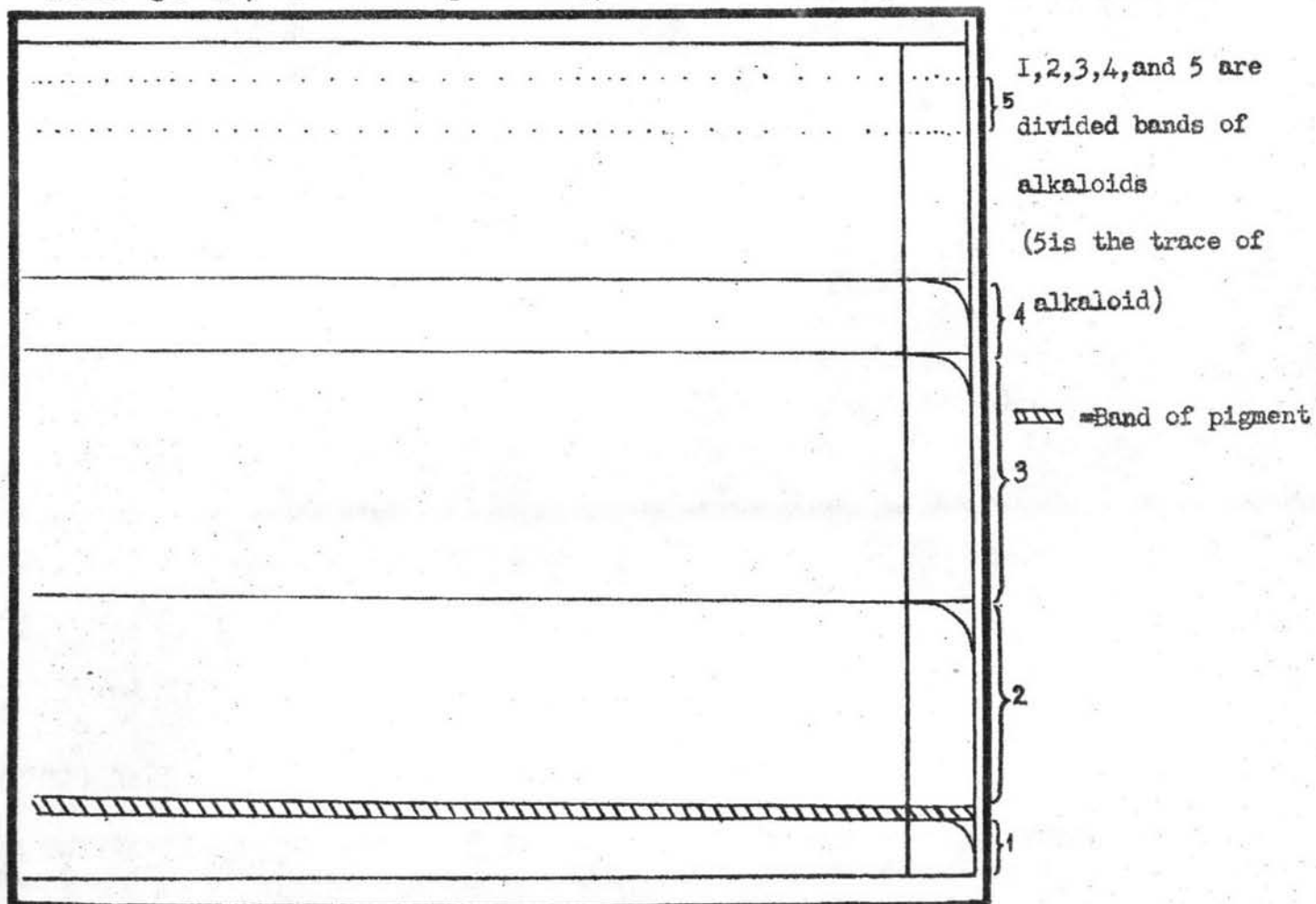
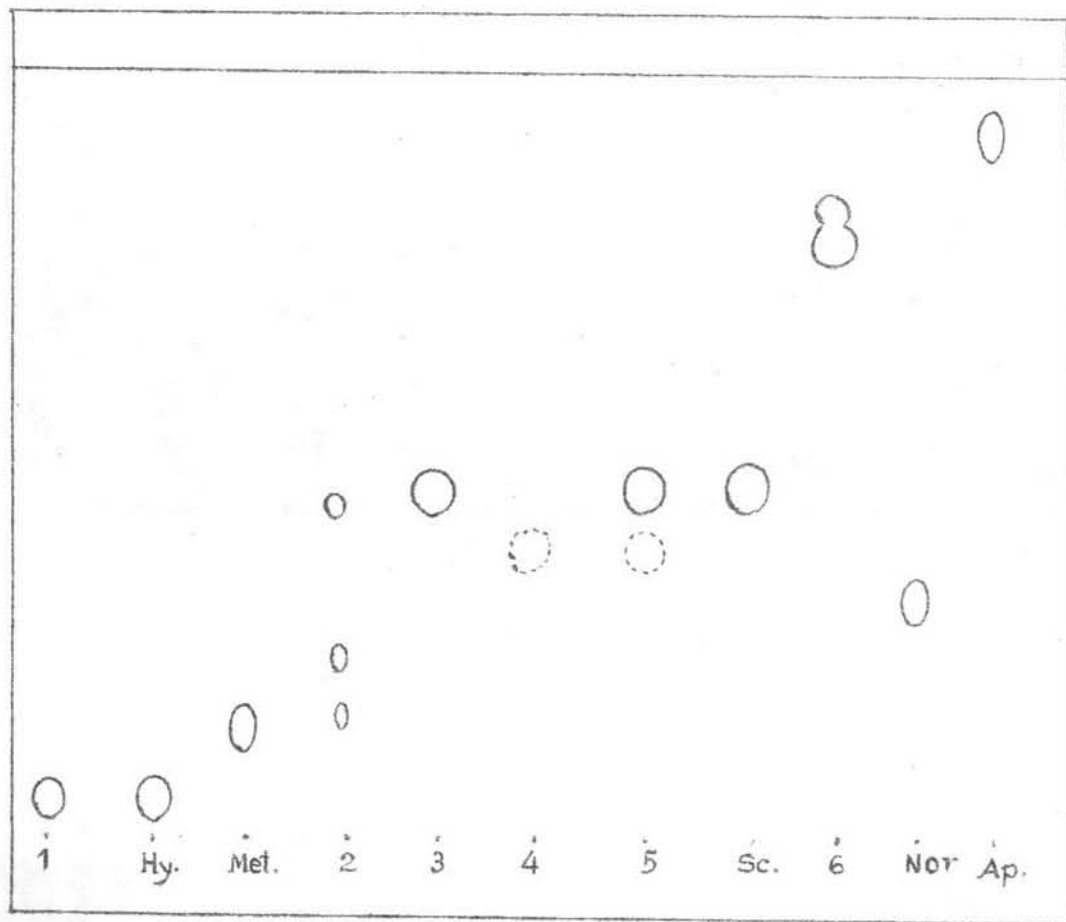


Figure 12

Thin layer chromatogram of alkaloids from the leaves of Datura metel Linné

Alumina G. /chloroform ; Dragendorff's spray reagent



1 = Isolated Ra 1

2 = Alkaloids from Band 2

3 = Isolated scopolamine

4 = Isolated Ra 3

5 = Mother liquor of Band 3 after
Ra 3 was crystallised out

6 = Mixture of alkaloids from Band 4

Hy. = Reference hyoscyamine

Met. = Reference meteloidine

Nor. = Reference Norscopolamine

Ap. = Reference aposcopolamine

Sc. = Reference scopolamine

Figure 13

Thin layer chromatogram of alkaloids from the leaves of Datura metel Linné
Silica gel G. / methyl ethhyl ketone:methanol 7.5% : ammonia 25% (6 :3 :1)
Dragendorff's Spray reagent

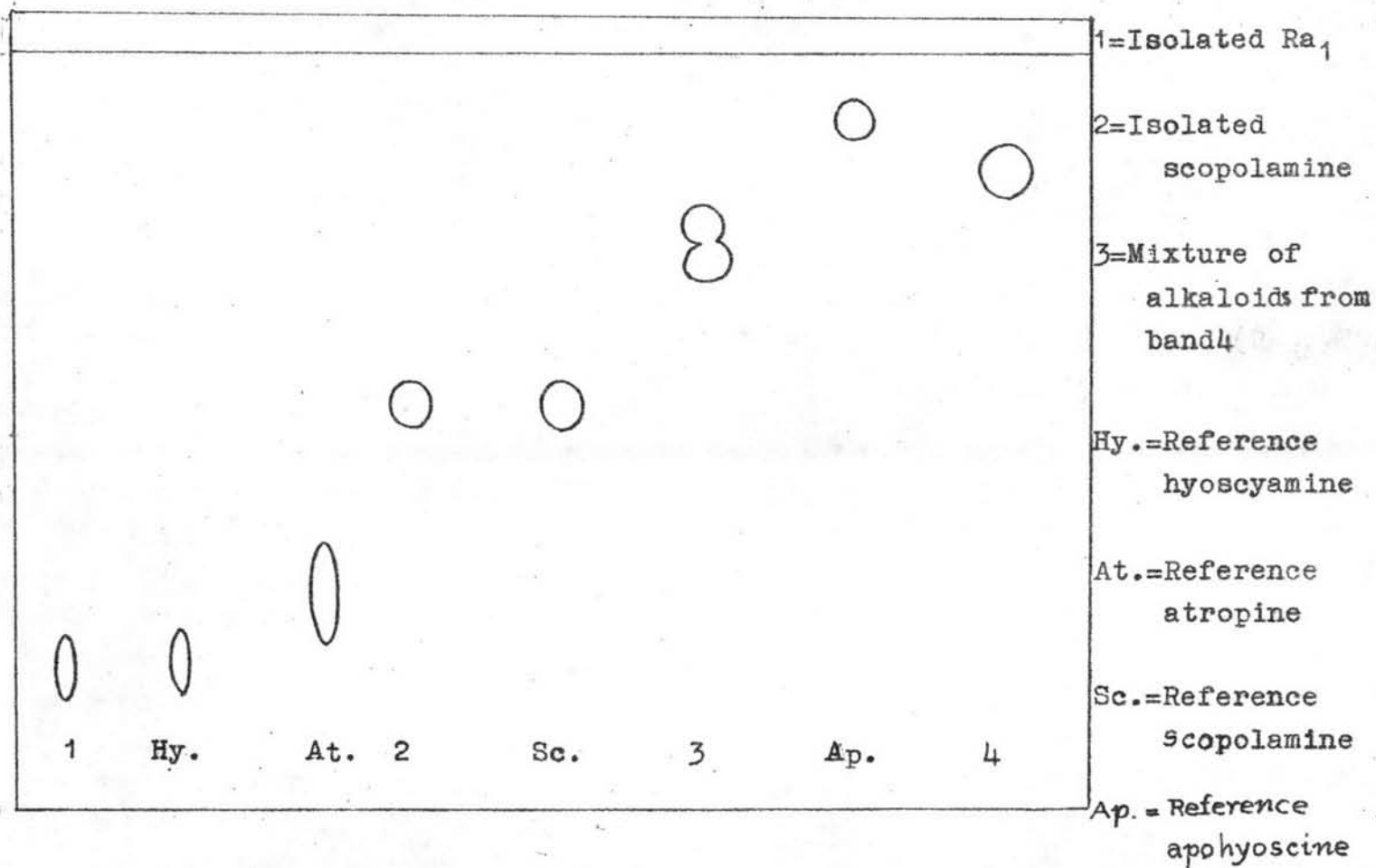


Figure 14

Thin layer chromatogram of alkaloids from the tubers of
Dioscorea hispida Dennst.

Alumina G. / 2% methanol in chloroform

Dragendorff's spray reagent

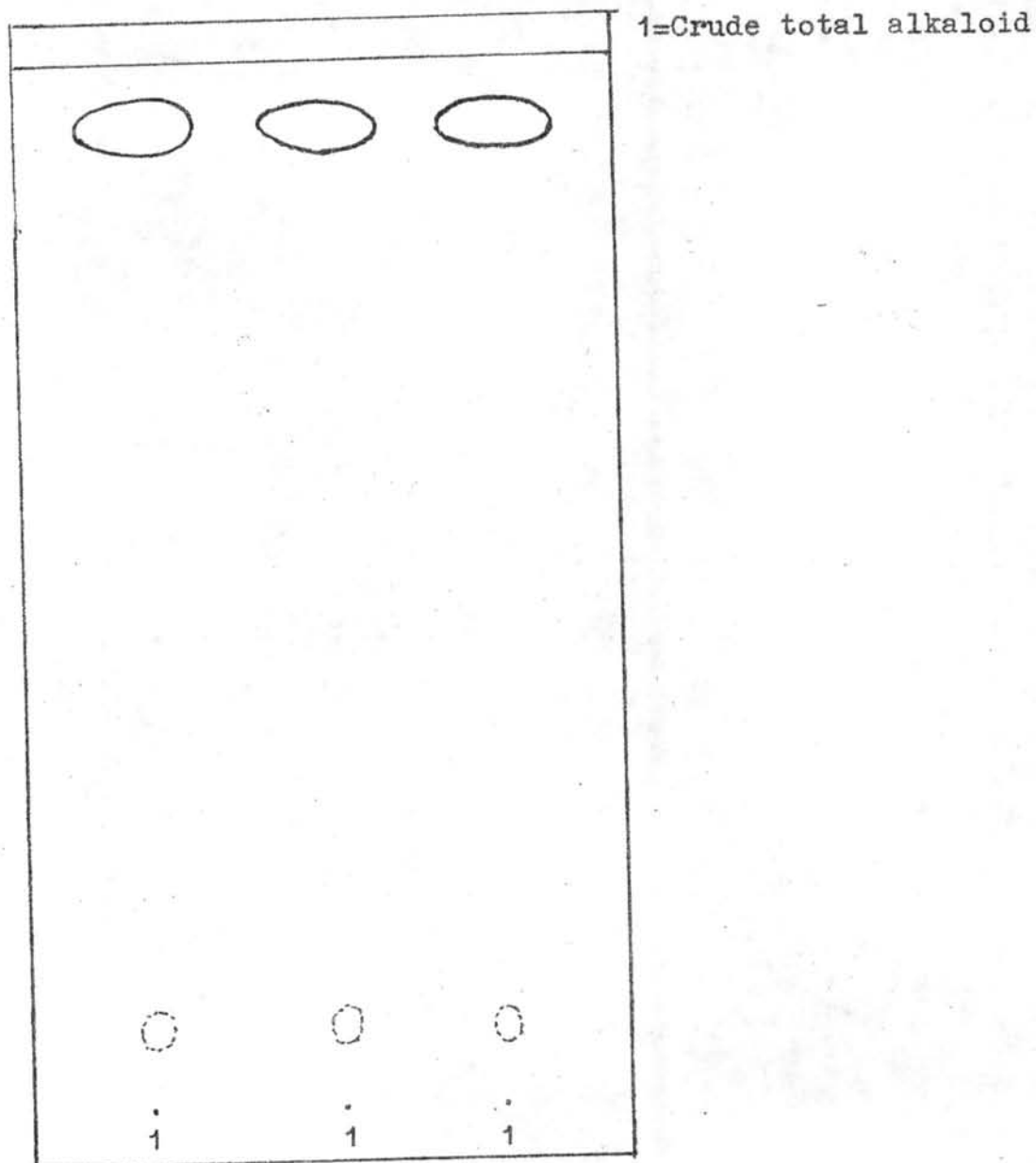


Figure 15

Ultra violet absorption spectra of hyoscyamine from Datura metel Linné leaves and reference hyoscyamine in methanol

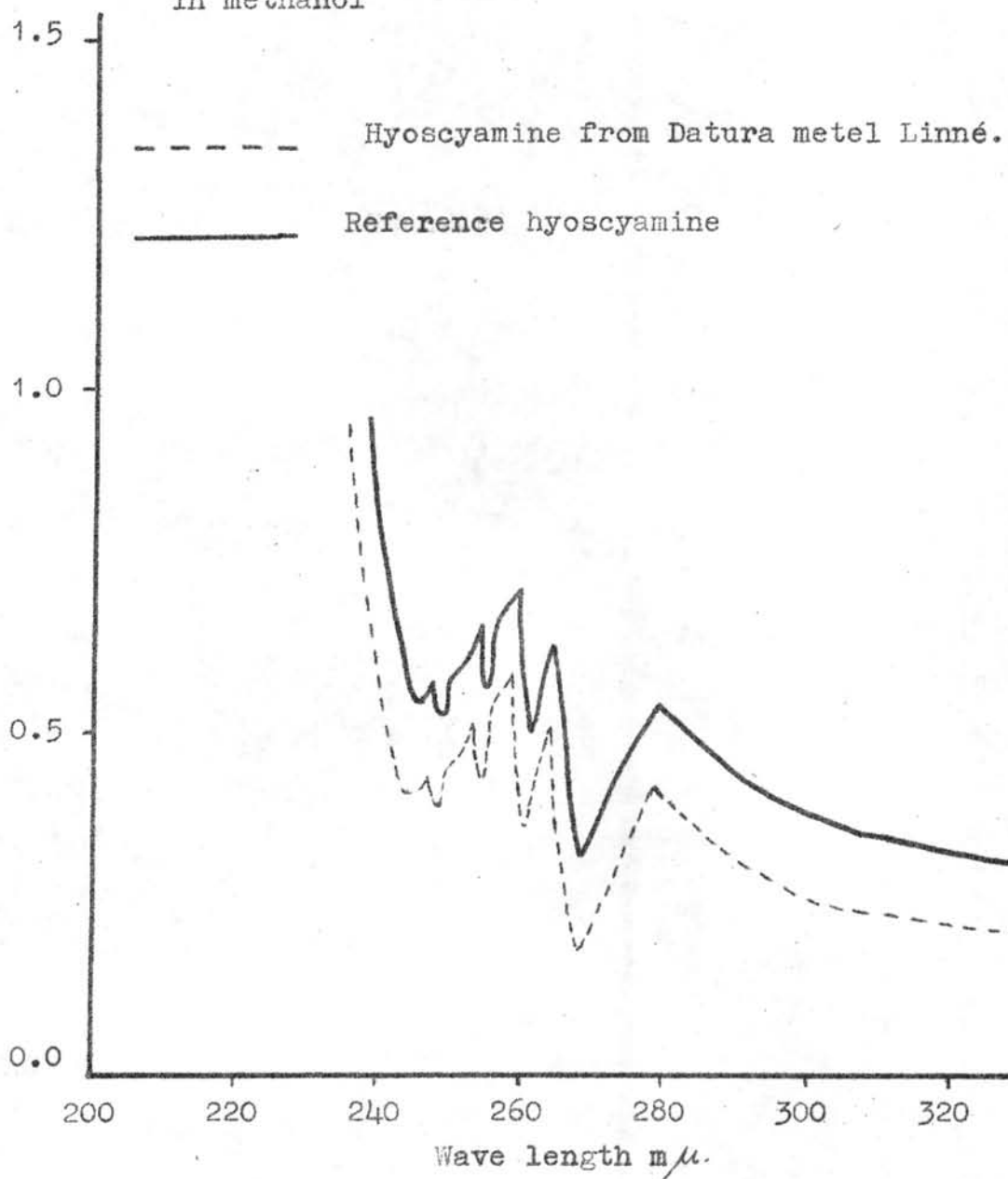


Figure 16

Infra red absorption spectrum of Ra_1 isolated from the leaves of Datura metel Linné.

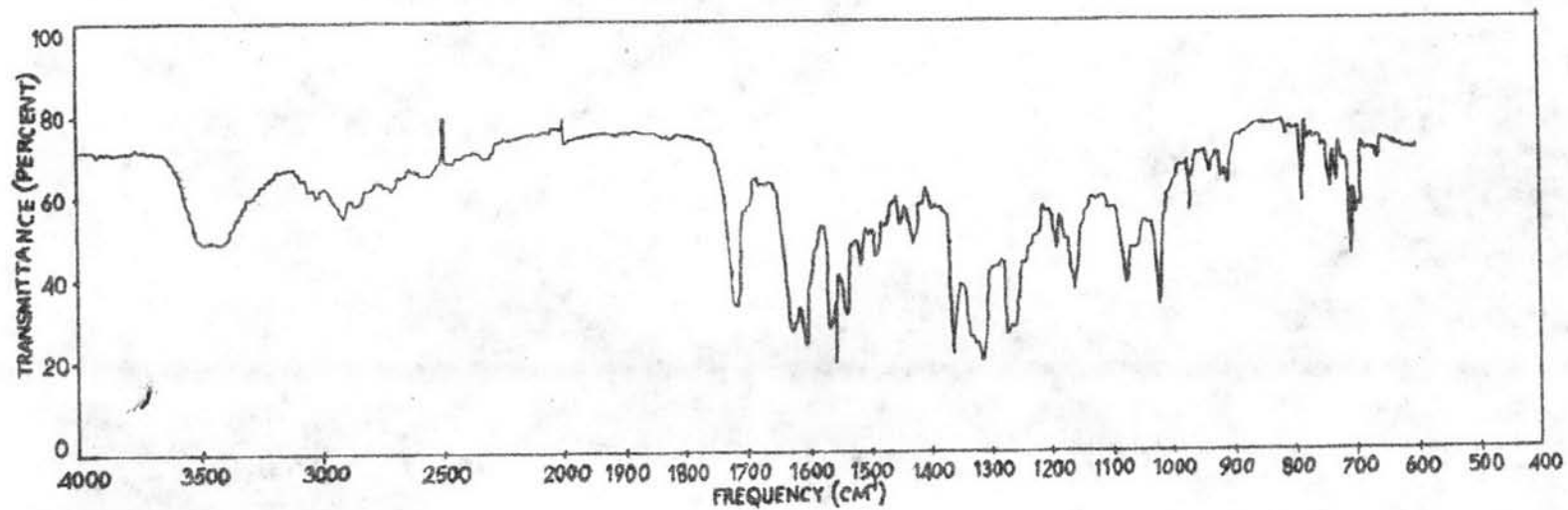


Figure 17

Ultra violet absorption spectrum of substance(s) isolated from Datura metel Linné leaves(Ra₃) in methanol

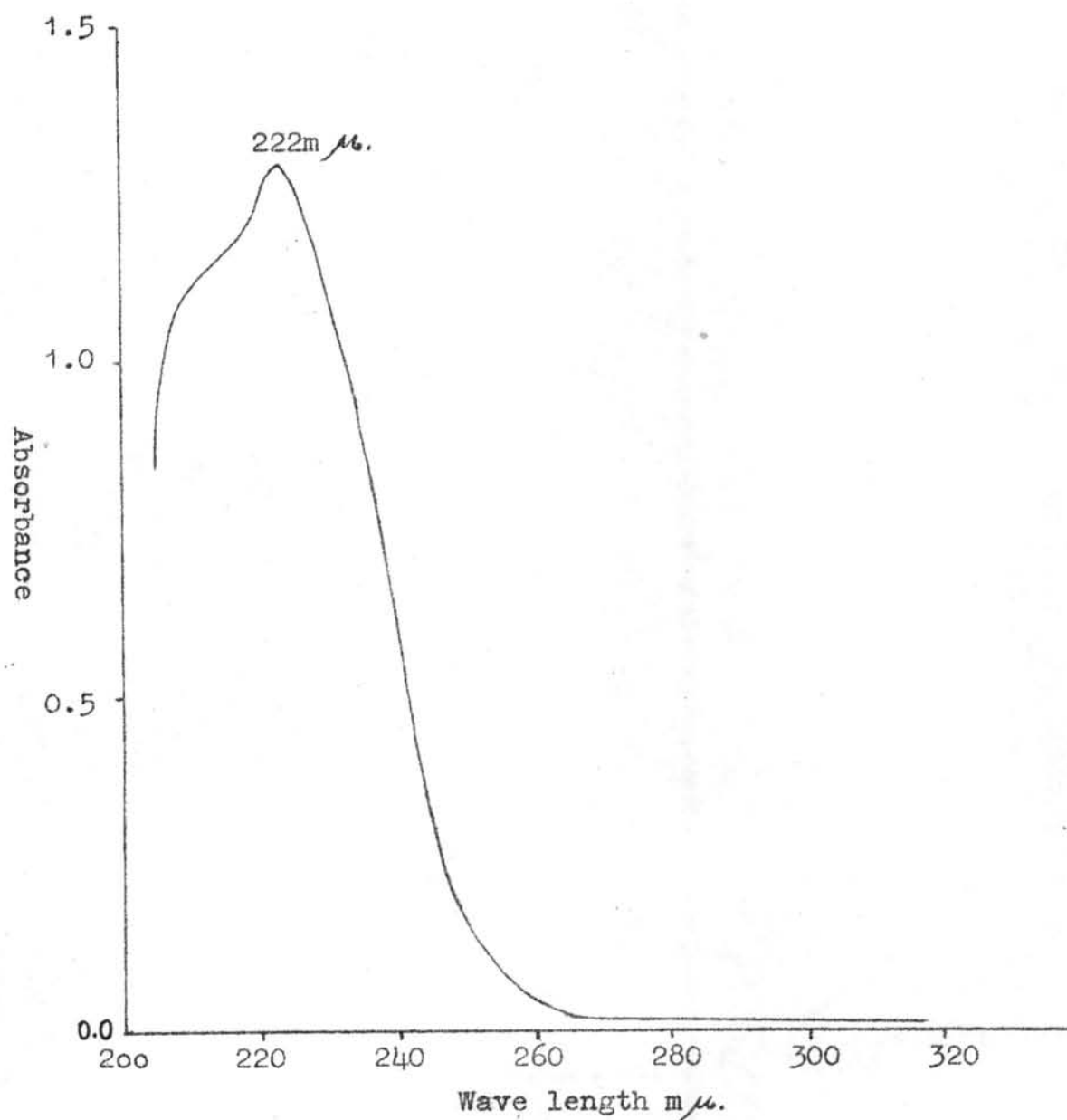


Figure 18
Infra-red absorption spectrum (Perkin Elmer) of Ra3

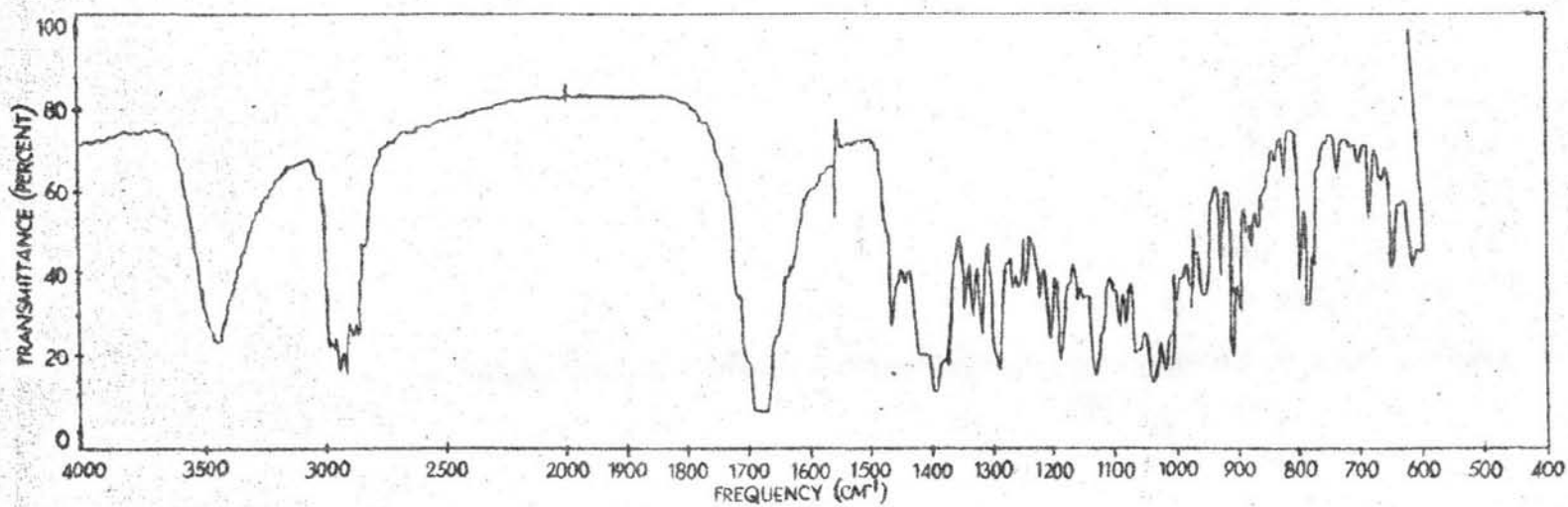


Figure 19

Ultra violet absorption spectra of scopolamine from
Datura metel Linné and reference scopolamine in methanol

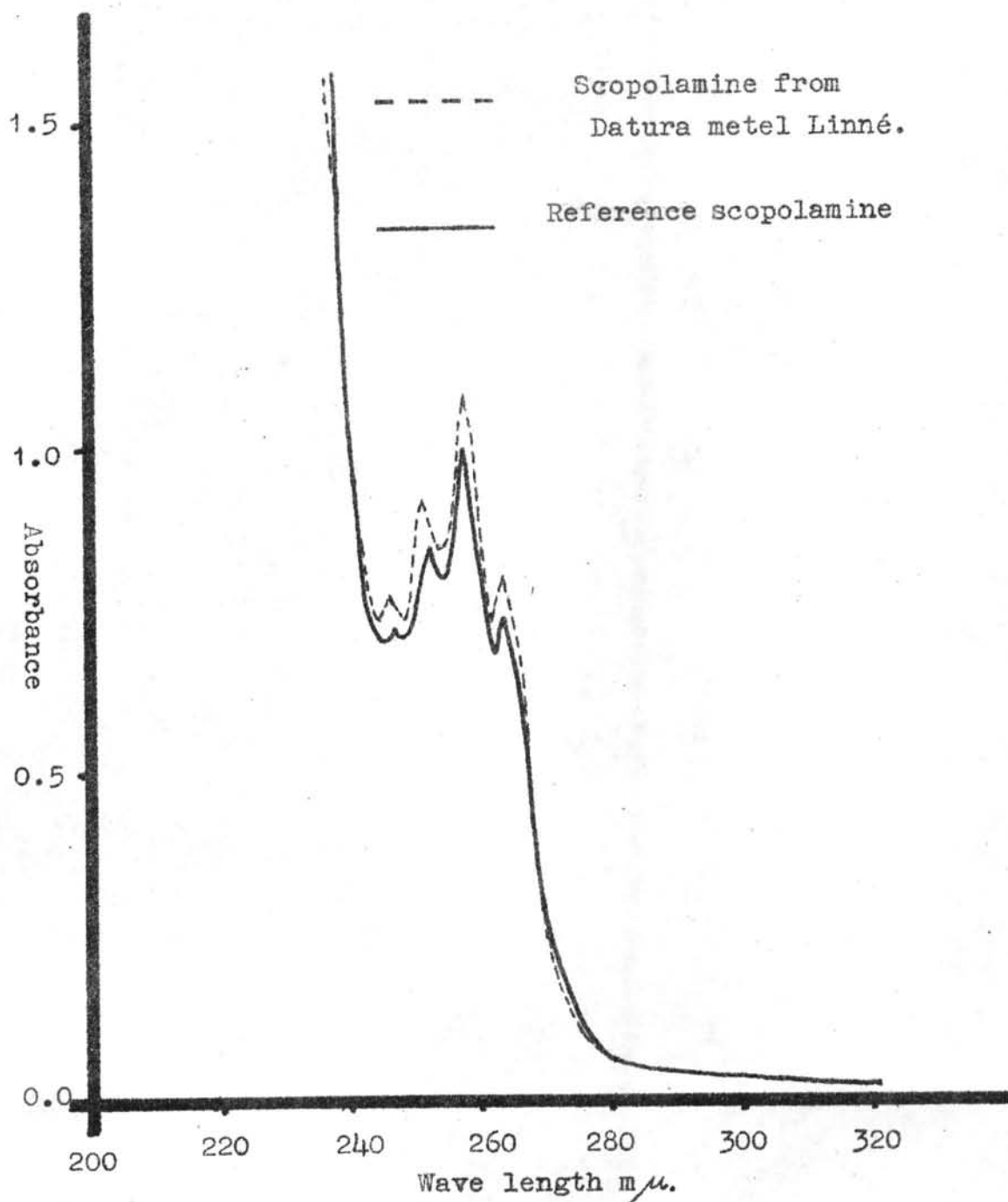


Figure 20

Infra red absorption spectrum of Ba_4 subsequently identified as
scopolamine picrate (Perkin Elmer)

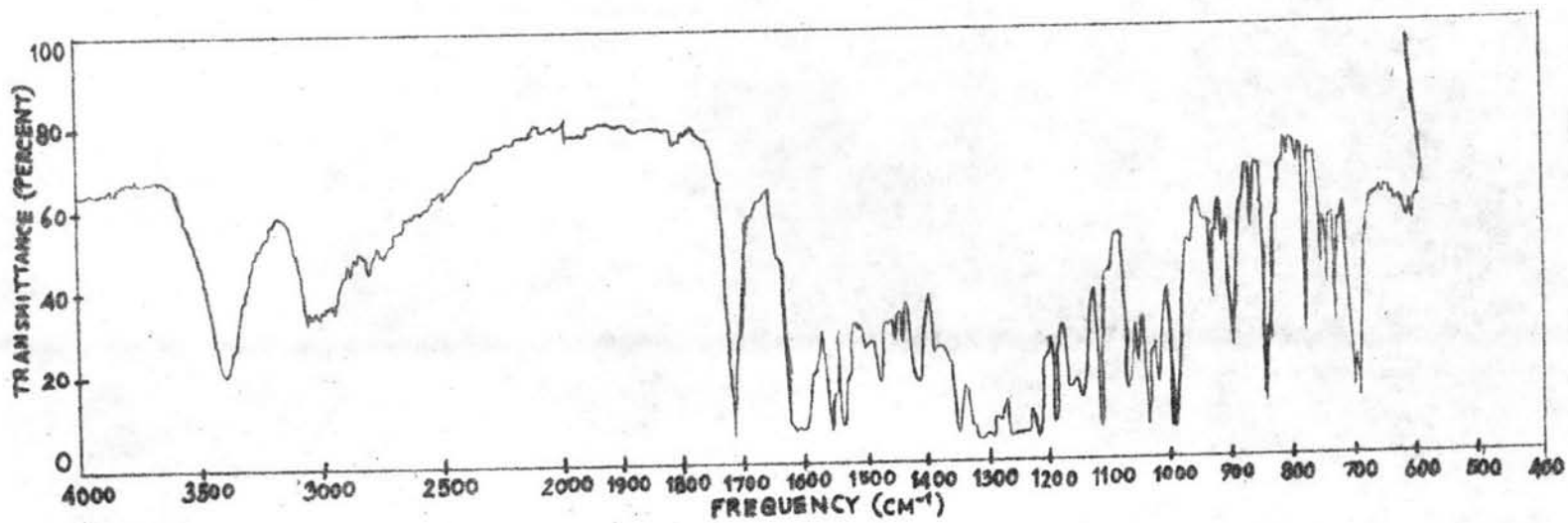


Figure 21

Ultra violet absorption spectrum of dioscorine from Dioscorea hispida Dennst. tubers in methanol

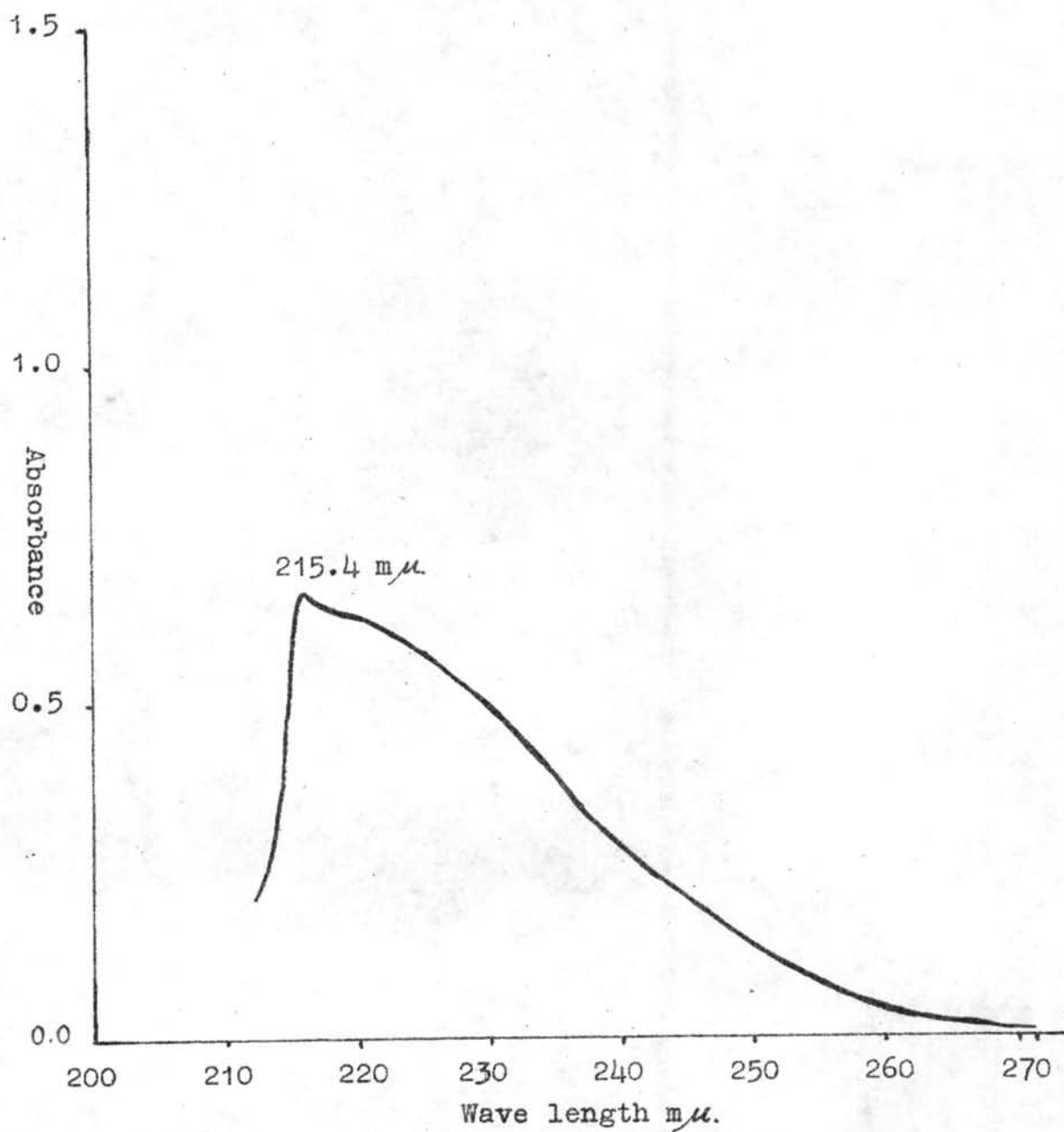


Figure 22

Infra red absorption spectrum (Perkin Elmer) of Ra 8
subsequently identified as Dioscorine hydrochloride

