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APPENDIX

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

silica gel G / 25% methanol in acetone



Figure 9 Thin layer chromatogram of alkaloid As<sub>1</sub>

silica gel G / 30% methanol in chloroform



Figure 10 Thin layer chromatogram of alkaloid As<sub>1</sub>

silica gel G / 30% methanol in benzene

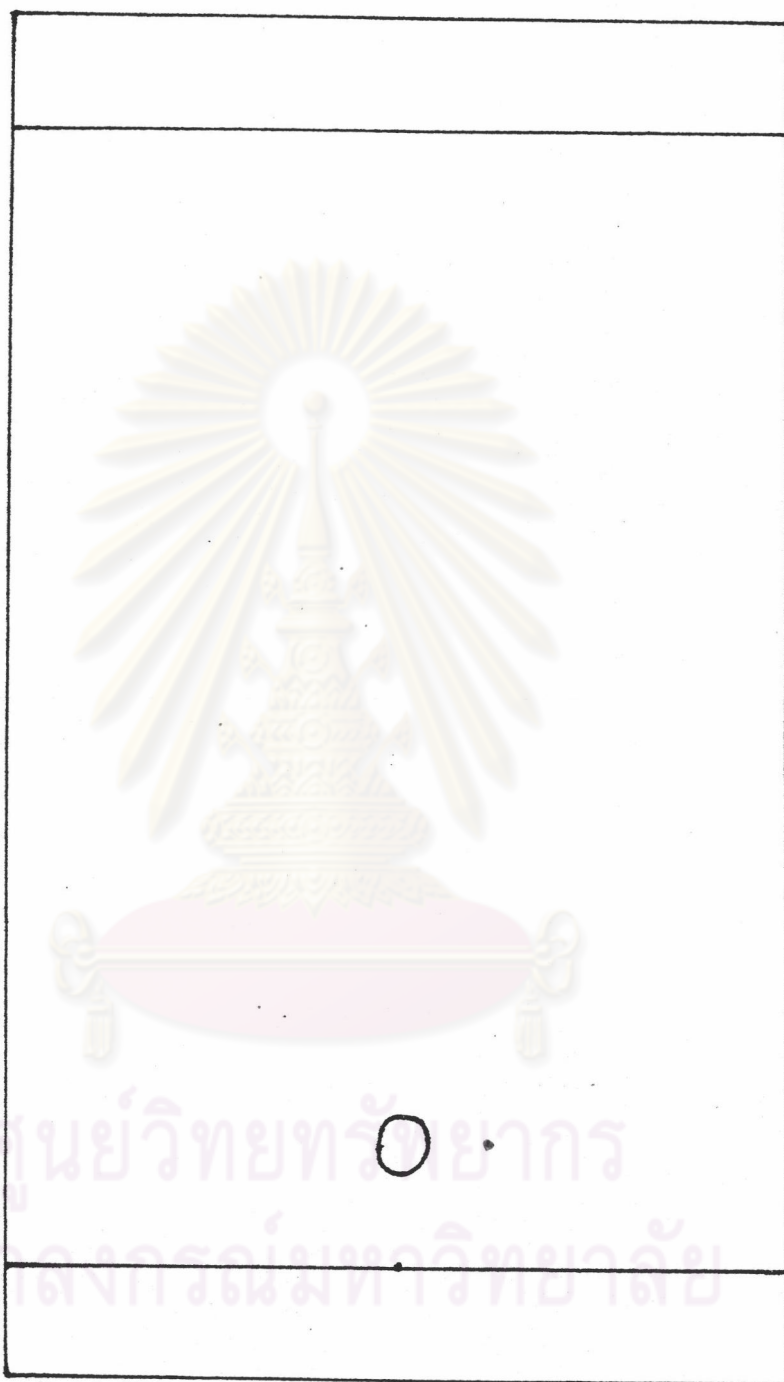


Figure 11 Thin layer chromatogram of alkaloid As<sub>1</sub>

silica gel G / 25% methanol in ethyl acetate



Figure 12 Thin layer chromatogram of alkaloid  $As_1$



silica gel G / 50% methanol in dichlorometane

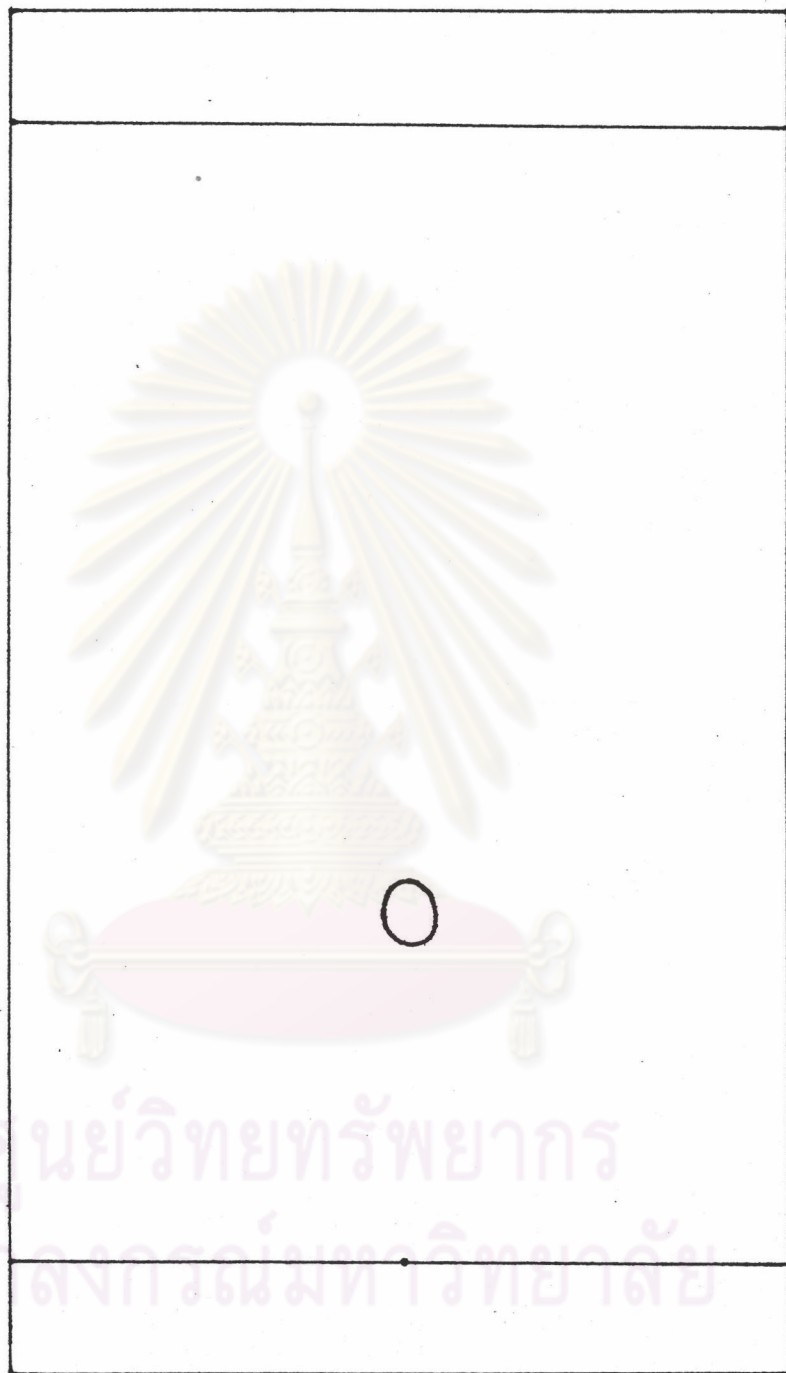


Figure 13 Thin layer chromatogram of alkaloid As<sub>1</sub>

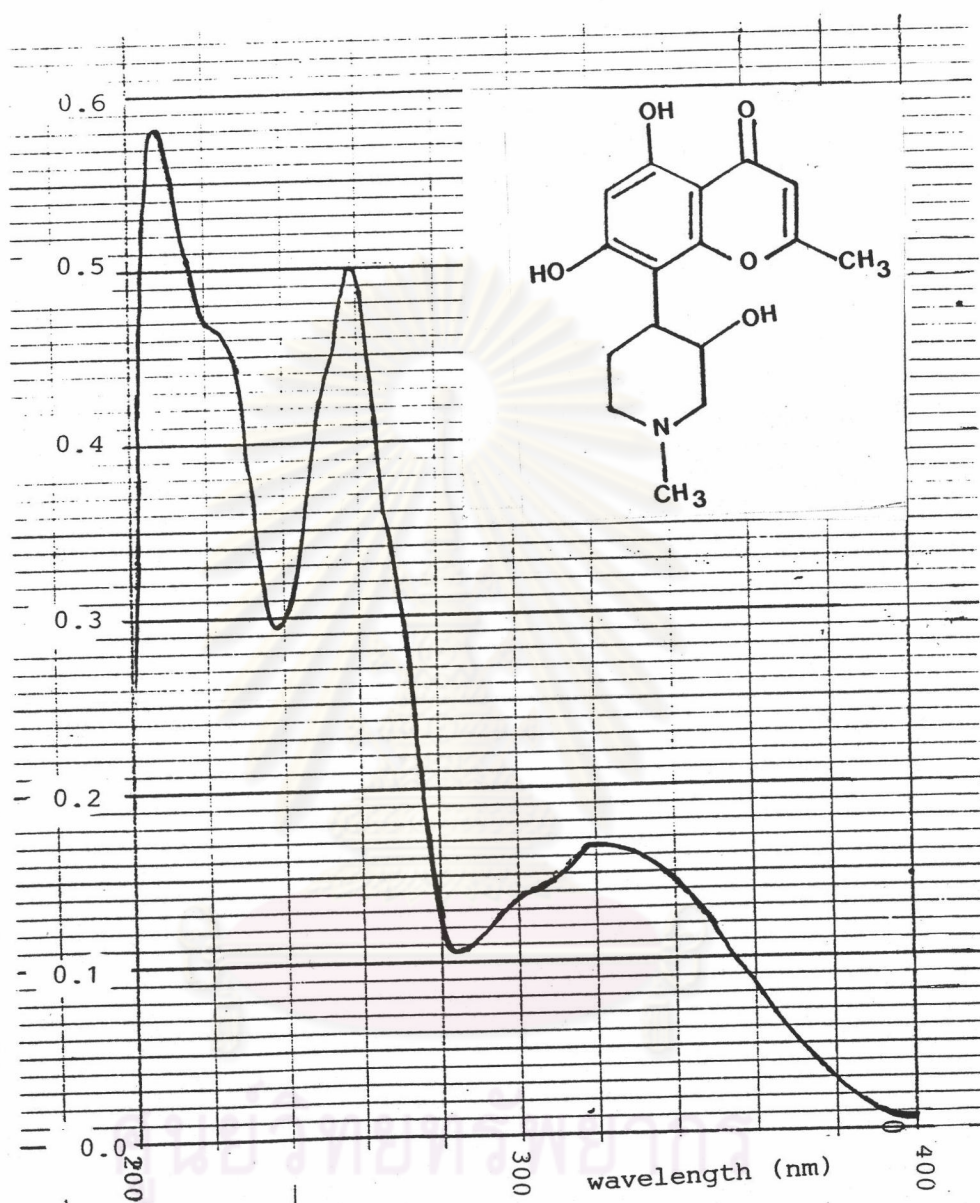


Figure 14 Ultraviolet absorption spectrum of alkaloid As<sub>1</sub>.

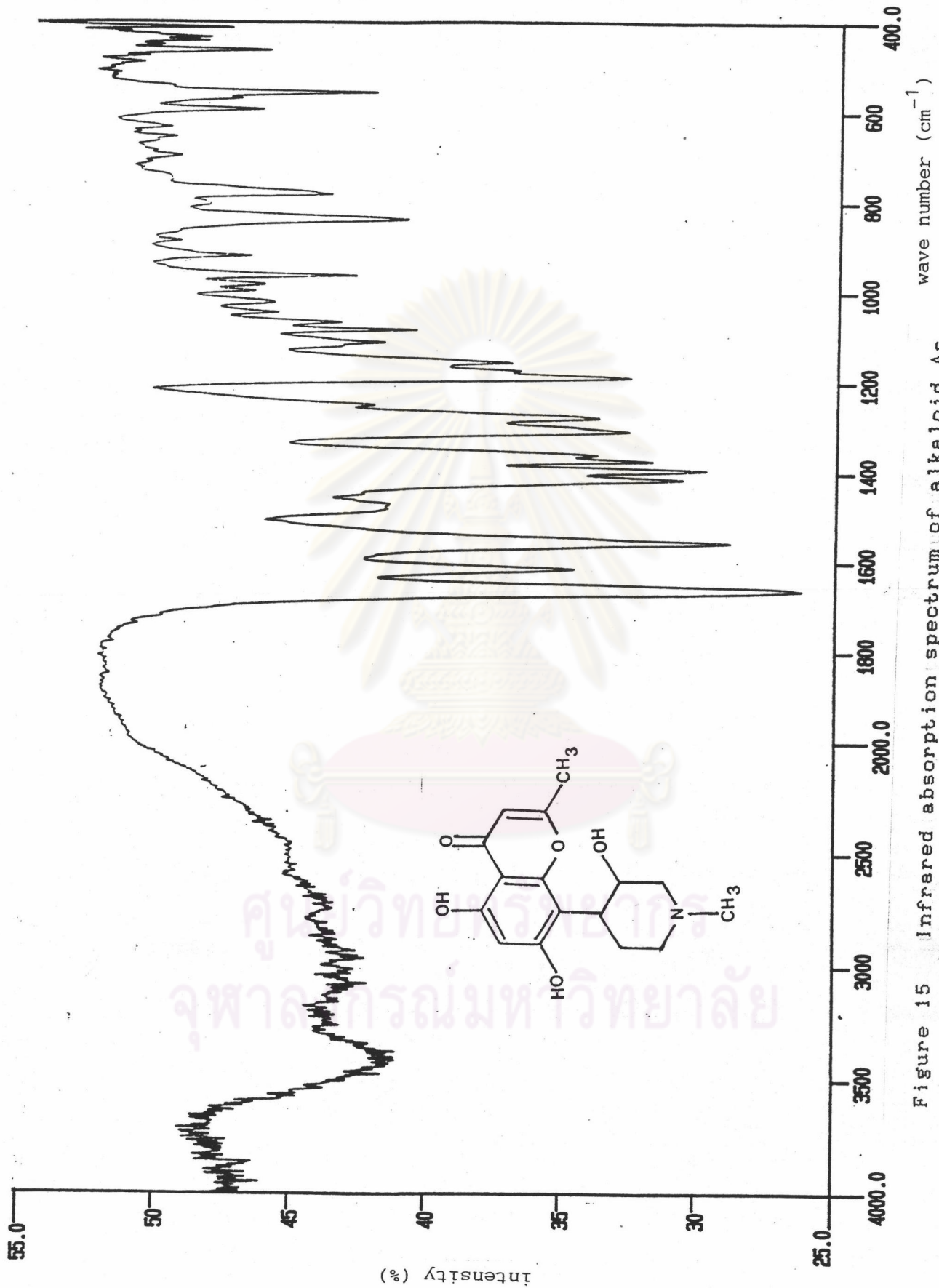
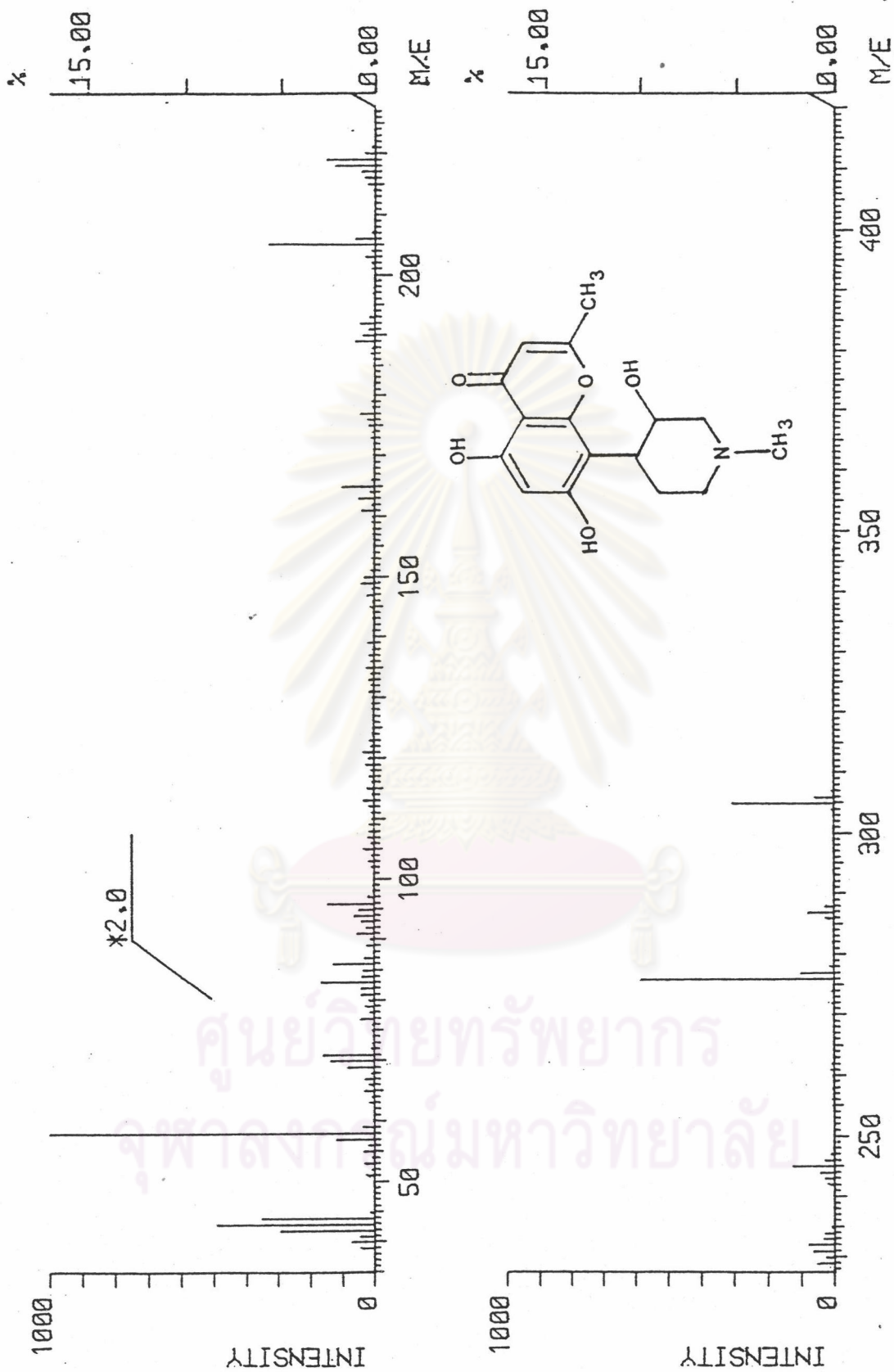


Figure 15 Infrared absorption spectrum of alkaloid As<sub>1</sub>

Figure 16 Mass spectrum of alkaloid As<sub>1</sub>

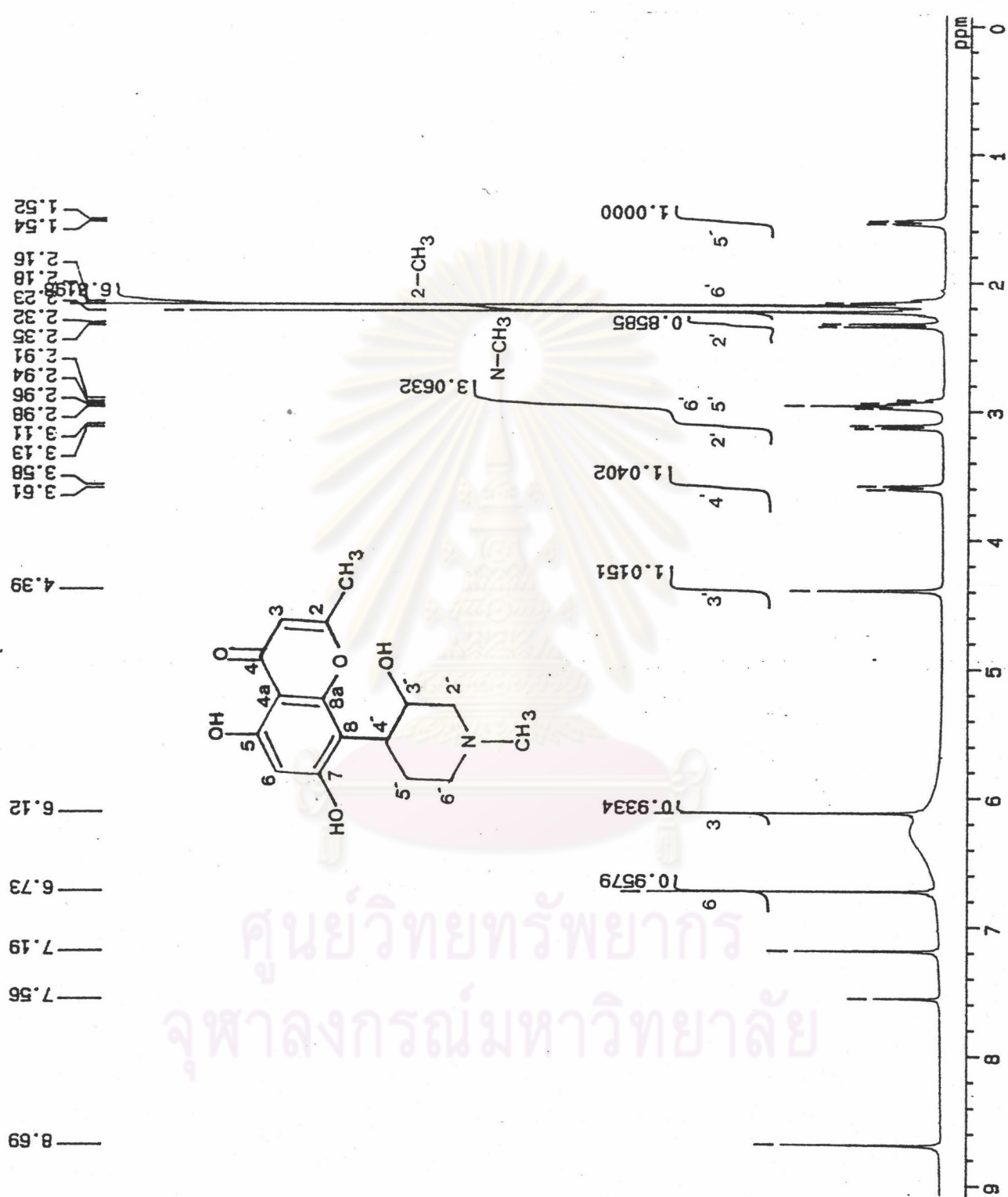


Figure 17 <sup>1</sup>H Nuclear magnetic resonance spectrum (500 MHz) of Alkaloid A<sub>5</sub> in C<sub>5</sub>D<sub>5</sub>N.

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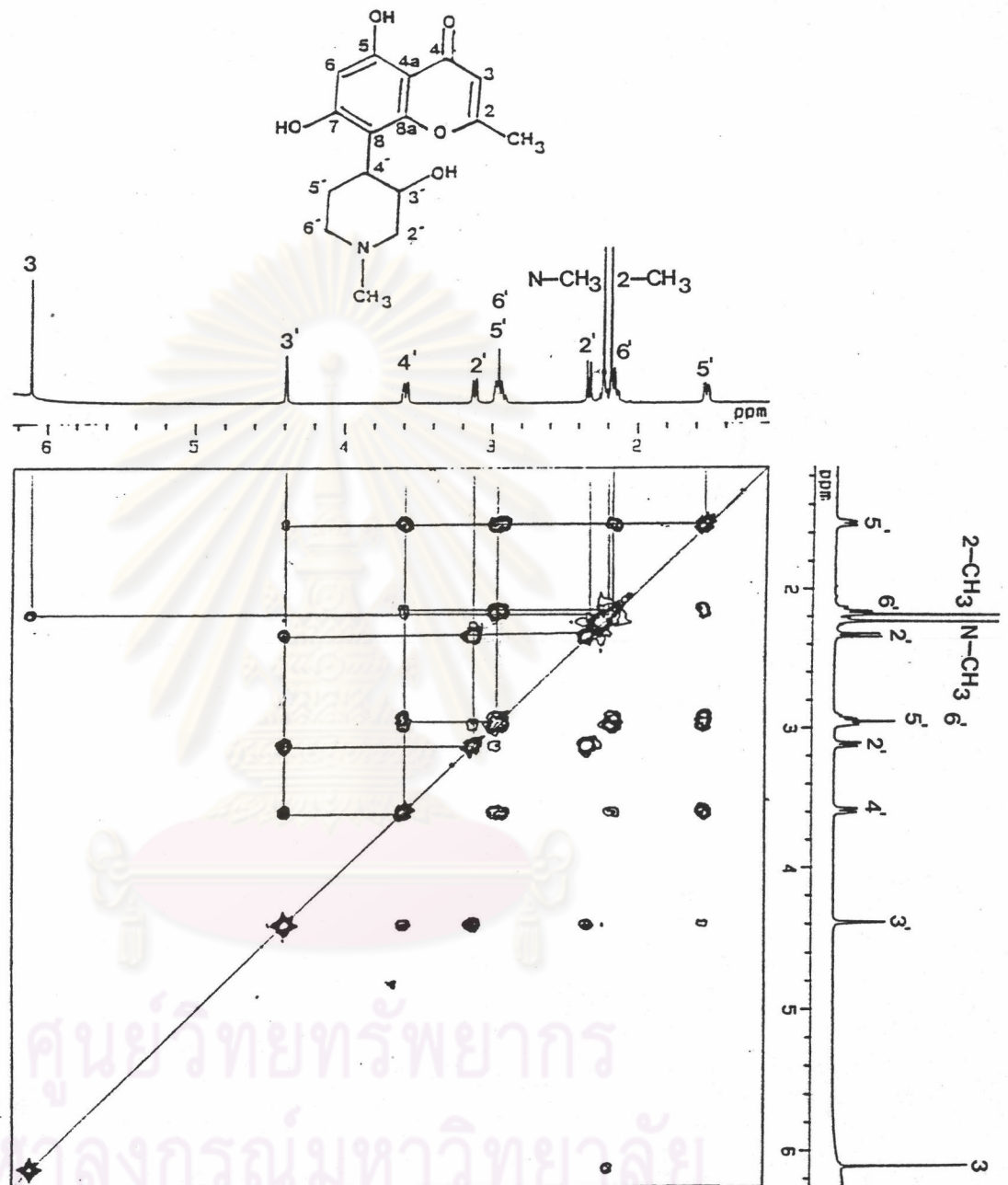


Figure 18 2-D Homonuclear ( $^1H$ - $^1H$  COSY) nuclear magnetic resonance spectrum (500 MHz) of alkaloid  $As_1$  in  $C_5D_5N$ .

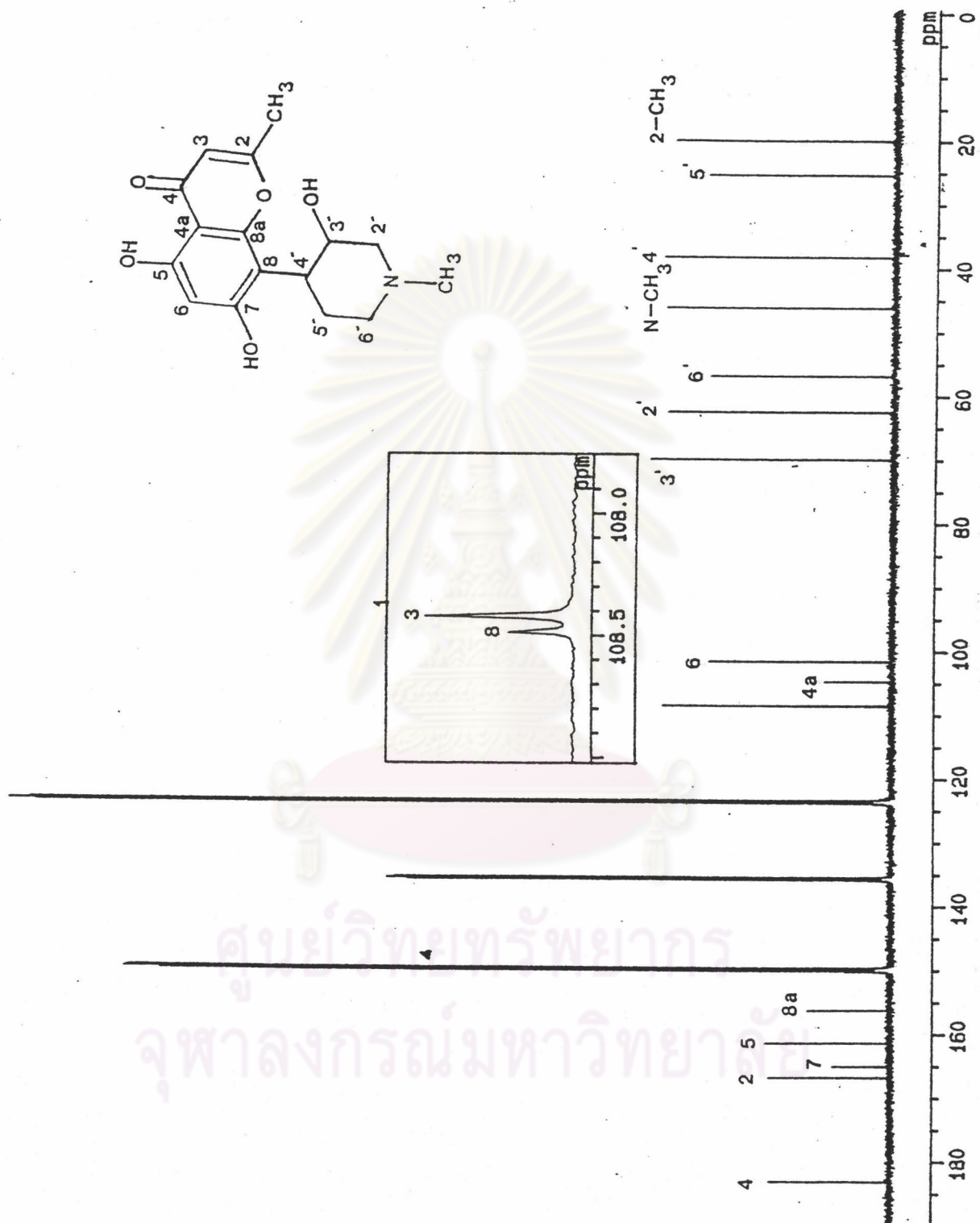


Figure 19 <sup>13</sup>C Nuclear magnetic resonance spectrum (125 MHz) of alkaloid As<sub>1</sub> in CD<sub>5</sub>N

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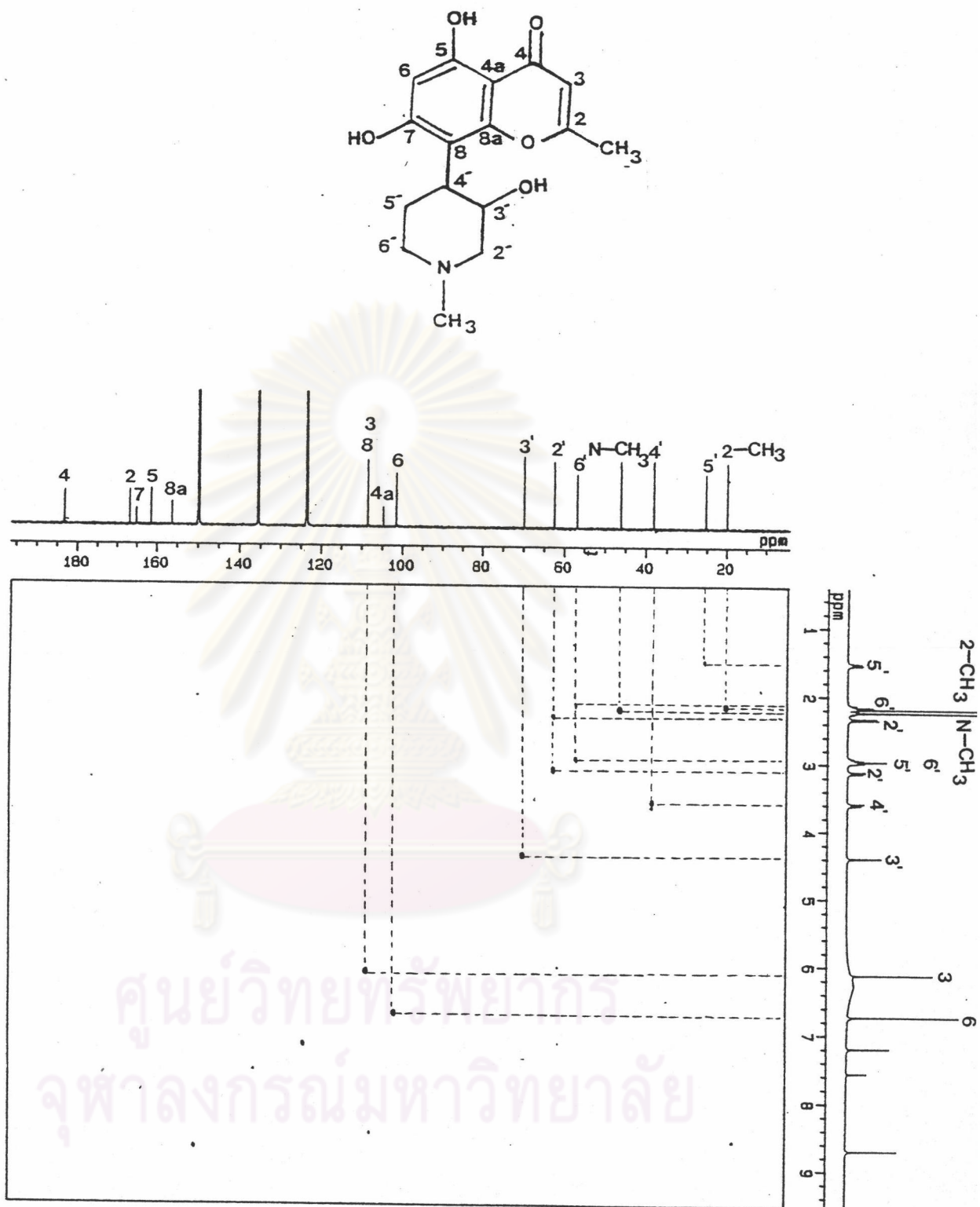


Figure 20 2-D Heteronuclear ( $^1H$ - $^{13}C$  HETCOR) nuclear magnetic resonance spectrum of alkaloid  $As_1$  in  $C_5D_5N$ .



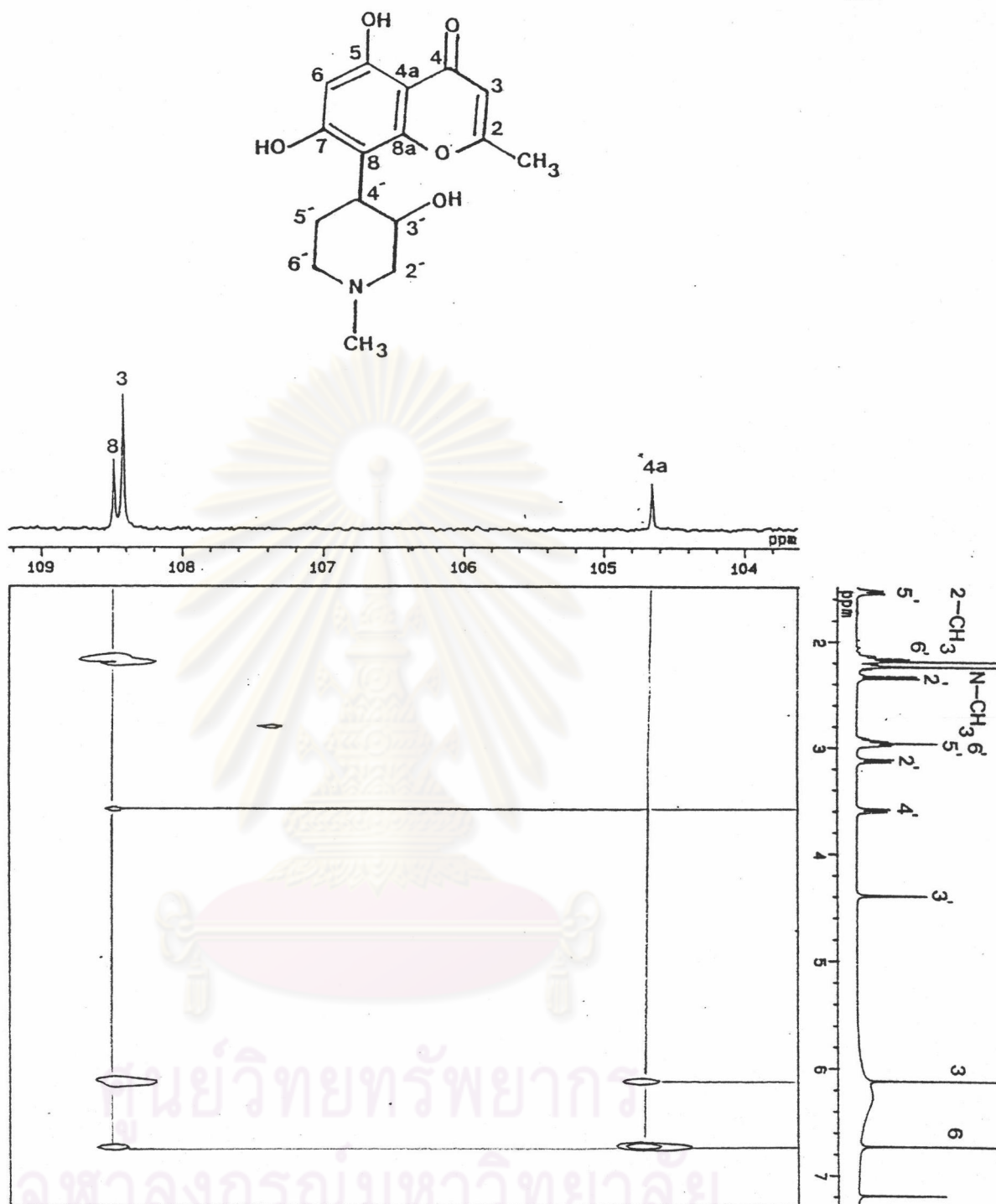


Figure 21 2-D Heteronuclear ( $^1\text{H}$ - $^{13}\text{C}$  COLOC) nuclear magnetic resonance spectrum of alkaloid  $As_1$  in  $\text{C}_5\text{D}_5\text{N}$  ( $\delta$  104-109 ppm)

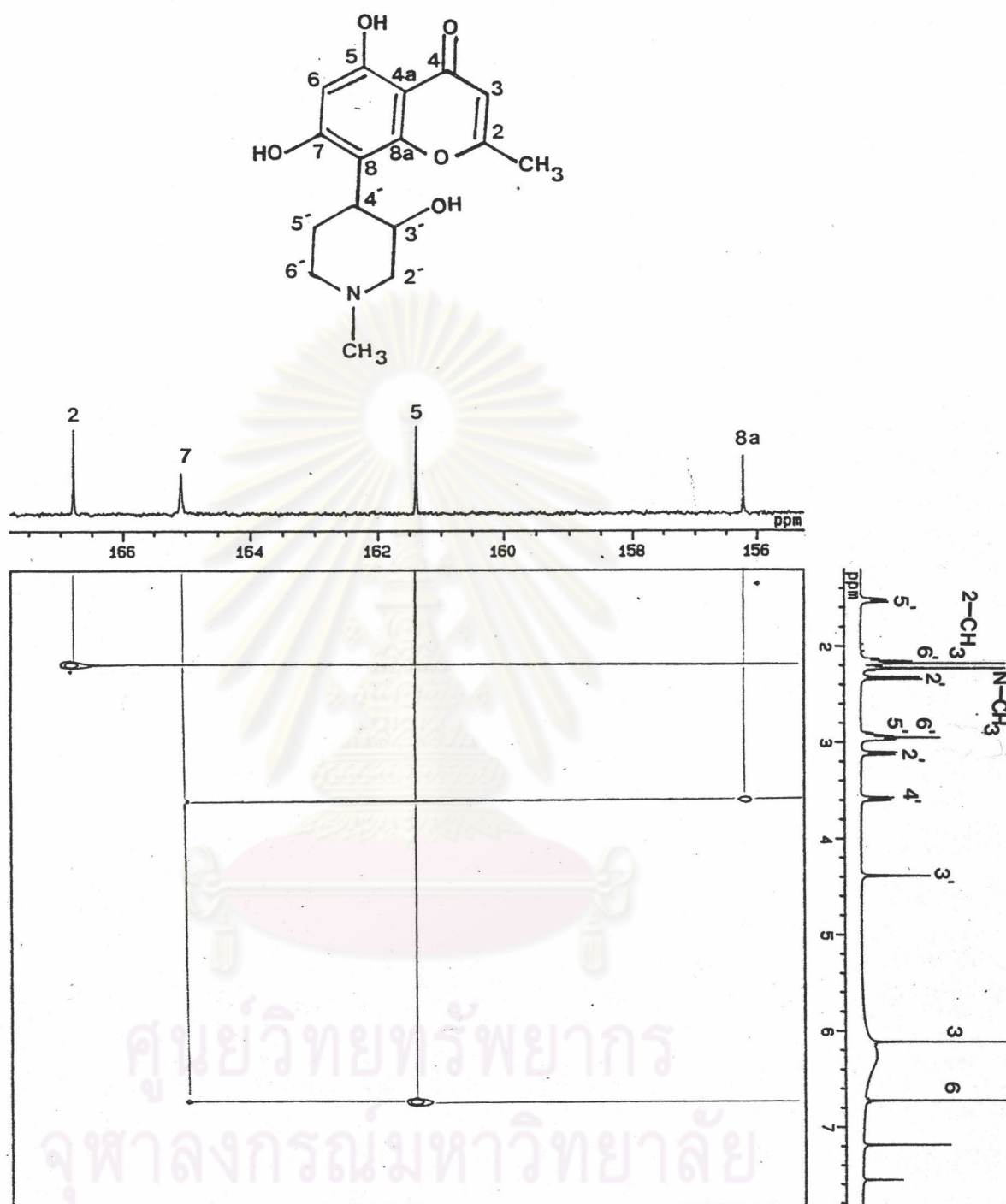


Figure 22 2-D Heteronuclear ( $^1H$ - $^{13}C$  COLOC) nuclear magnetic resonance spectrum of alkaloid  $As_1$  in  $C_5D_5N$  ( $\delta$  156-167 ppm)

silica gel G / 20% acetone in chloroform

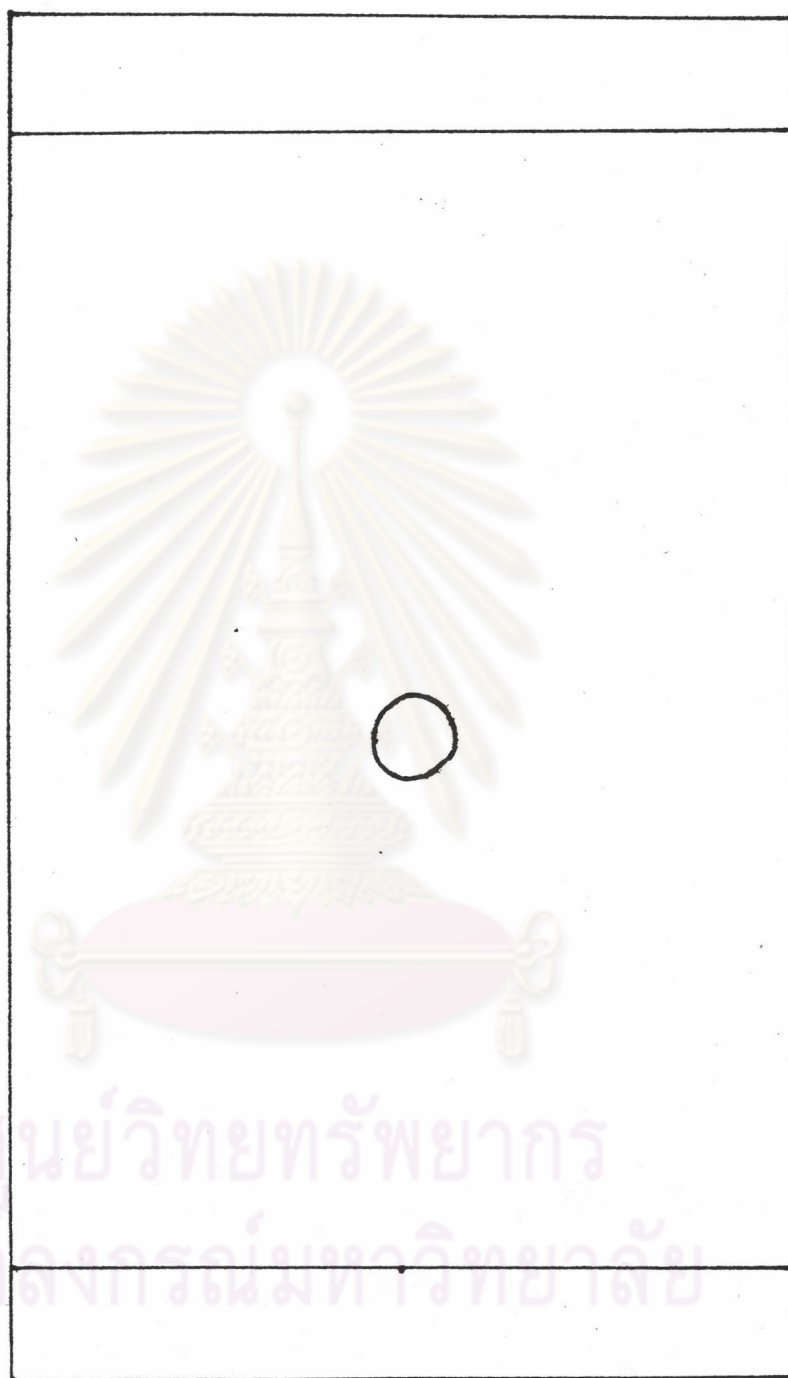


Figure 23 Thin layer chromatogram of compound X

silica gel G / 10 % methanol in dichlorometane



Figure 24 Thin layer chromatogram of compound X

silica gel G / Chloroform



Figure 25 Thin layer chromatogram of compound X

silica gel G / 2% methanol in Chloroform



Figure 26 Thin layer chromatogram of compound X

silica gel G / 2% methanol in benzene

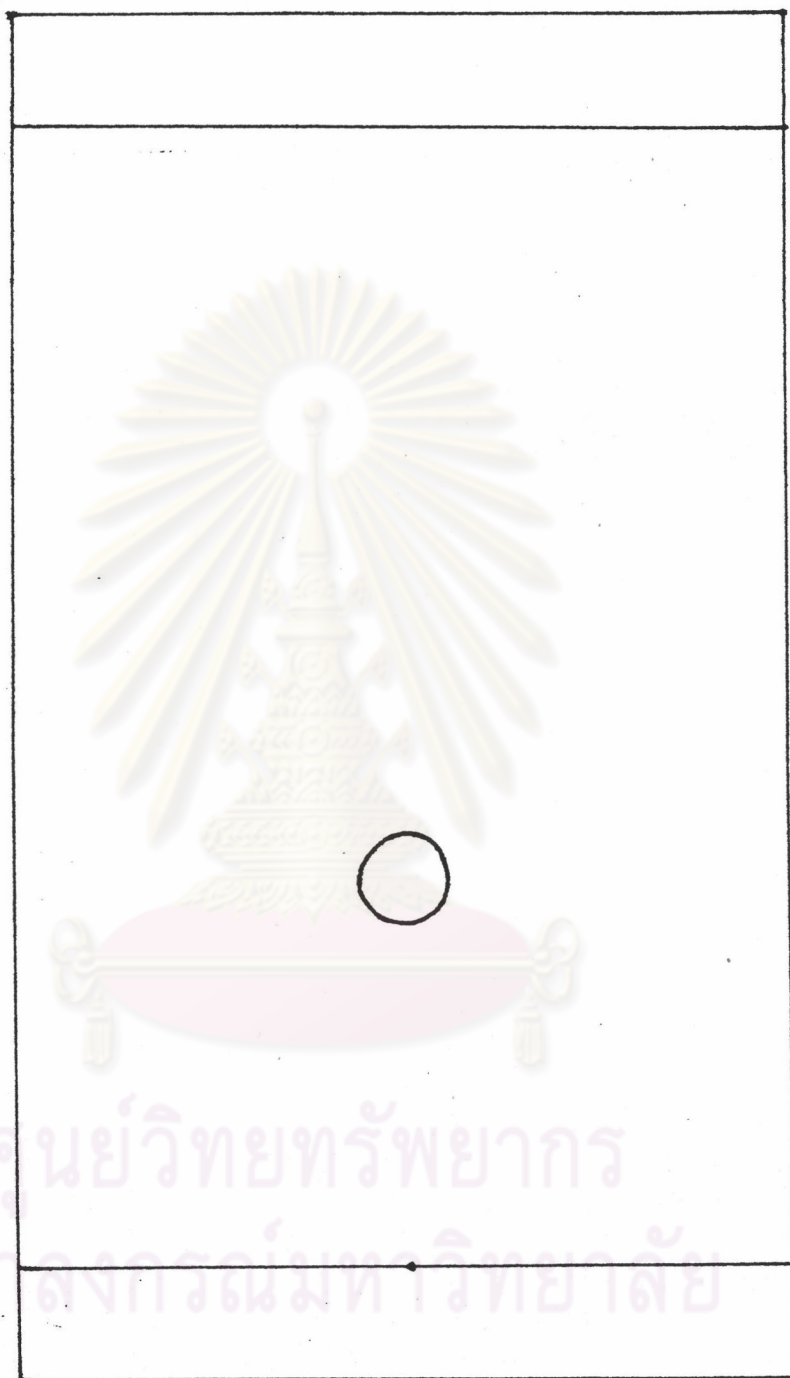


Figure 27 Thin layer chromatogram of compound X

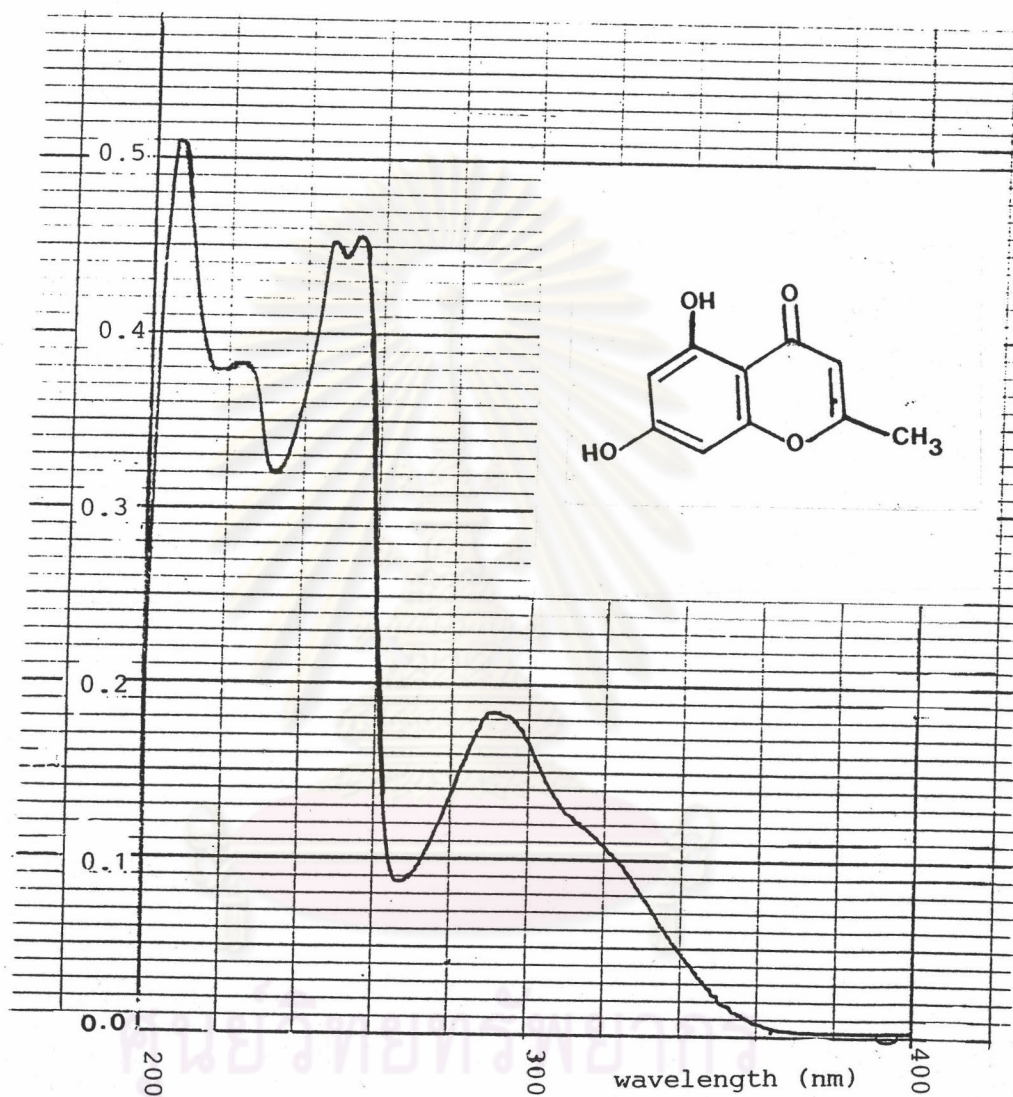


Figure 28 Ultraviolet absorption spectrum of compound X.



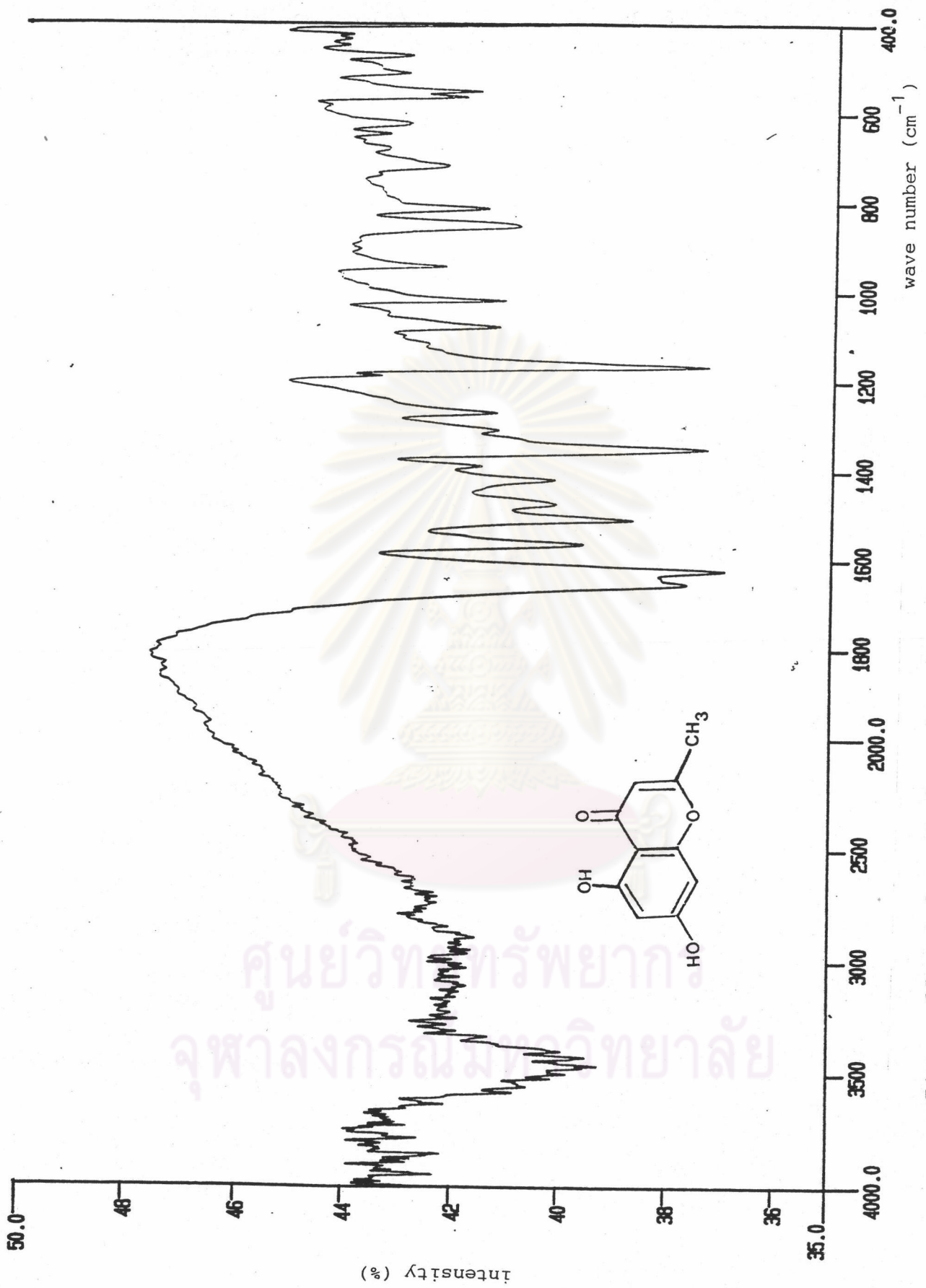


Figure 29 Infrared absorption spectrum of compound X.

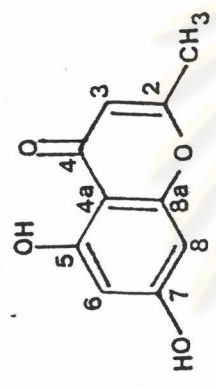
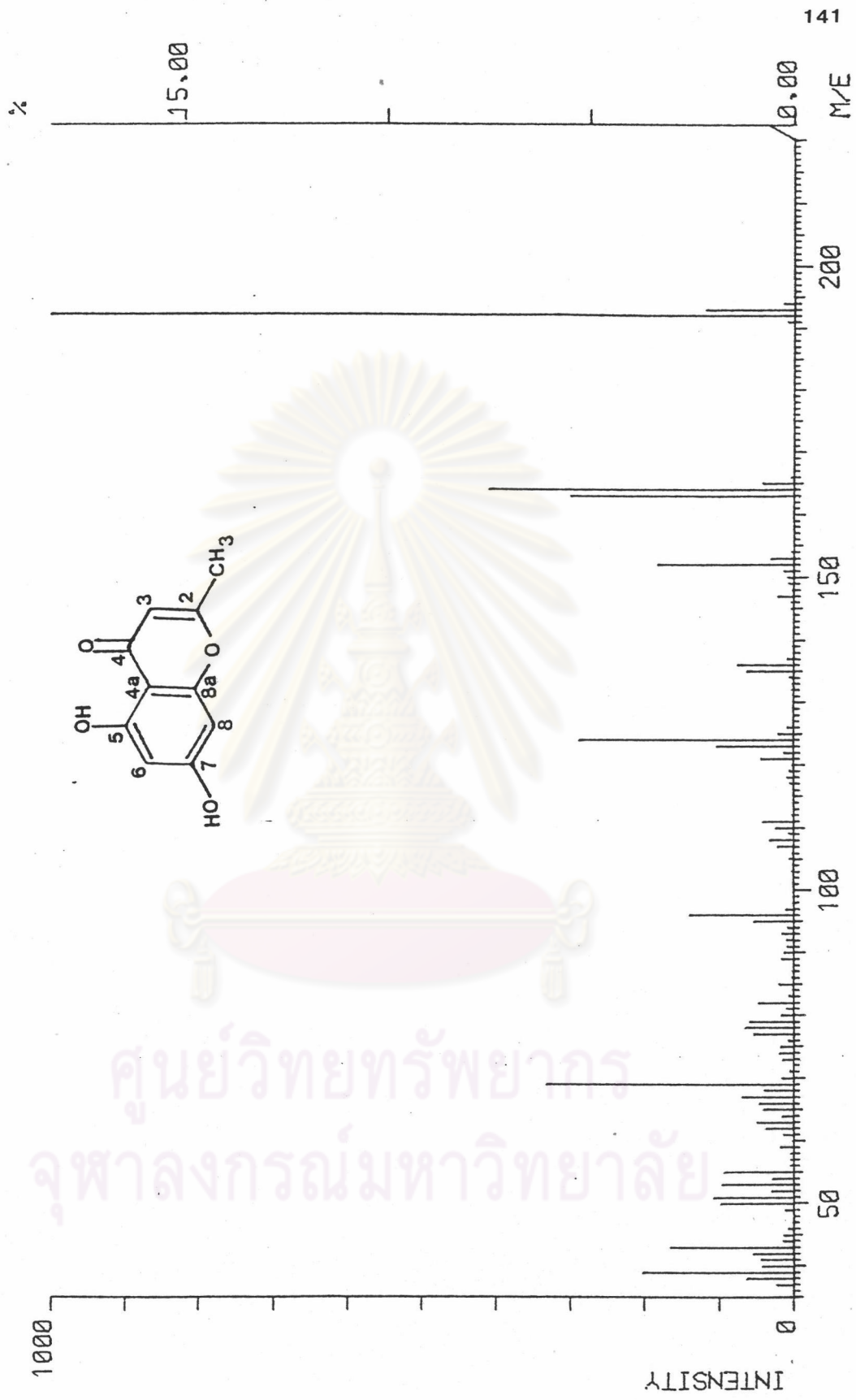


Figure 30 Mass spectrum of compound X

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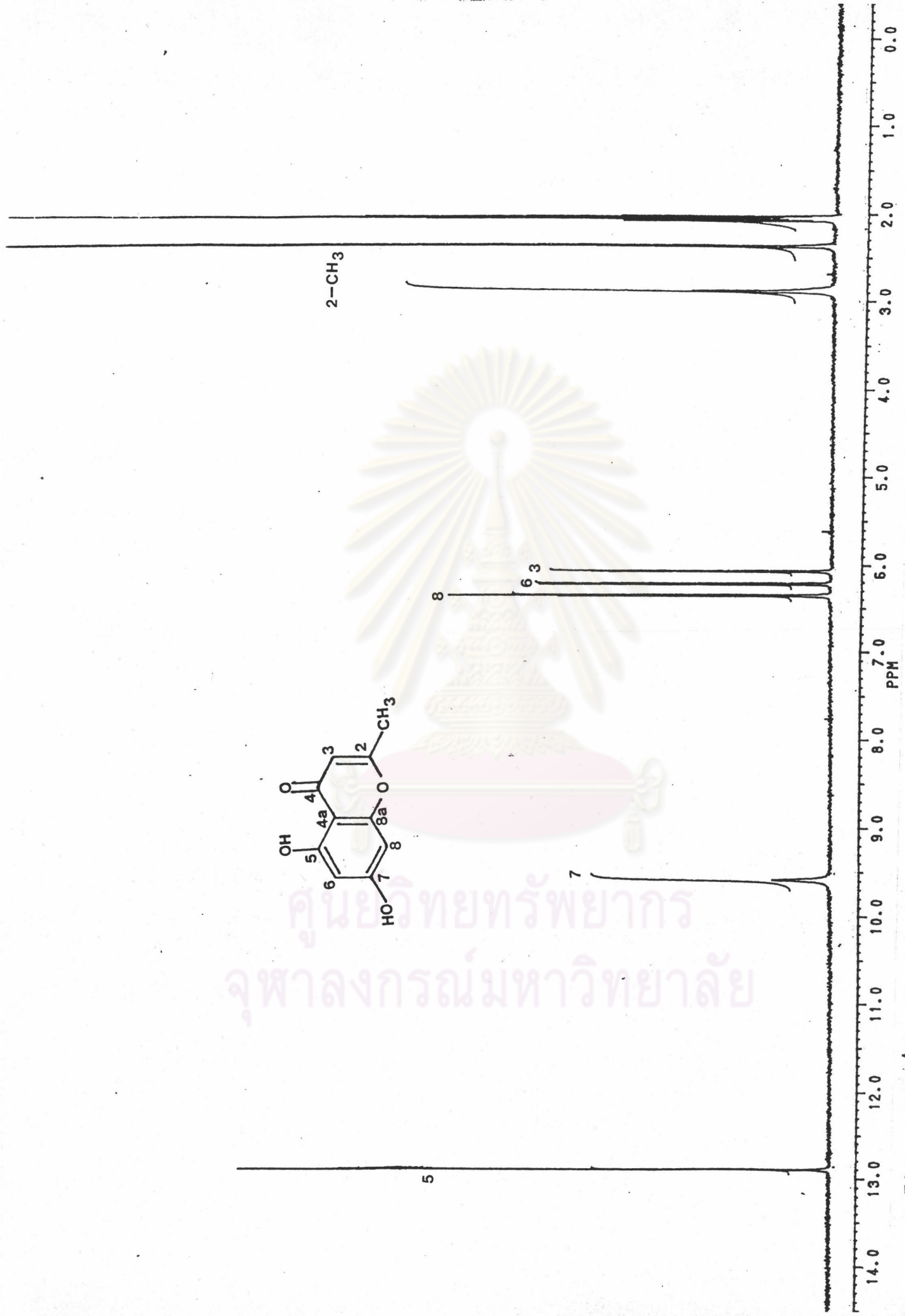
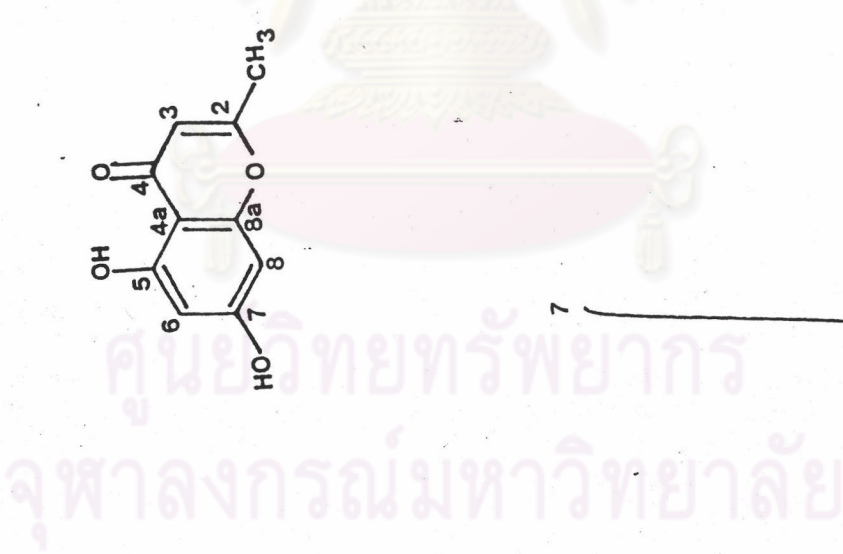


Figure 31 <sup>1</sup>H Nuclear magnetic resonance spectrum (200 MHz) of compound X in Acetone-d<sub>6</sub>

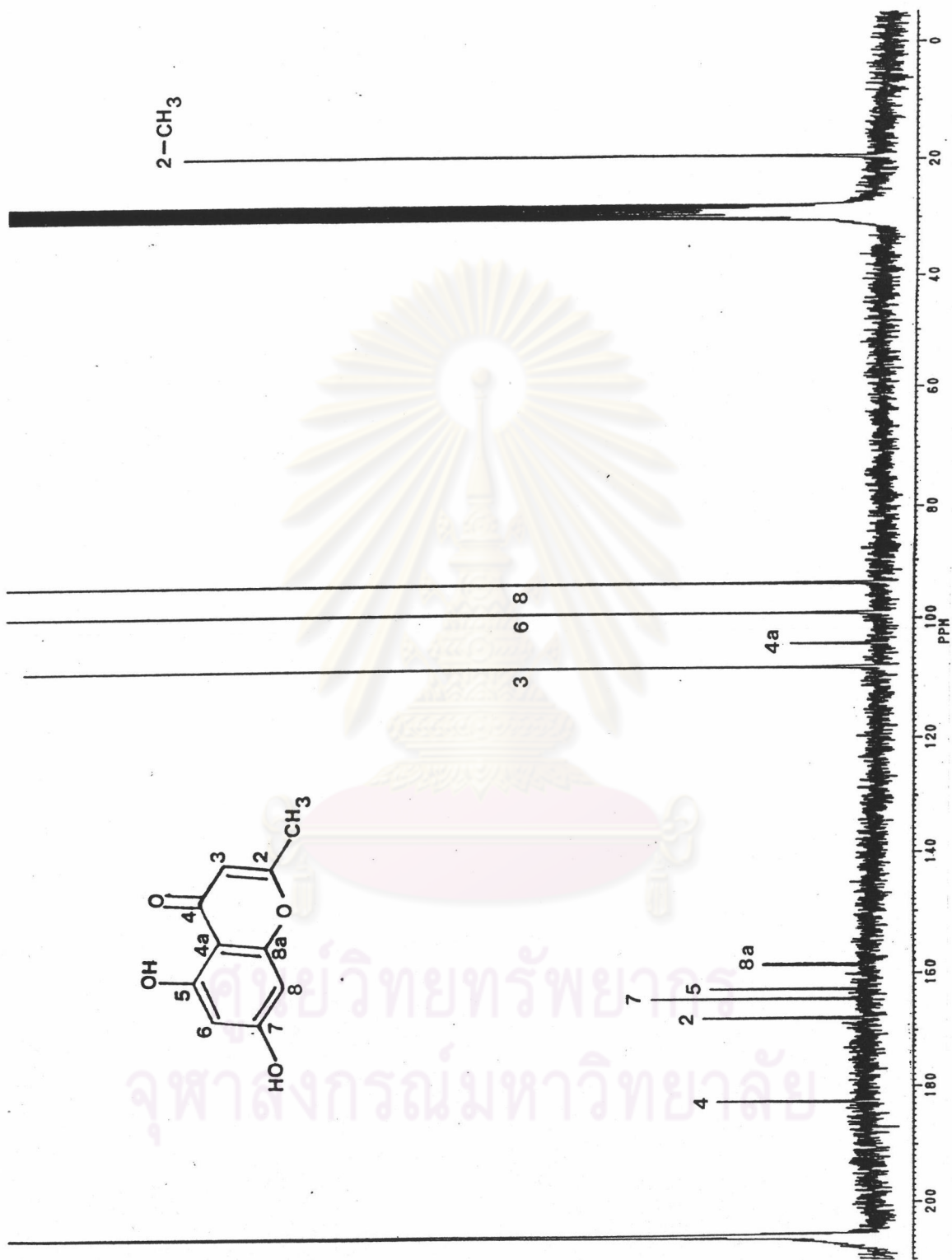


Figure 32  $^{13}\text{C}$  Nuclear magnetic resonance spectrum (50 MHz) of compound X in  $\text{Acetone-d}_6$

## VITA

Miss Ampawen Srivilai was born on October 22<sup>th</sup>, 1964 in Kamphaeng Phet, Thailand. She obtained a B.Sc. in Pharm. from the Faculty of Pharmacy, Chiang Mai University in 1987. Since graduation, she has been a pharmacist in Khenuweraluxaburi hospital, Kamphaeng Phet, Thailand.



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