

CHAPTER V

CONCLUSION

Melodorum fruticosum Lour. (family Annonaceae) is one of medicinal plants used in Thai traditional medicine. Chemical constituents of the bark, leaves, and branches of this plant have previously been studied. In the present investigation, six compounds were isolated from the flowers of *M. fruticosum*. Four of these are compounds in the heptene group of which three are novel and one is a known compound. The other two compounds, chrysin (MF-3) and 5,7-dimethoxyflavone (MF-4), are members of the flavone group. The three novel heptenes were assigned the structures (4*Z*)-7-benzoyloxy-2,4-heptadiene-6-one-4-olide (MF-1), (4*E*)-7-benzoyloxy-2,4-heptadiene-6-one-4-olide (MF-2), (*E*)-7-benzoyloxy-4-hydroxy-1-methoxy-2,4-heptadiene-1,6-dione (MF-5), and were given the trivial names as melodorinone-A, melodorinone-B, and tautomelodienone, respectively. The fourth one is a known heptene, acetylmelodorinol (MF-6). Tautomelodienone was found to exhibit interesting cytotoxic activity against P388 cell line, with an IC₅₀ value of 0.60 µg/ml. The identification and structure elucidation of these compounds were based on the data from various spectroscopic techniques. This study has offered additional information concerning the phytochemical constituents of *Melodorum fruticosum*.

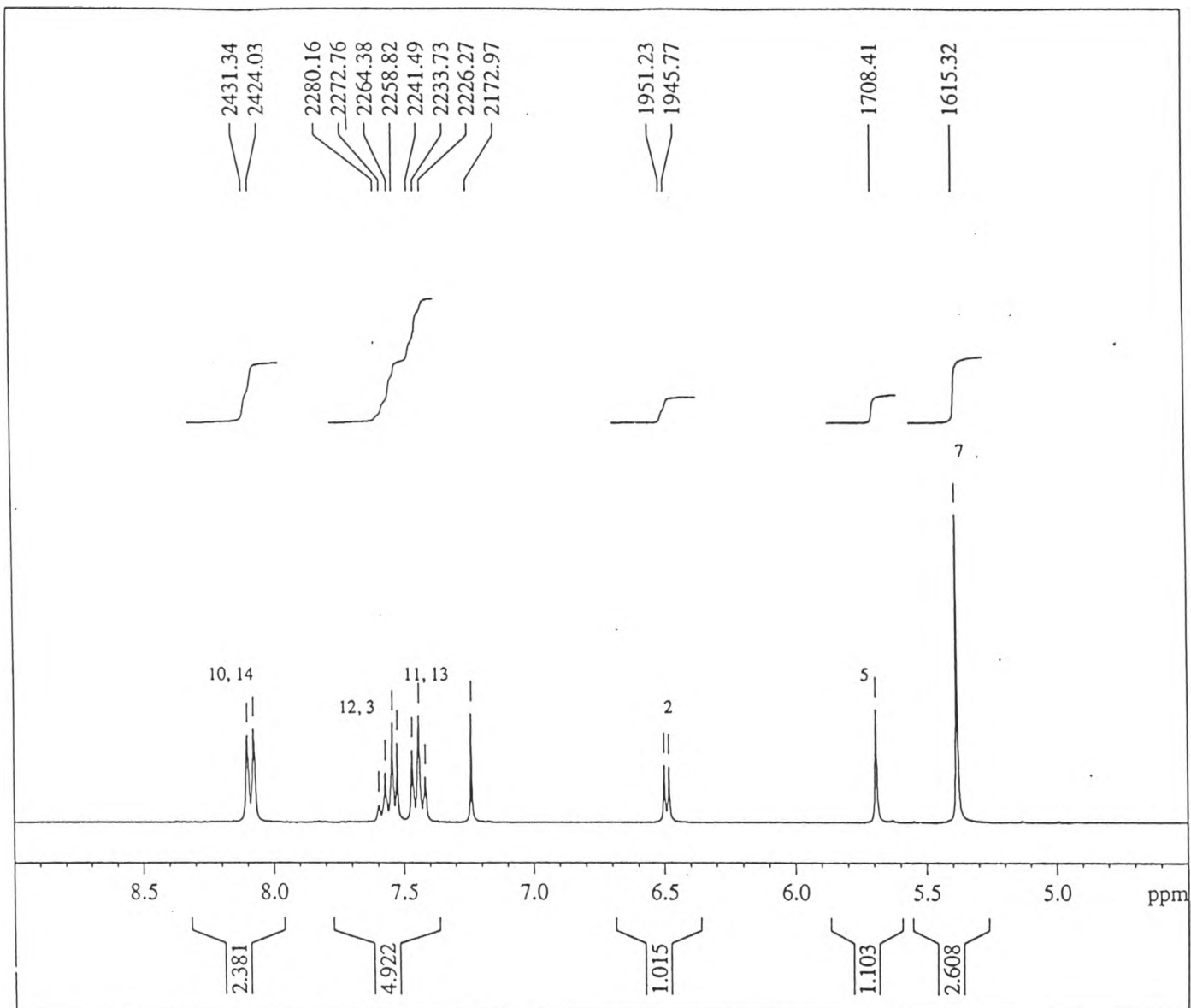


Figure 7: 300 MHz Proton NMR Spectrum of Compound MF-1

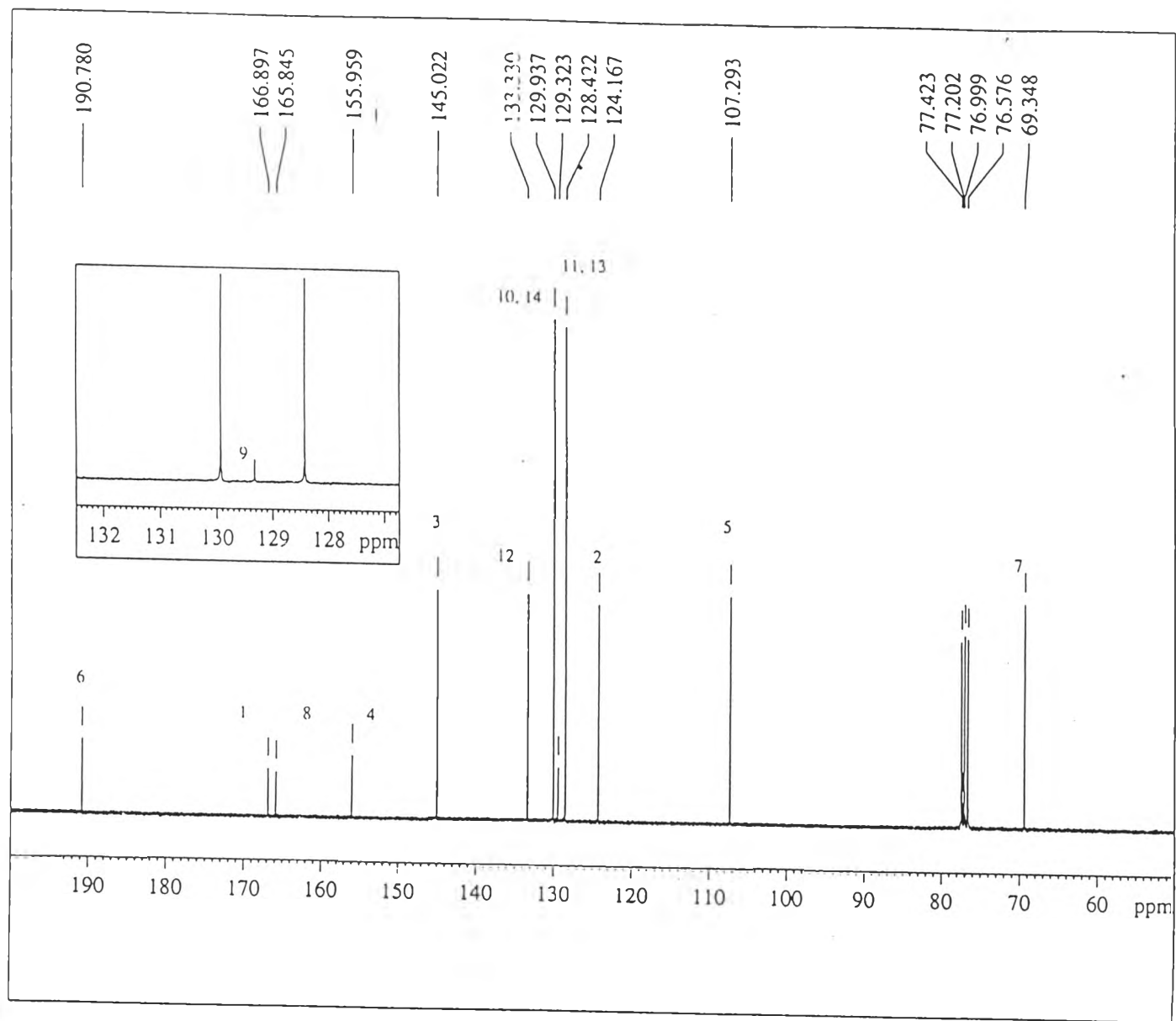


Figure 8: 75 MHz Carbon NMR Spectrum of Compound MF-1

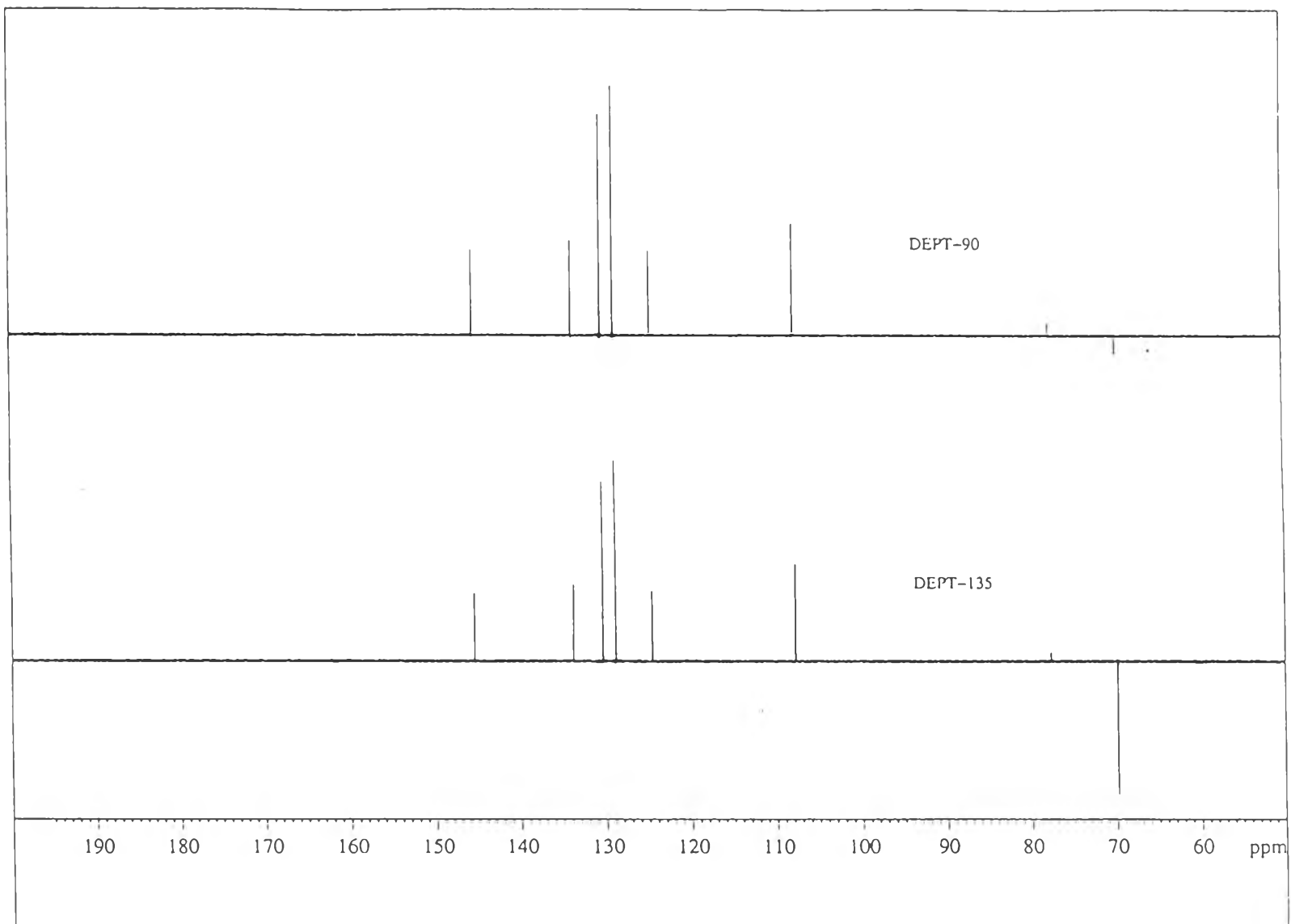


Figure 9: DEPT-90 and DEPT-135 Spectra of Compound MF-1

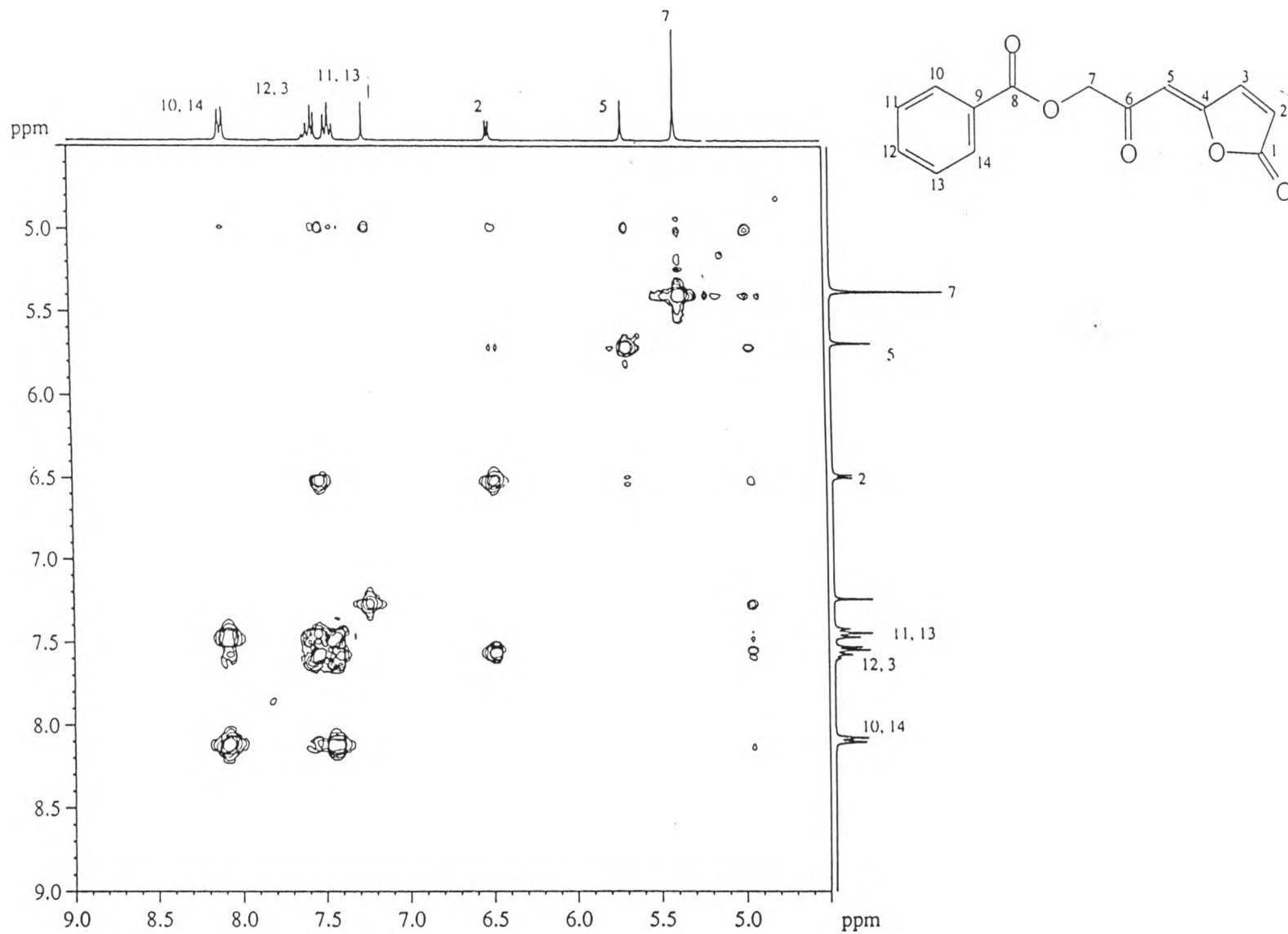


Figure 10: H-H COSY NMR Spectrum of Compound MF-1



Figure 11: C-H COSY NMR Spectrum of Compound MF-1

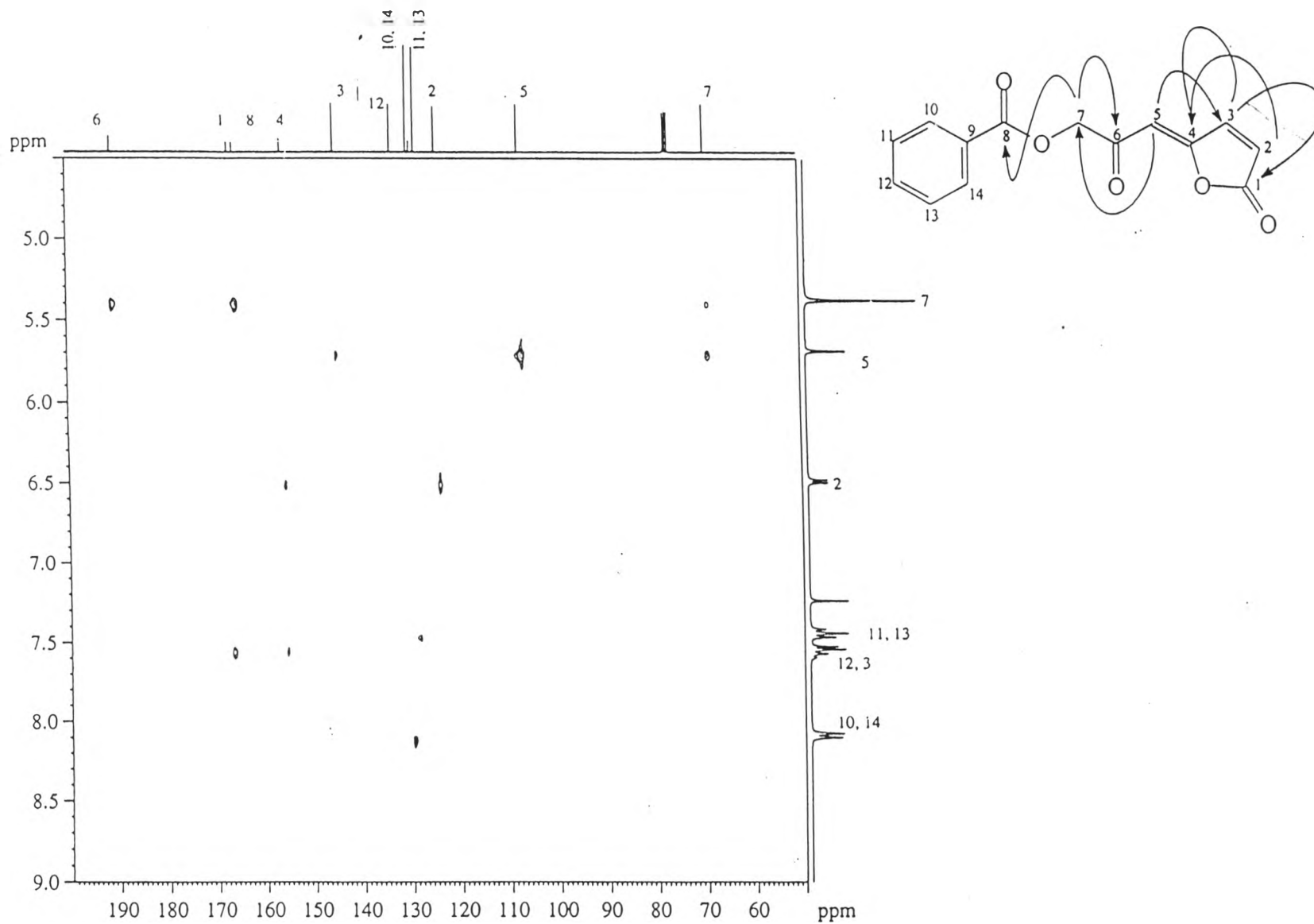


Figure 12: COLOC NMR Spectrum of Compound MF-1

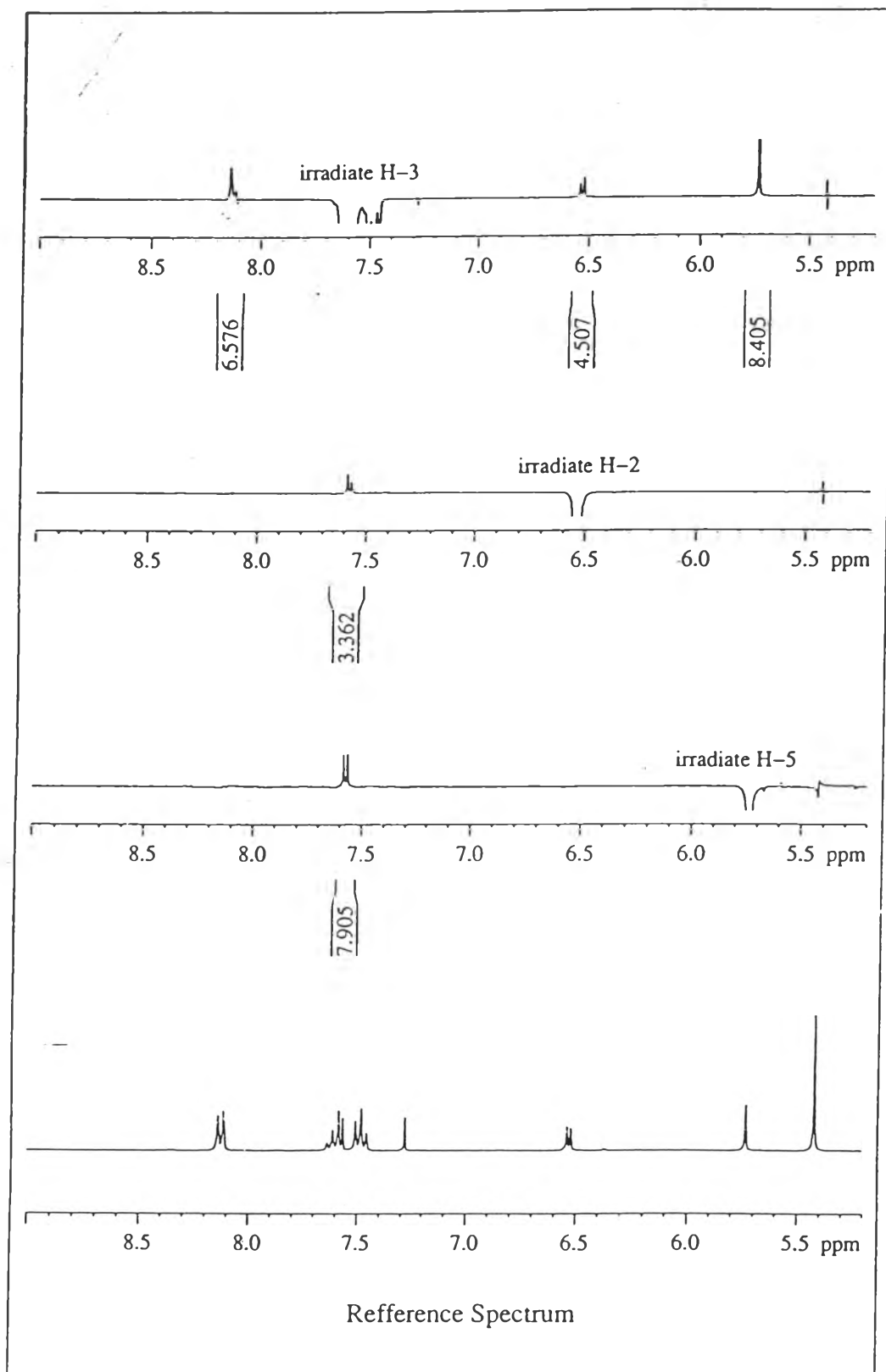


Figure 13: NOE Difference Spectra of Compound MF-1

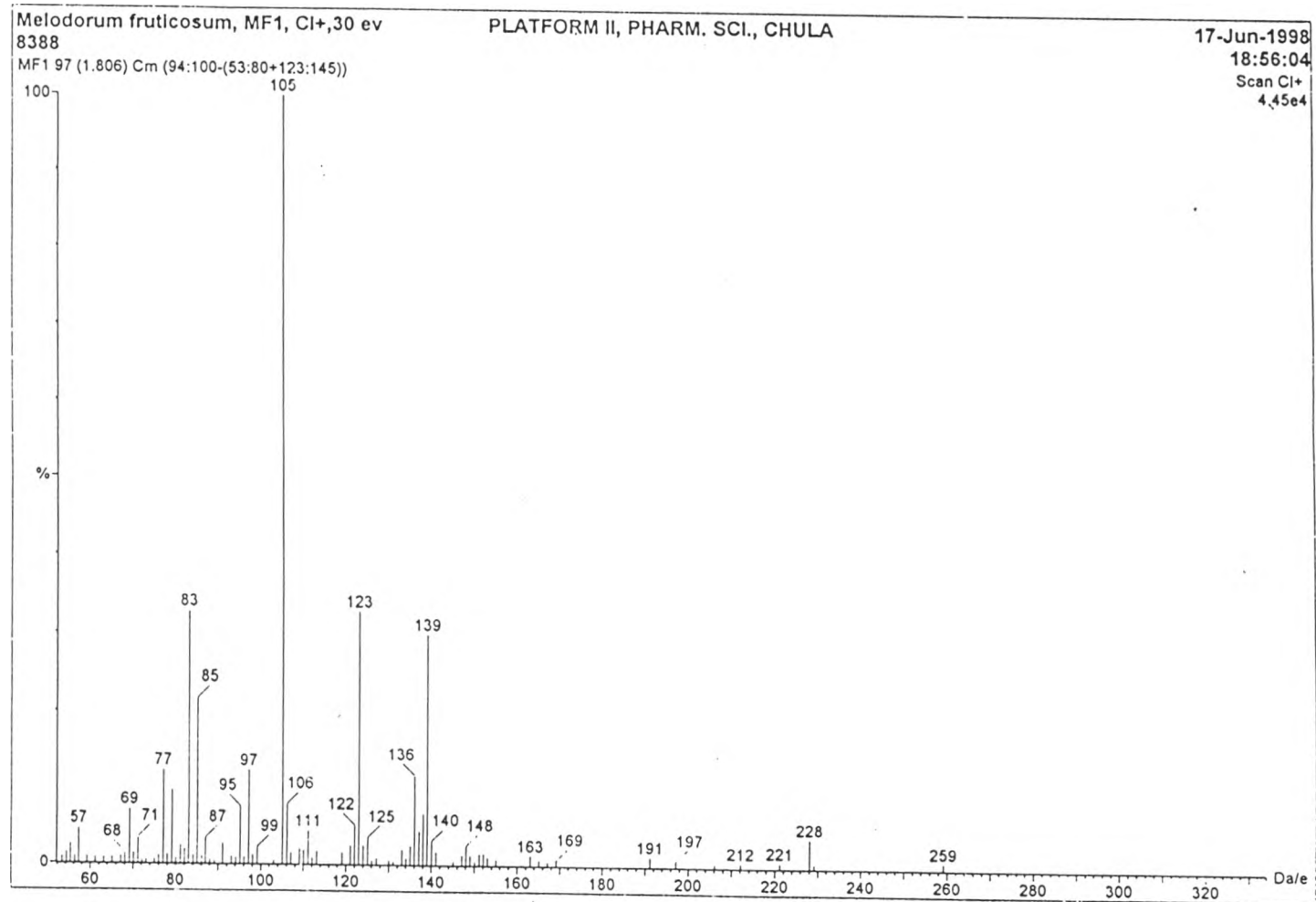


Figure 14: 30 eV CI Mass Spectrum of Compound MF-1

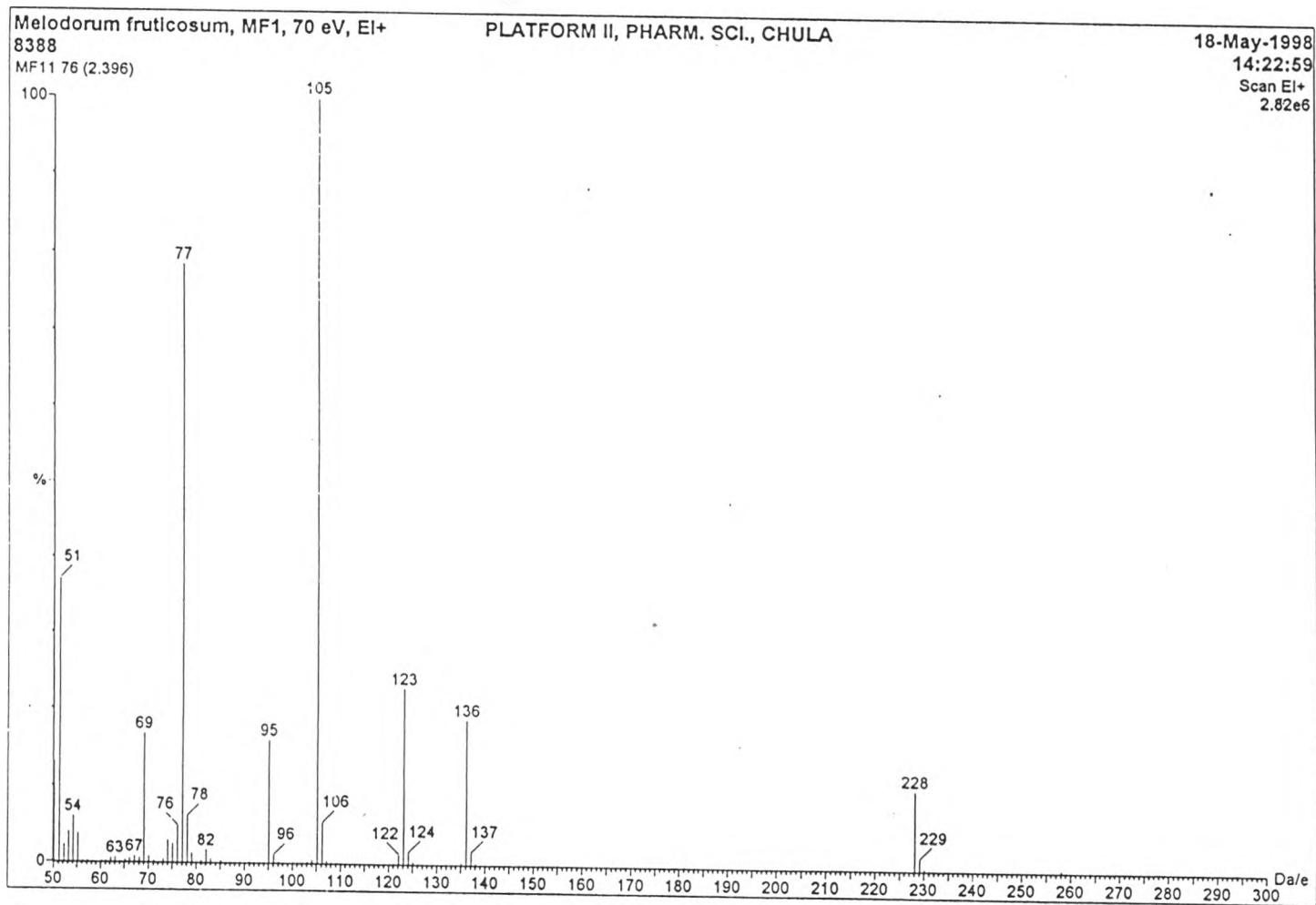


Figure 15: 70 eV EI Mass Spectrum of Compound MF-1

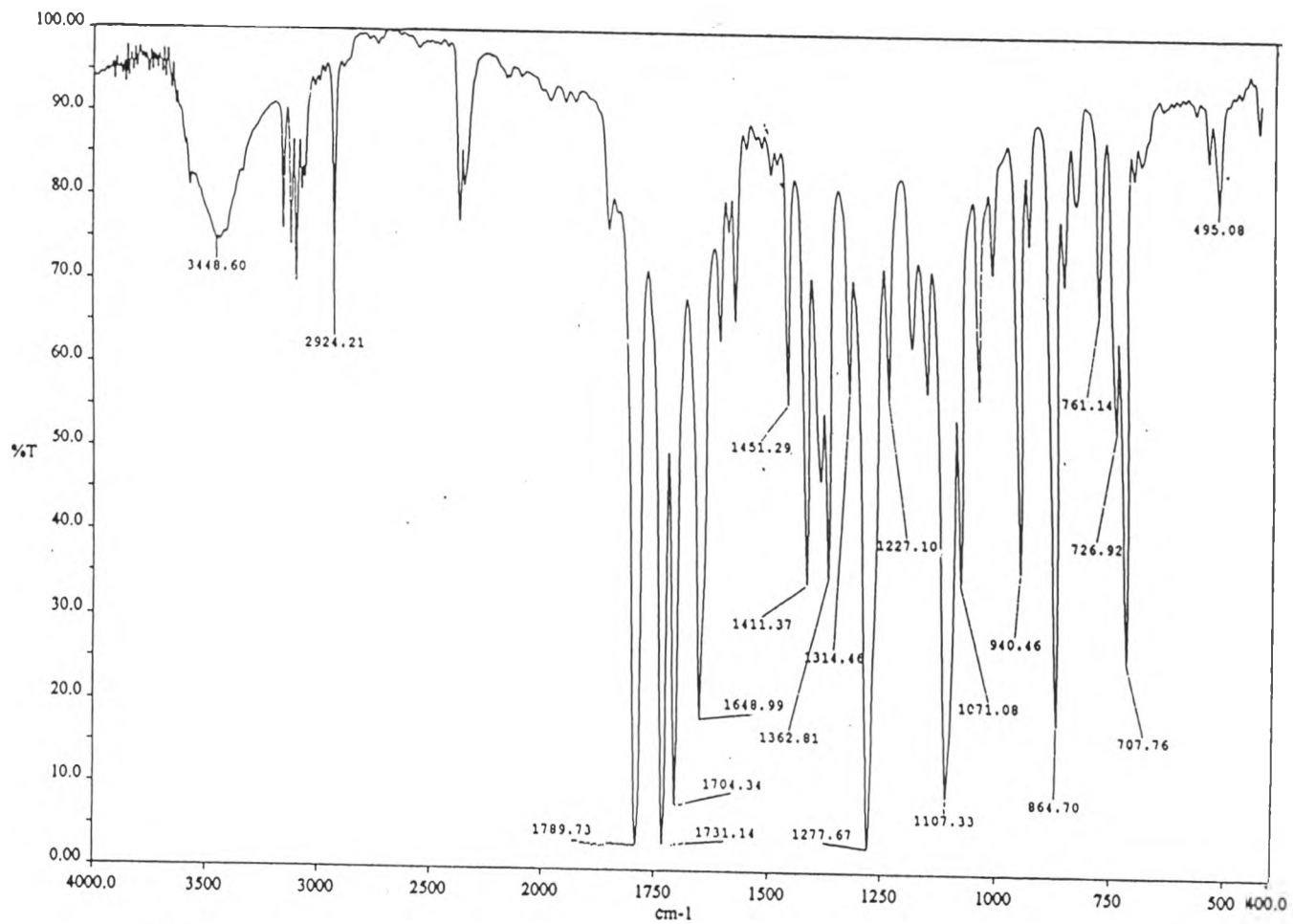


Figure 16: Infrared Spectrum of Compound MF-1

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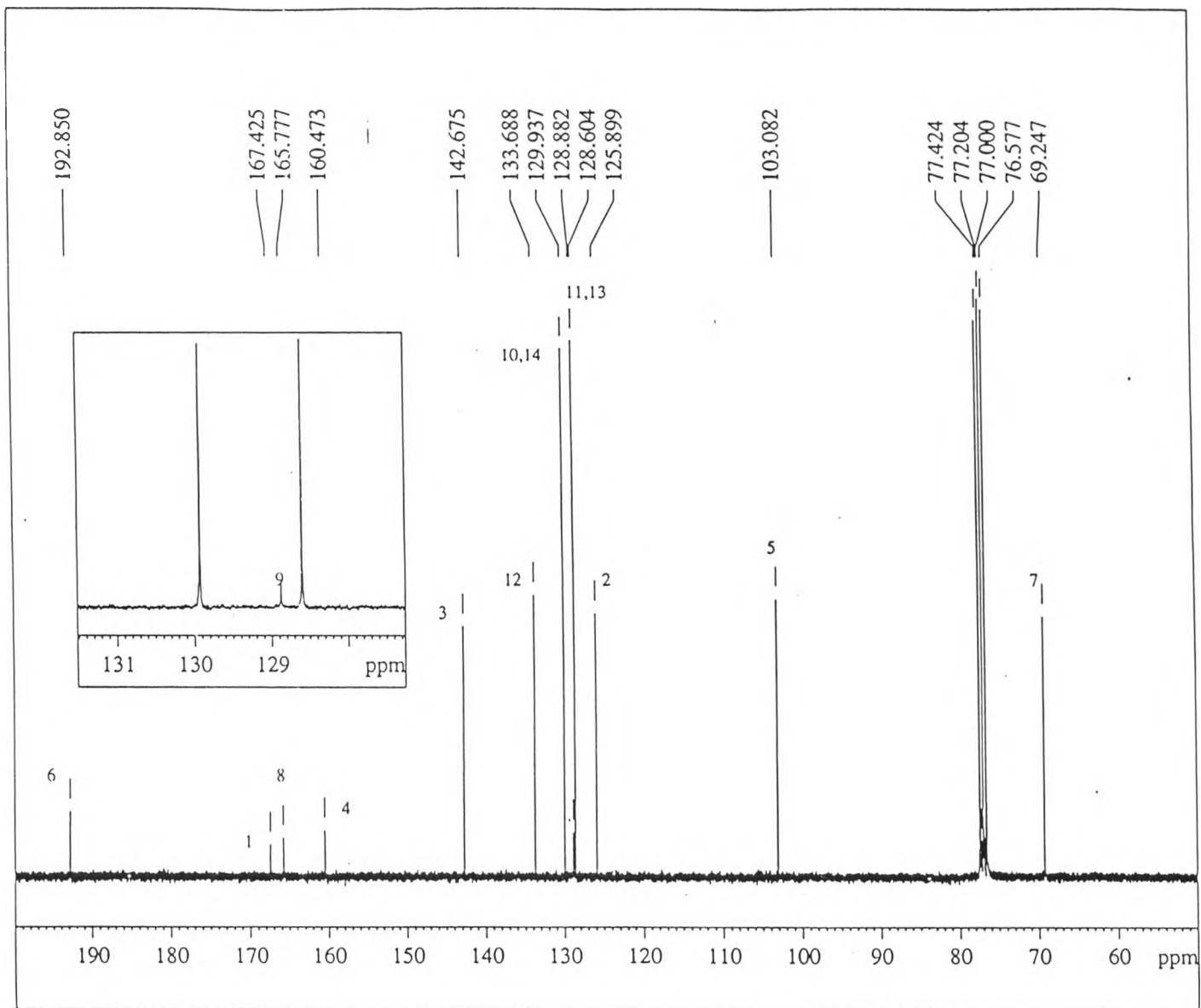


Figure 18: 75 MHz Carbon-13 NMR Spectrum of Compound MF-2

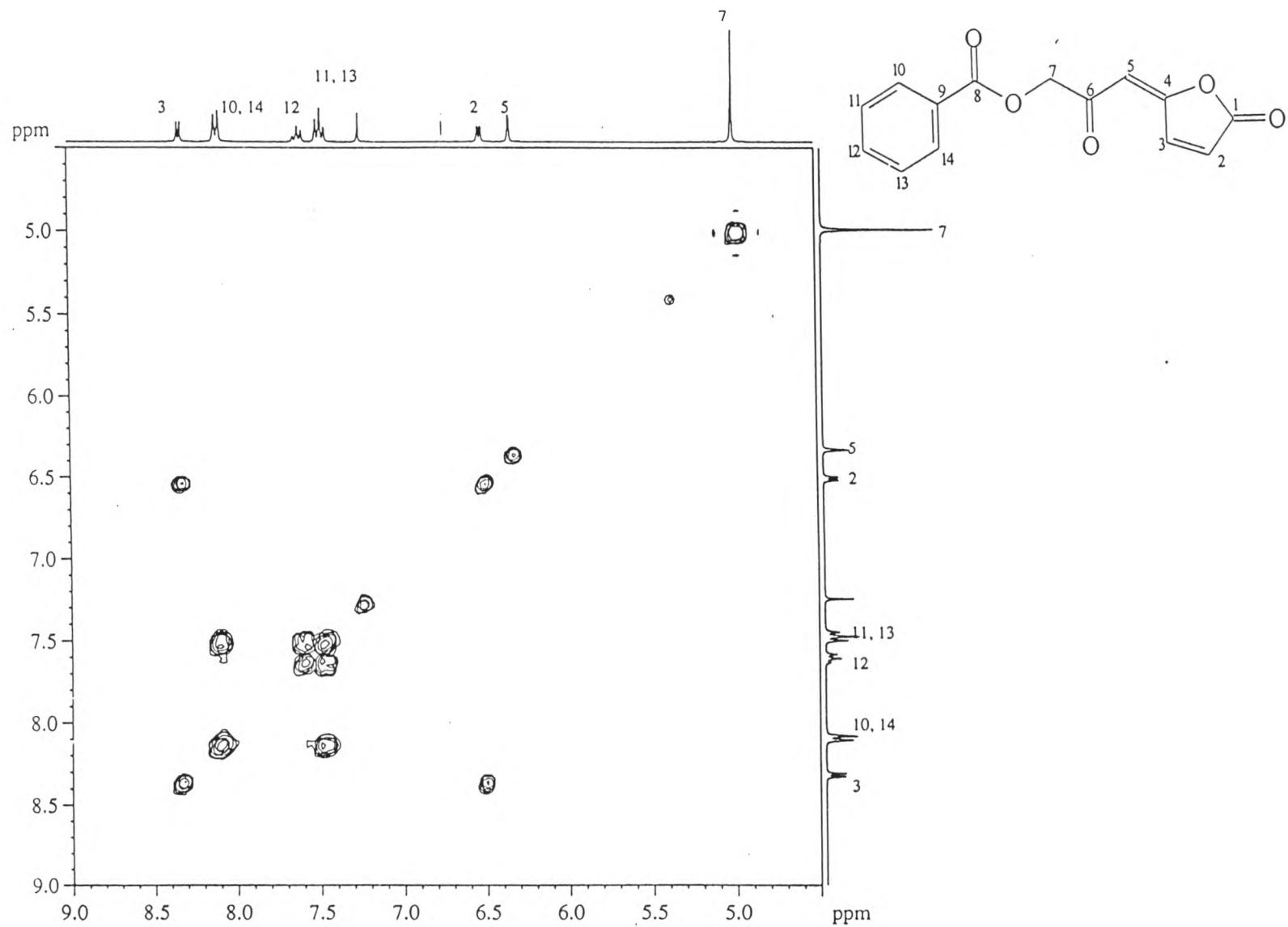


Figure 19: H-H COSY NMR Spectrum of Compound MF-2

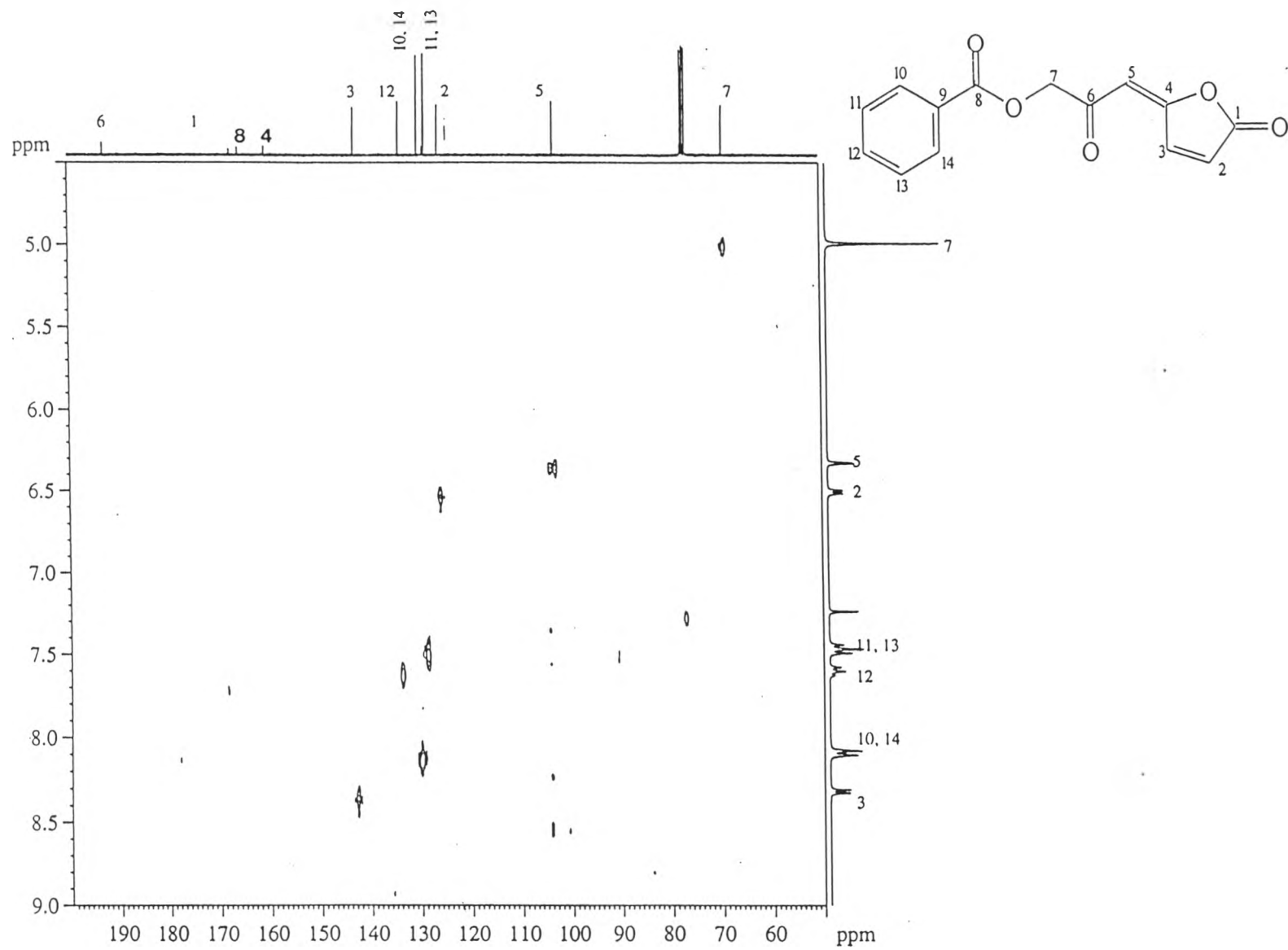


Figure 20: C-H COSY NMR Spectrum of Compound MF-2

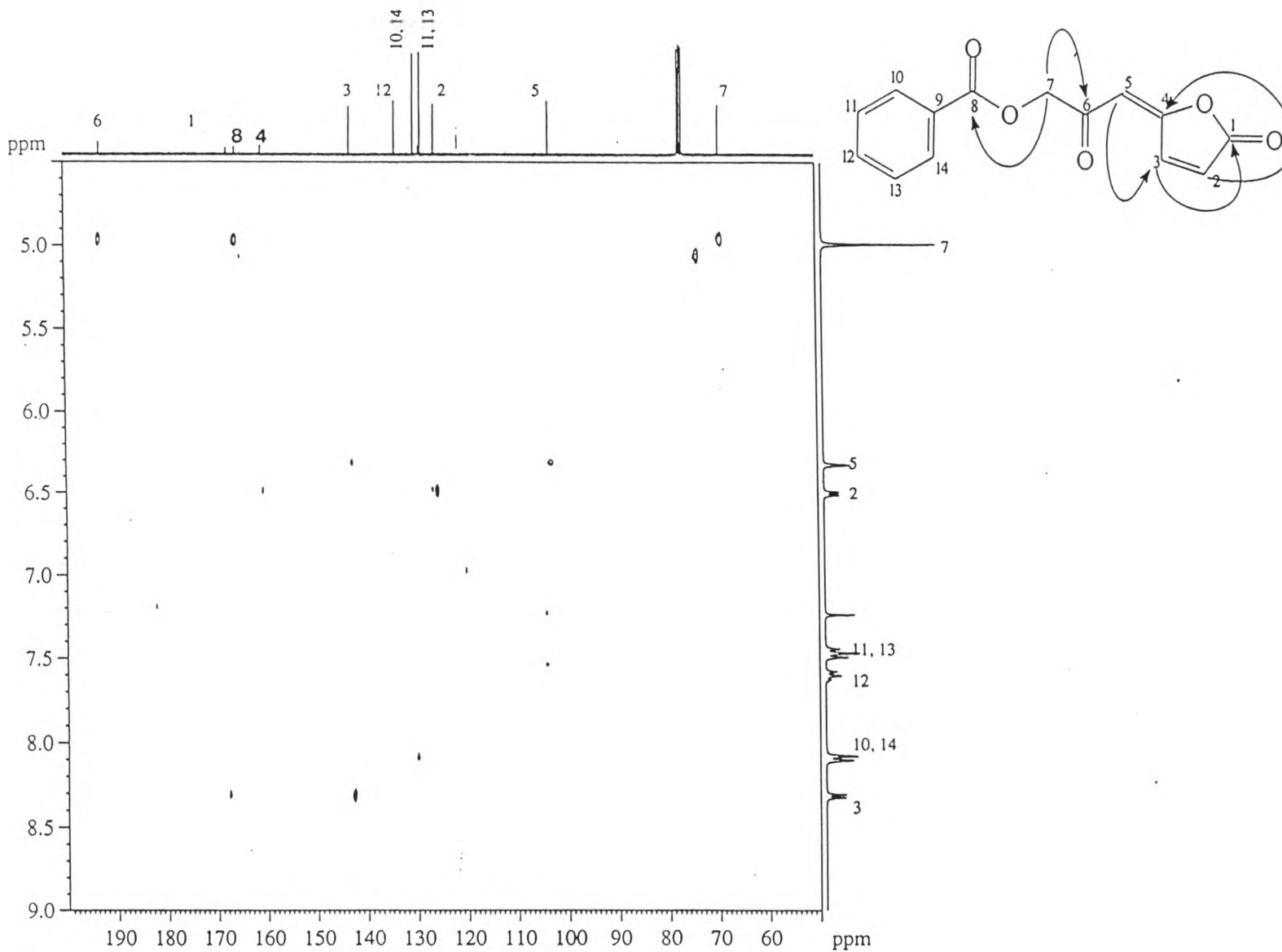


Figure 21: COLOC NMR Spectrum of Compound MF-2

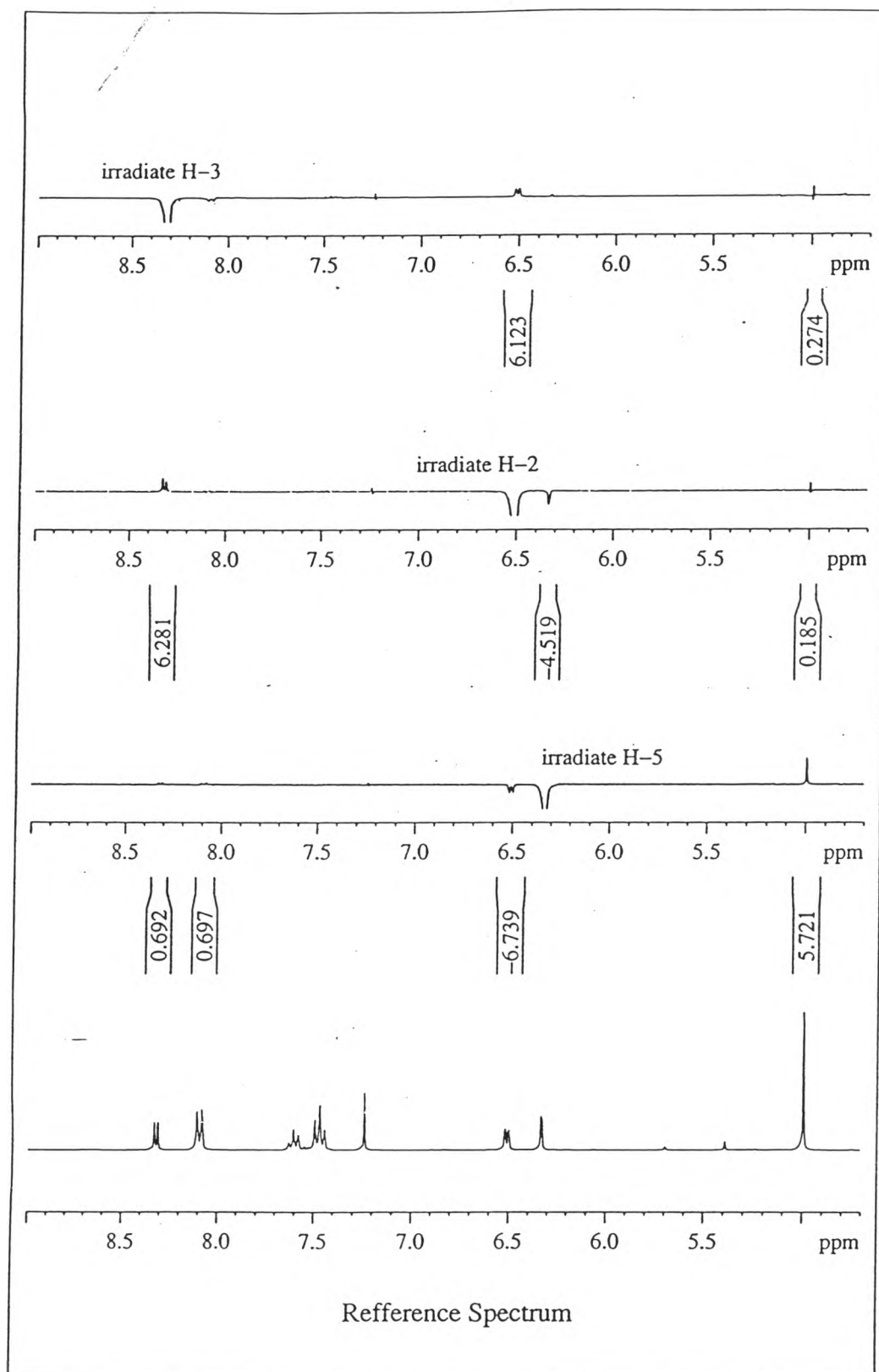


Figure 22: NOE Difference Spectra of Compound MF-2

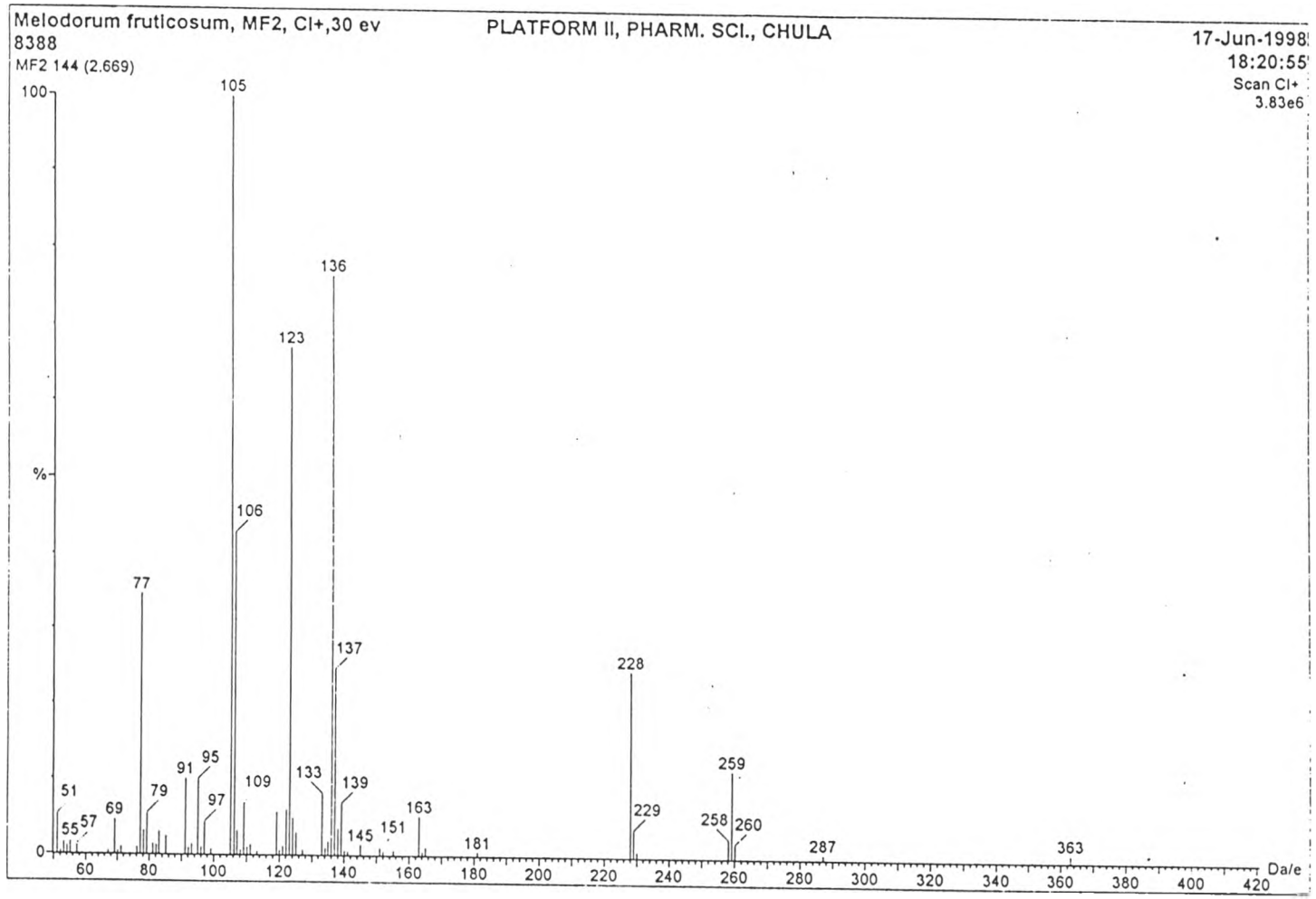


Figure 23: 30 eV CI Mass Spectrum of Compound MF-2

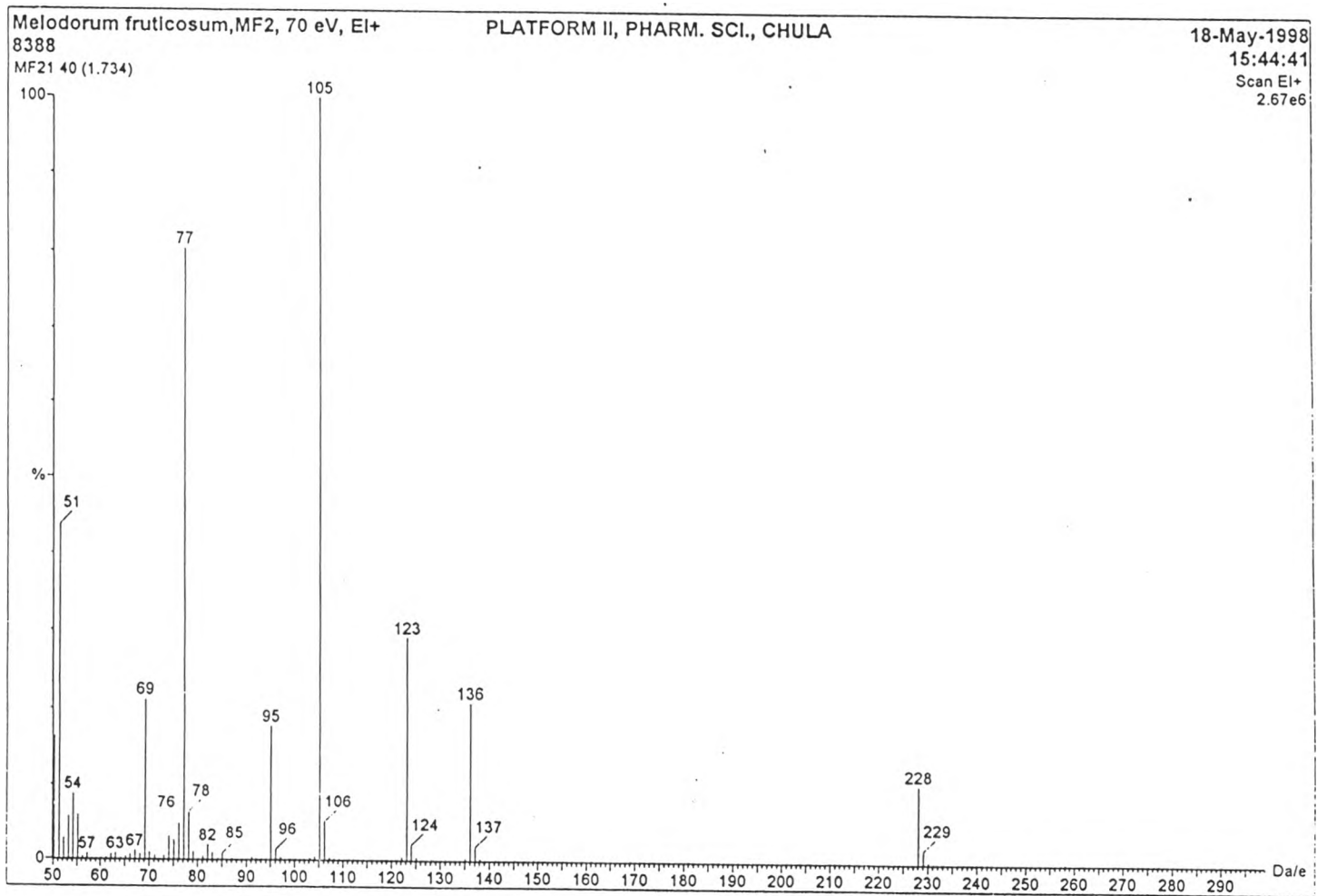


Figure 24: 70 eV EI Mass Spectrum of Compound MF-2

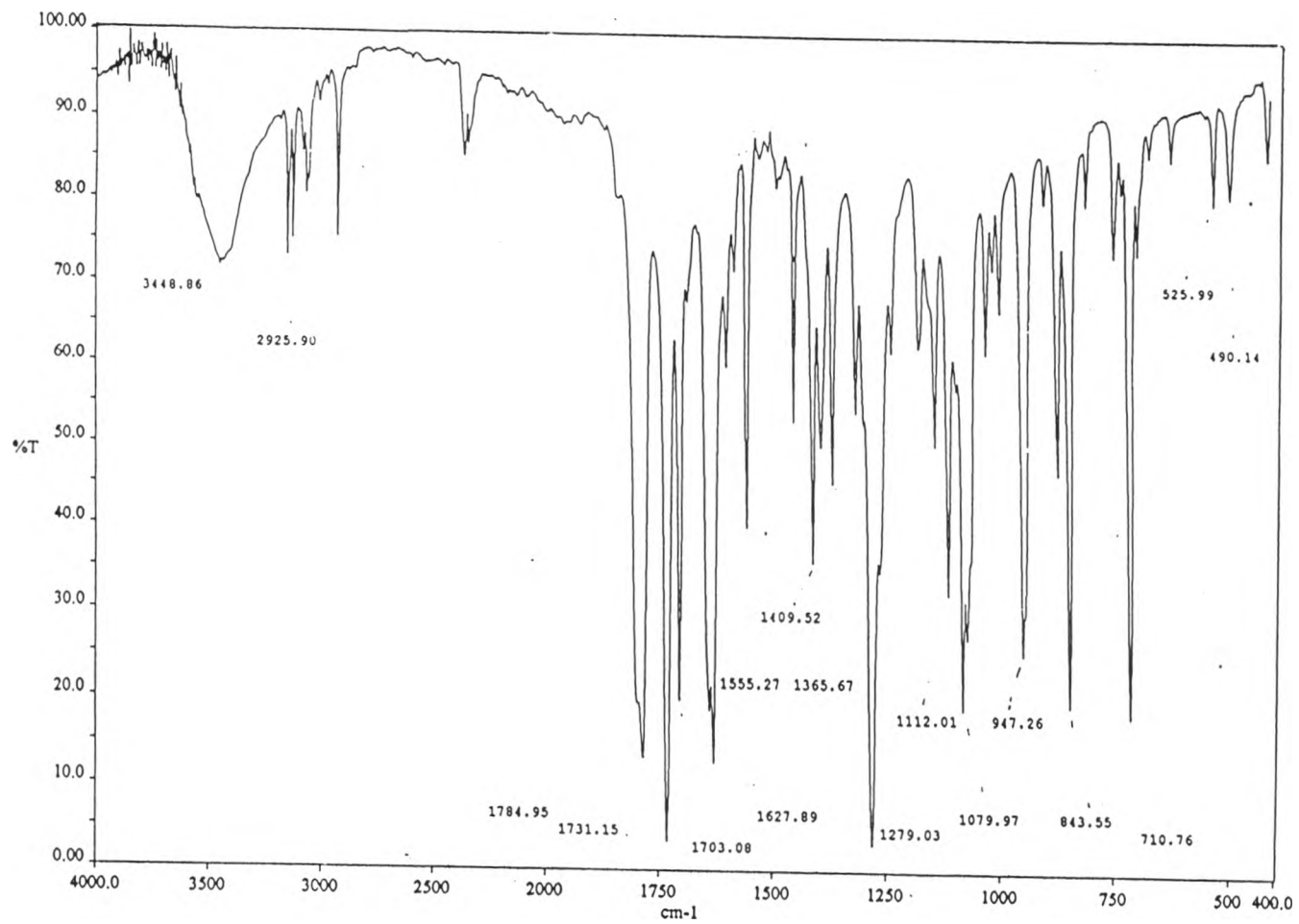


Figure 25: Infrared Spectrum of Compound MF-2

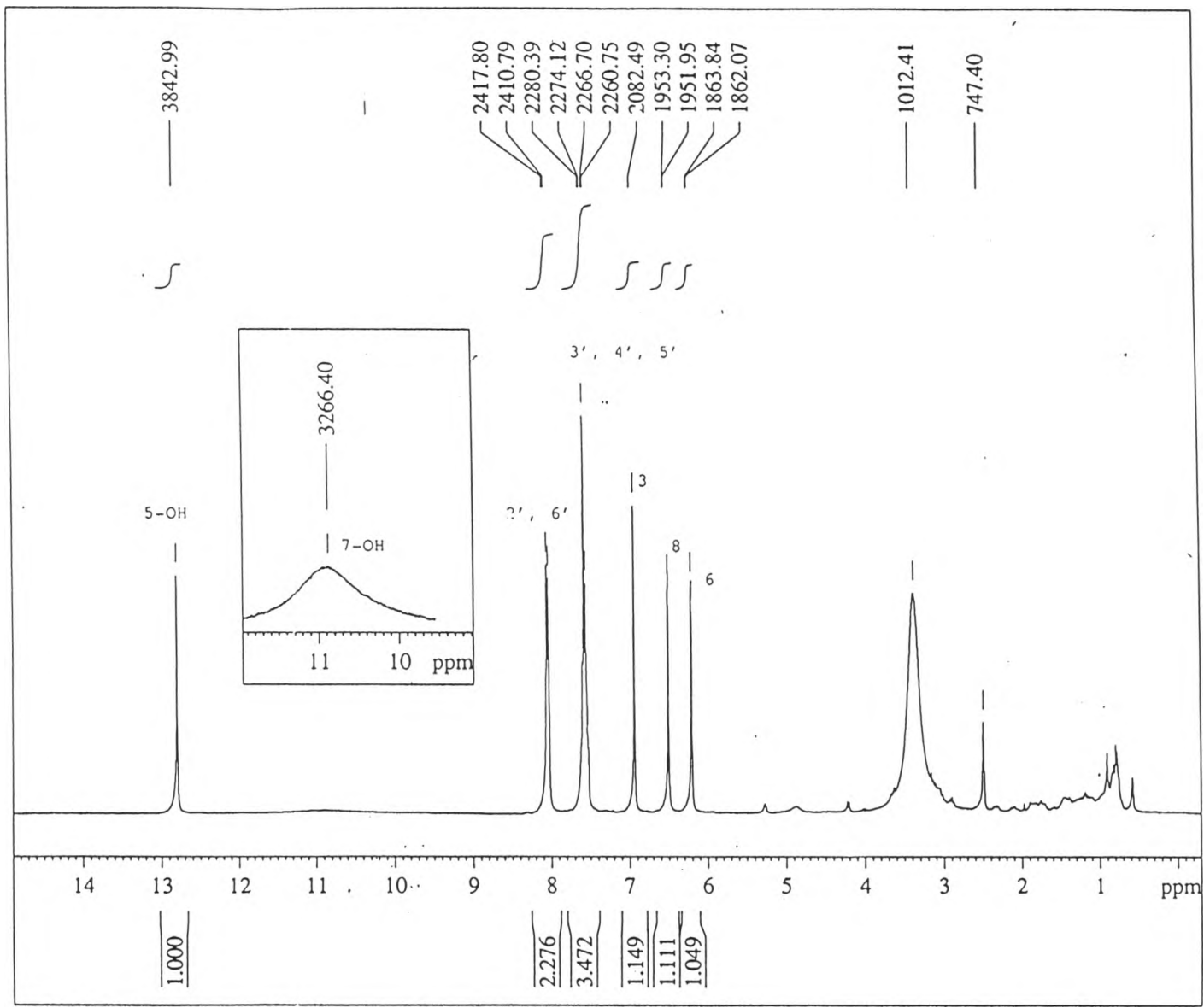


Figure 26: 300 MHz Proton NMR Spectrum of Compound MF-3

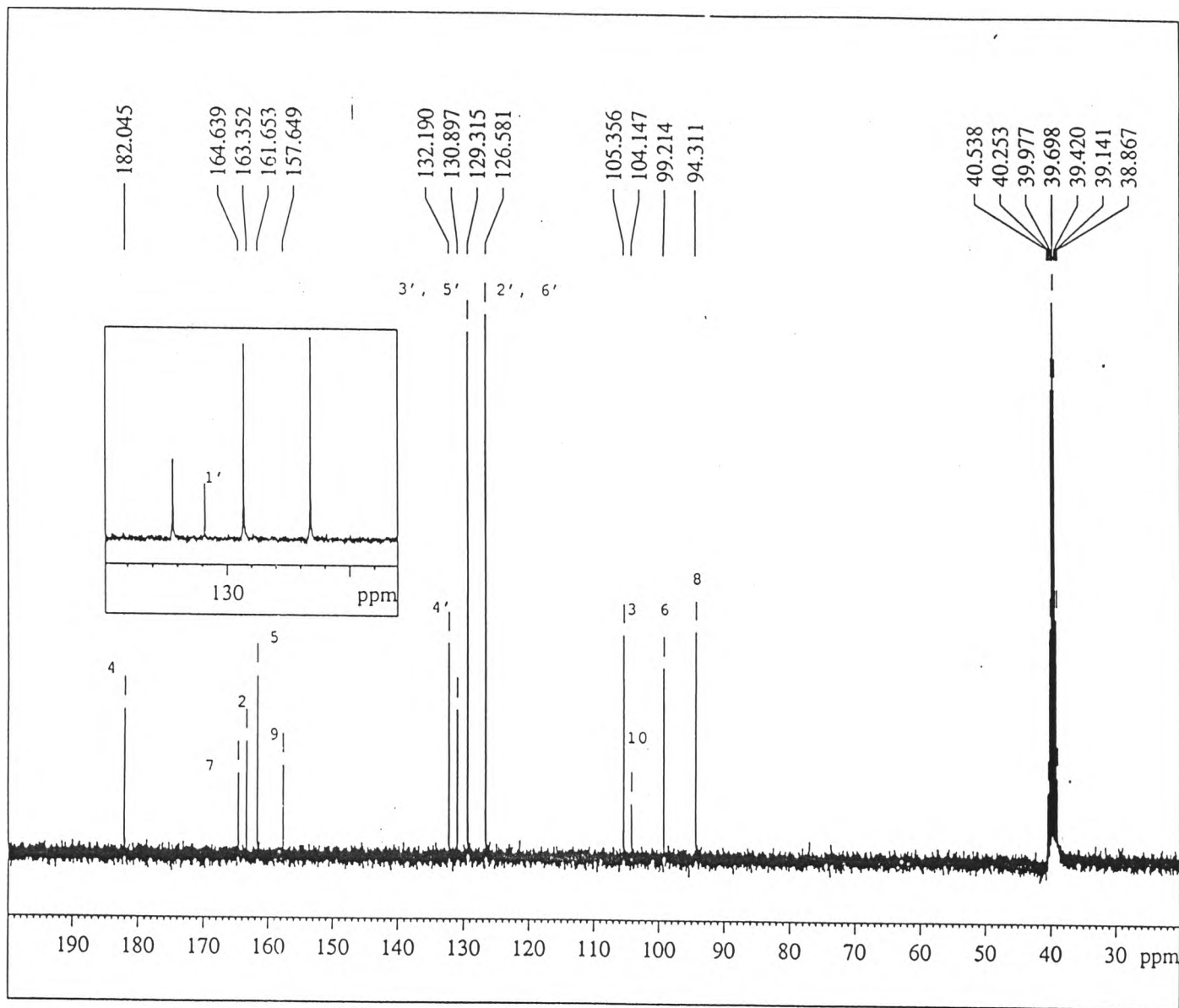


Figure 27: 75 MHz Carbon-13 NMR Spectrum of Compound MF-3

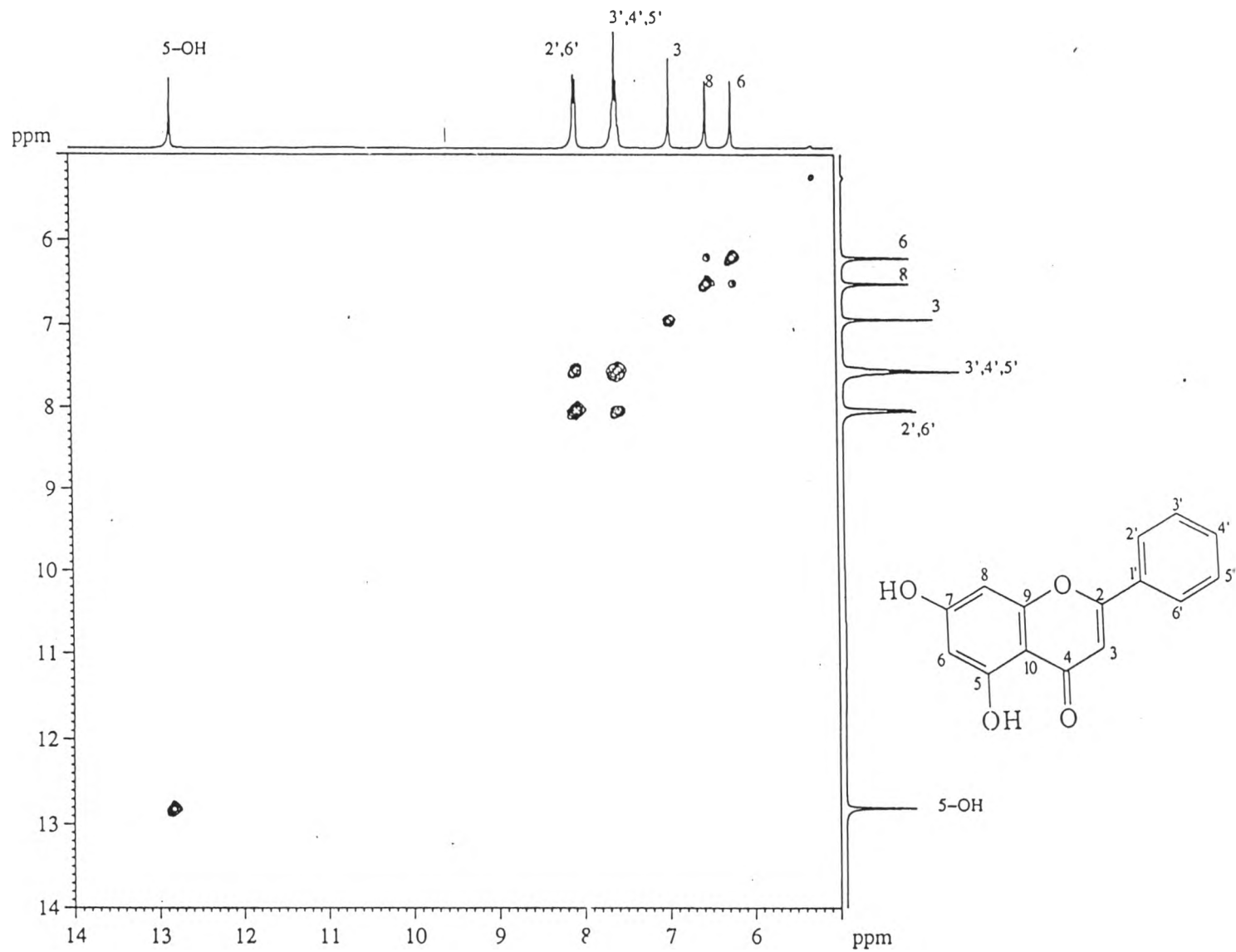


Figure 28: H-H COSY NMR Spectrum of Compound MF-3

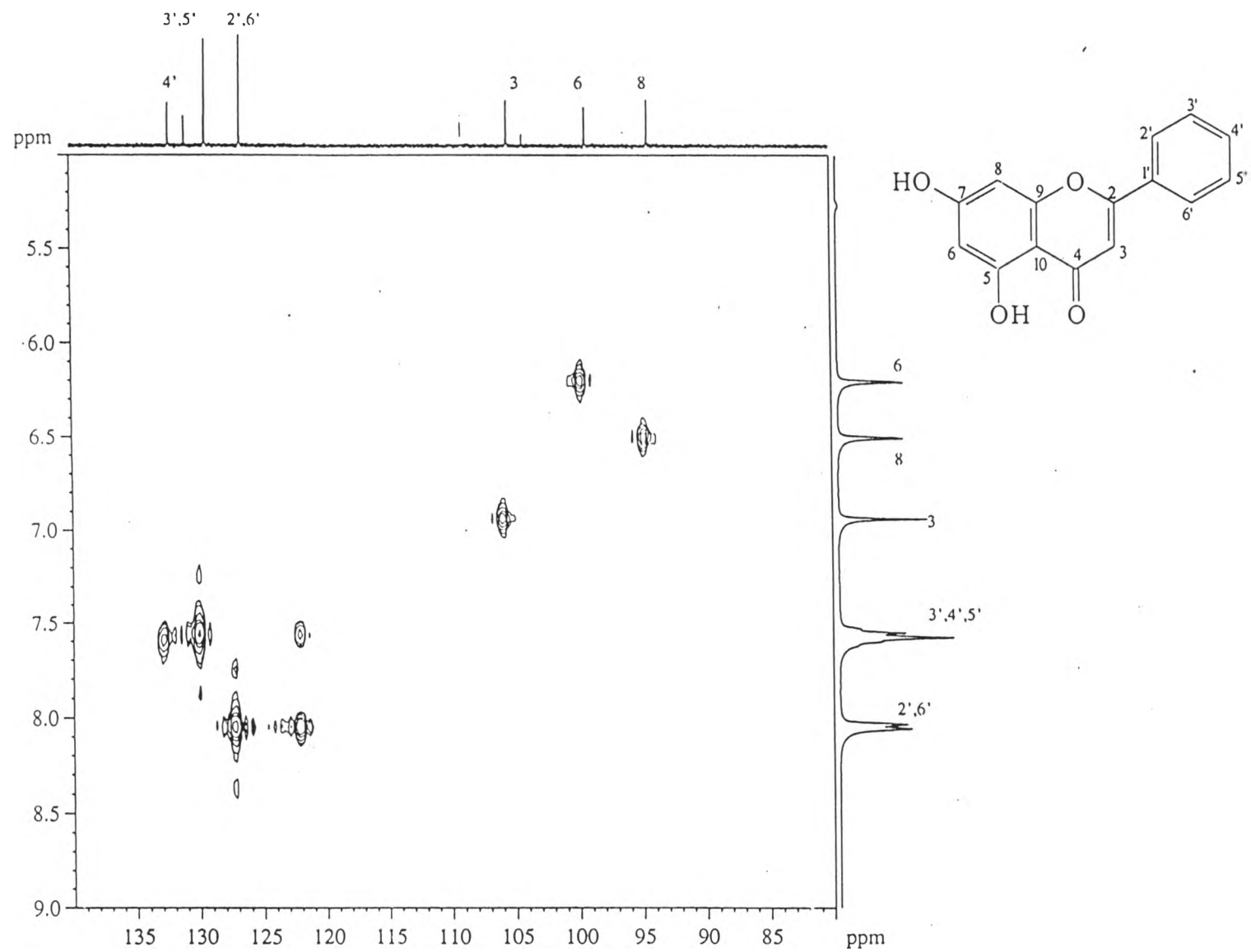


Figure 29: C-H COSY NMR Spectrum of Compound MF-3

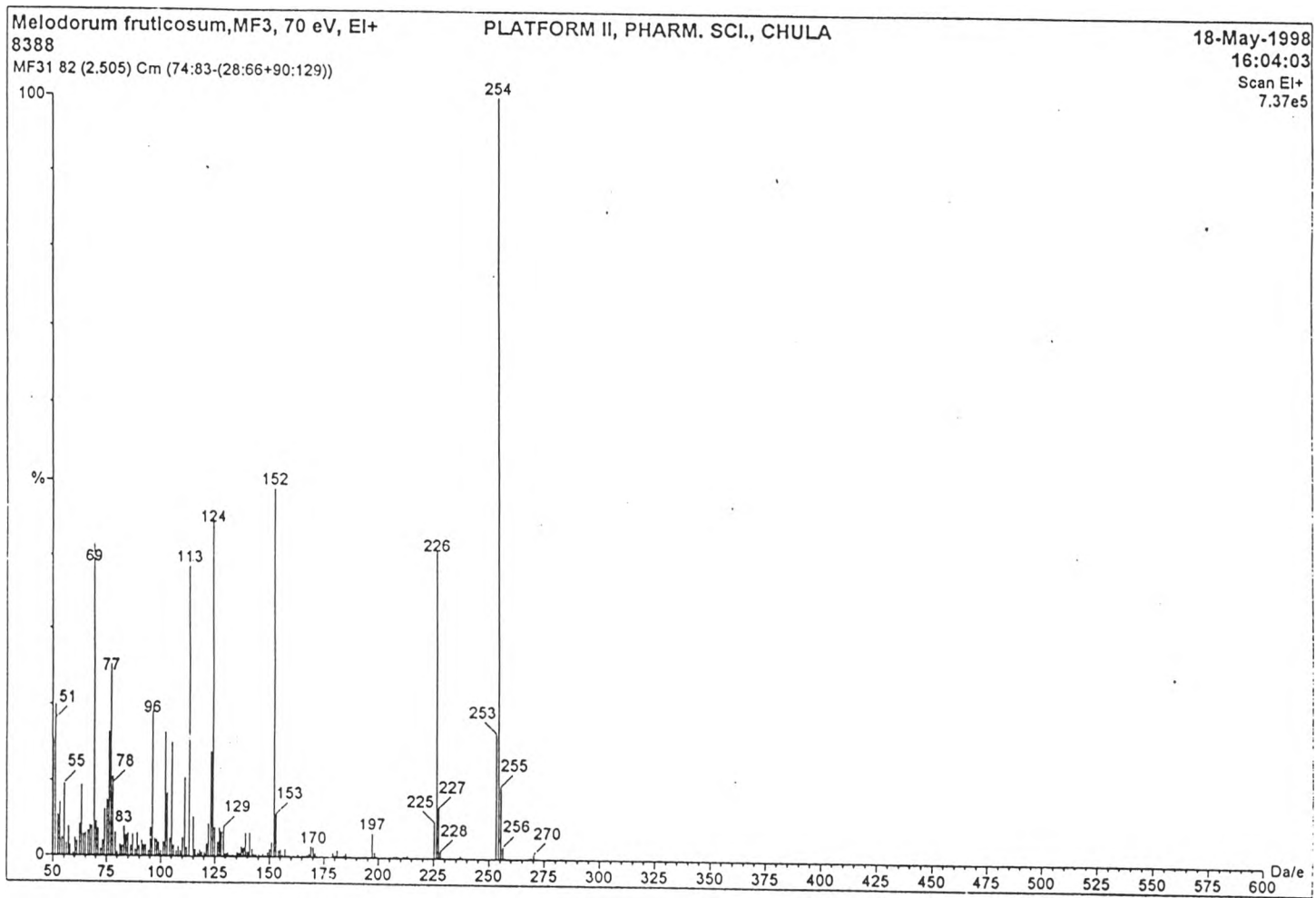


Figure 30: 70 eV EI Mass Spectrum of Compound MF-3

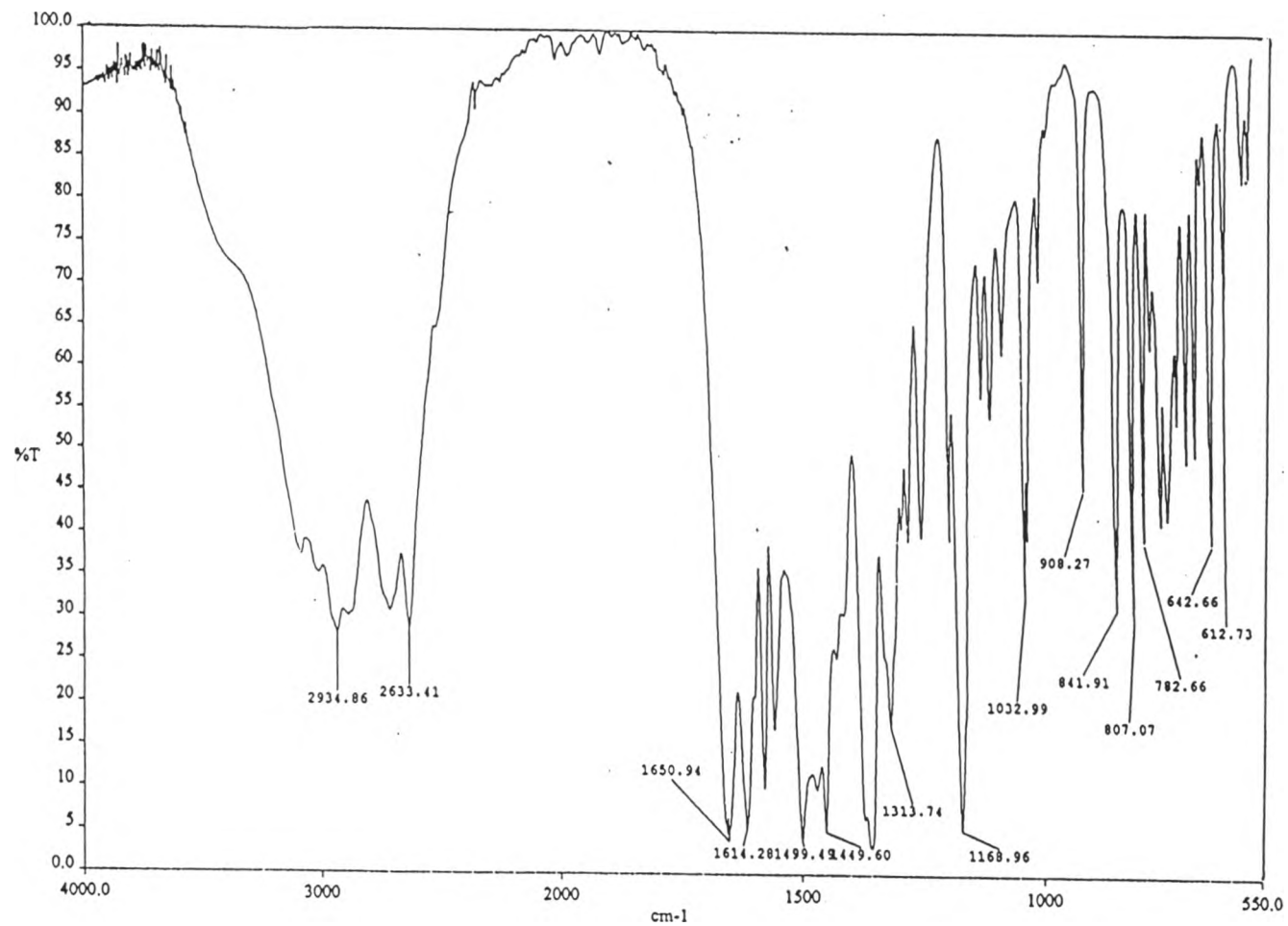


Figure 31: Infrared Spectrum of Compound MF-3

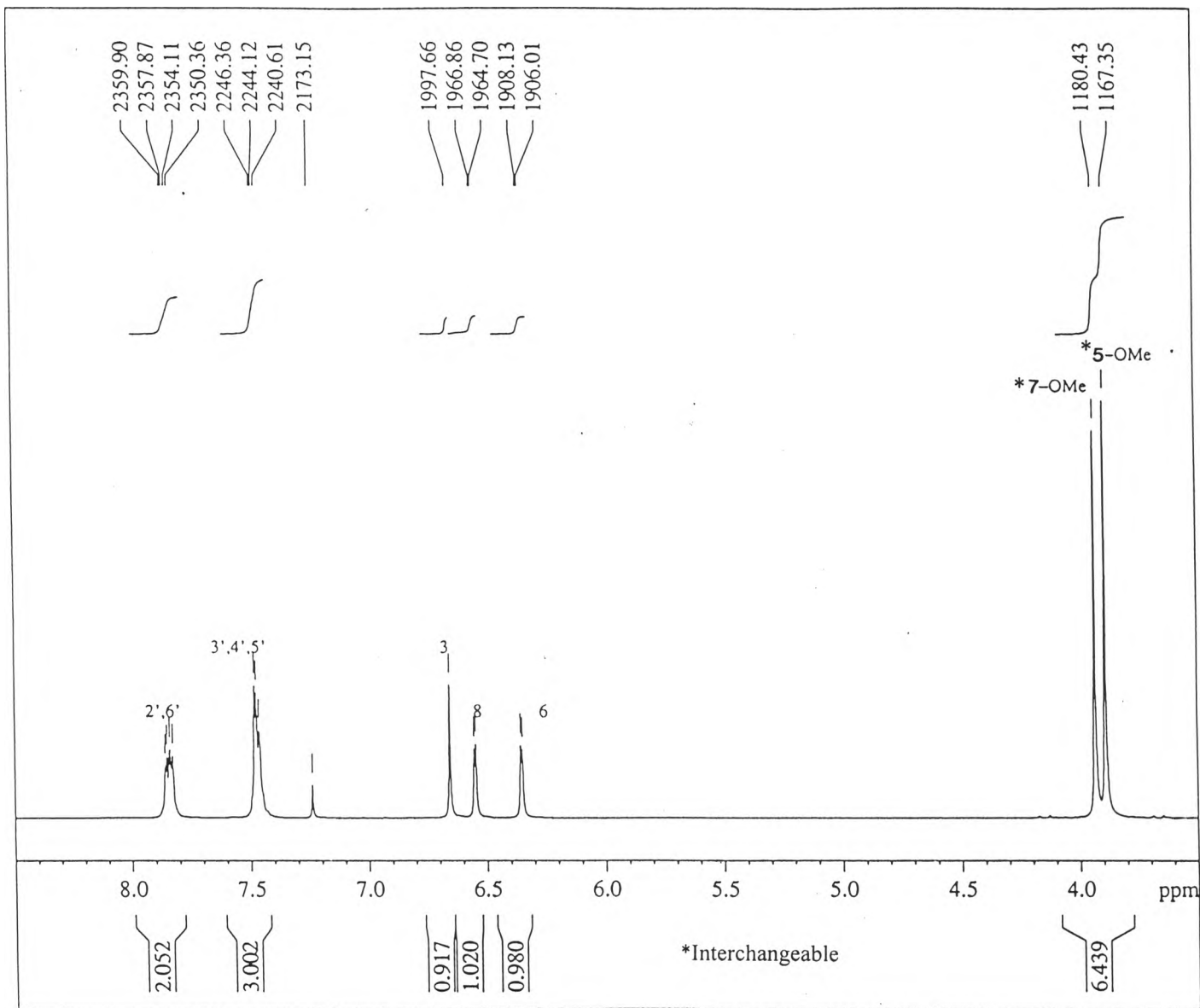


Figure 32: 300 MHz Proton NMR Spectrum of Compound MF-4

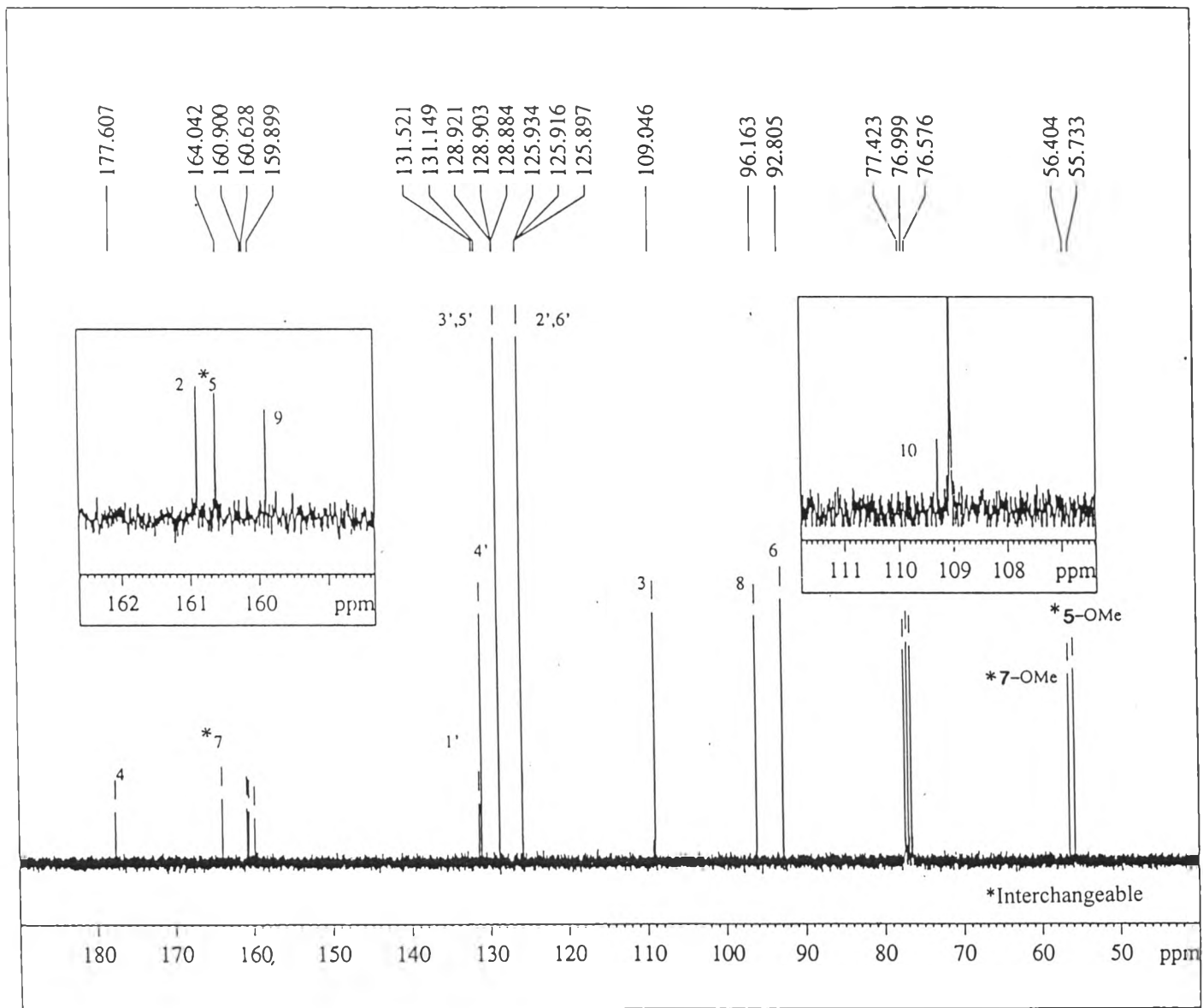


Figure 33: 75 MHz Carbon-13 NMR Spectrum of Compound MF-4

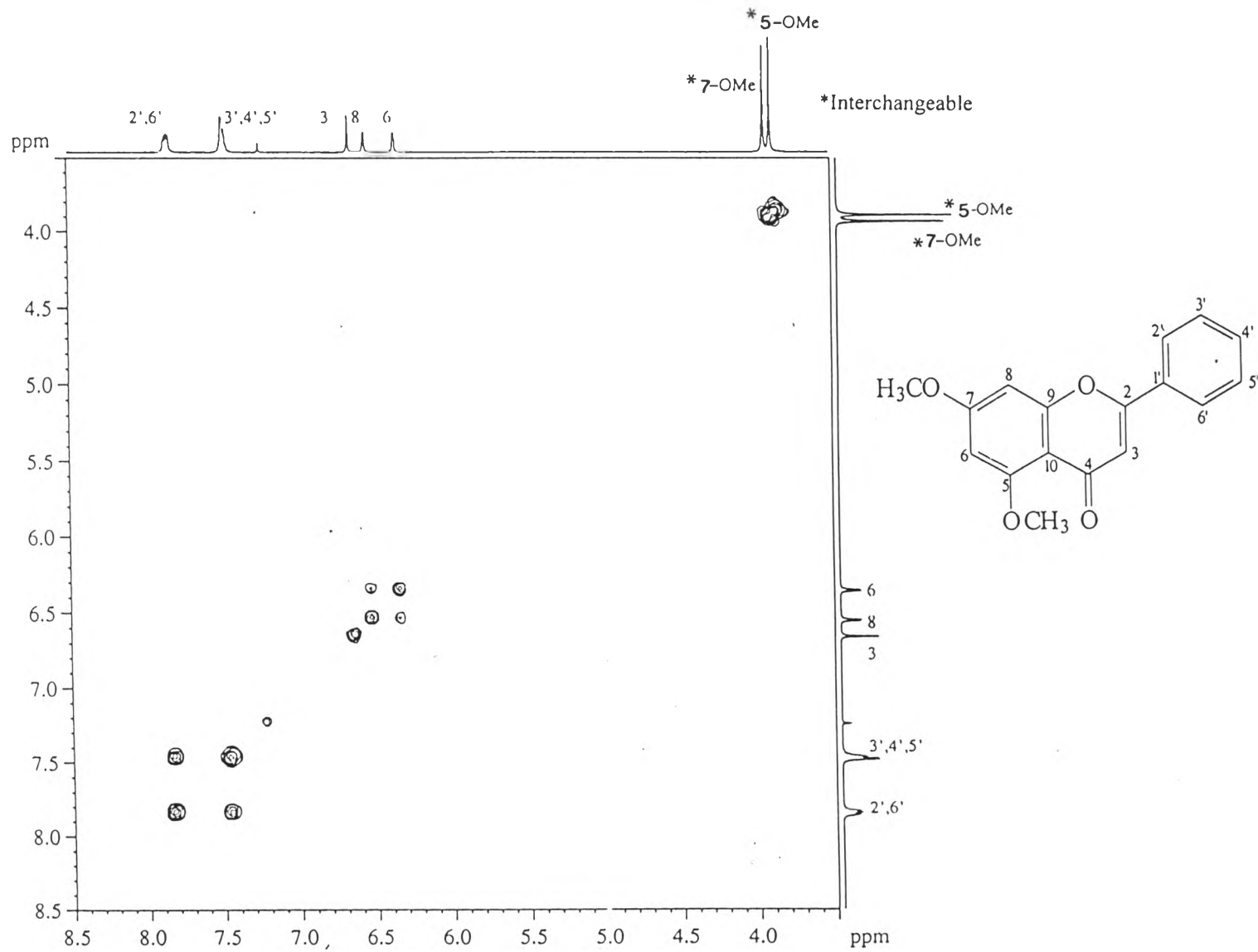


Figure 34: H-H COSY NMR Spectrum of Compound MF-4

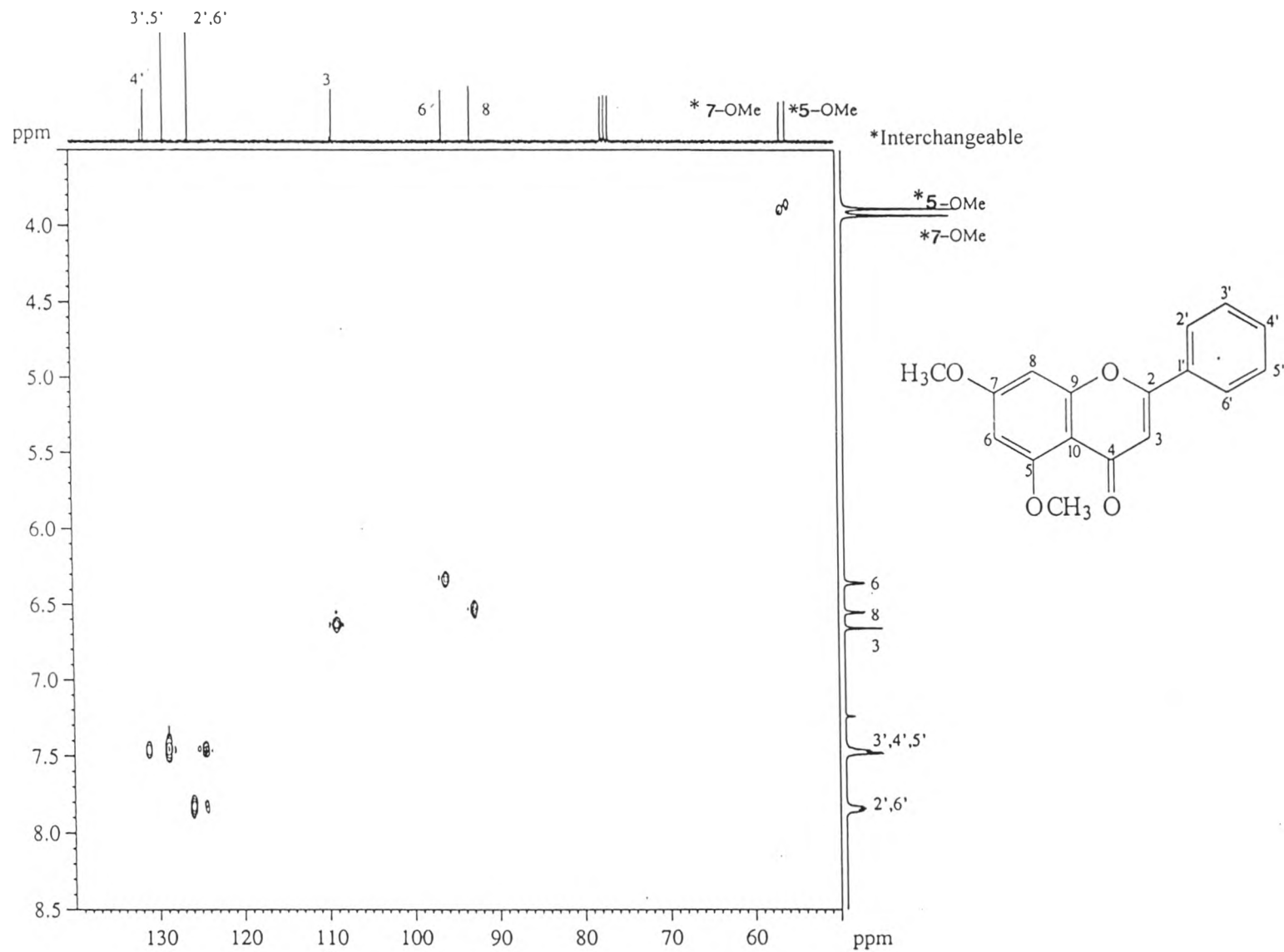


Figure 35: C-H COSY NMR Spectrum of Compound MF-4

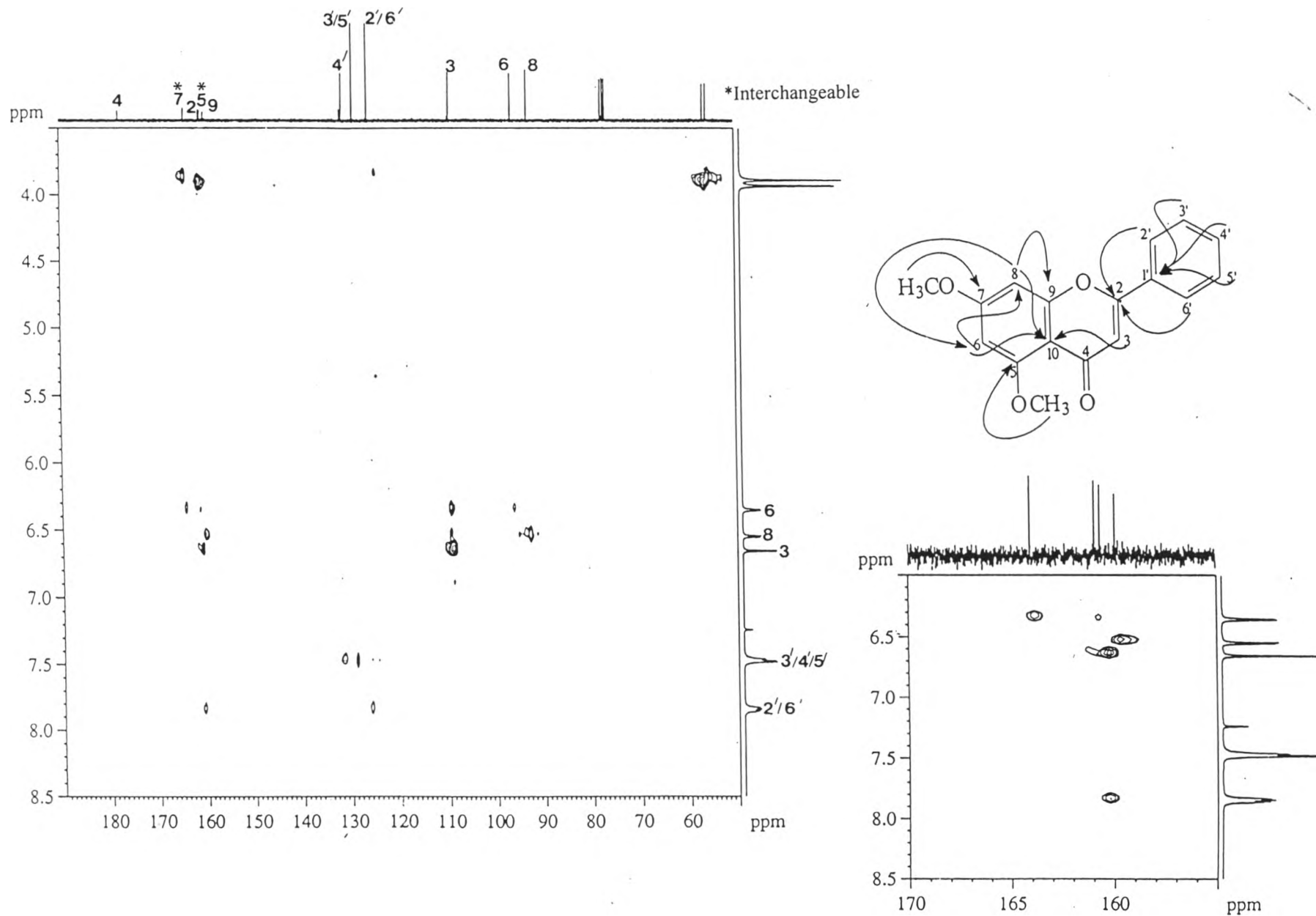


Figure 36: COLOC NMR Spectrum of Compound MF-4

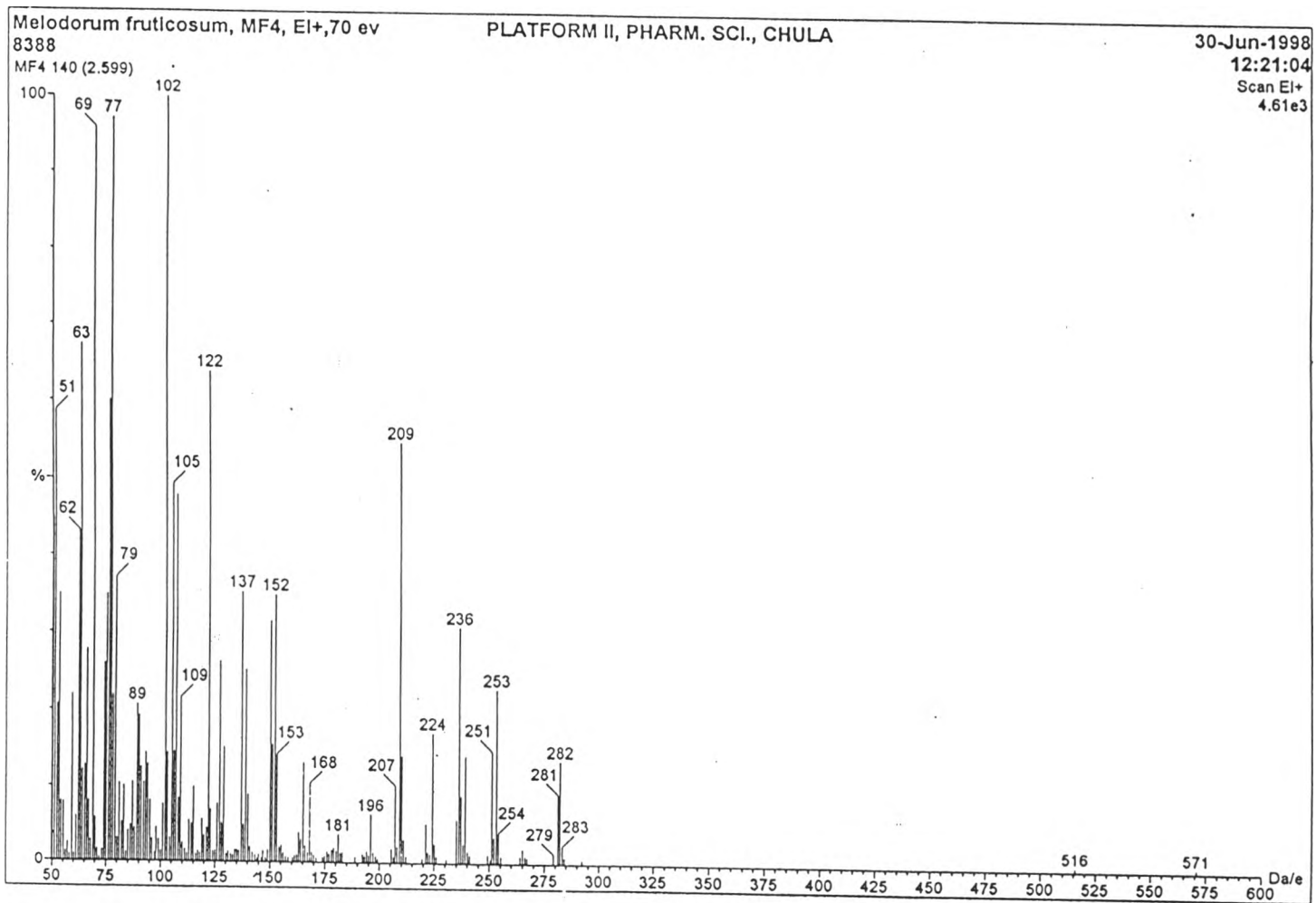


Figure 37: 70 eV EI Mass Spectrum of Compound MF-4

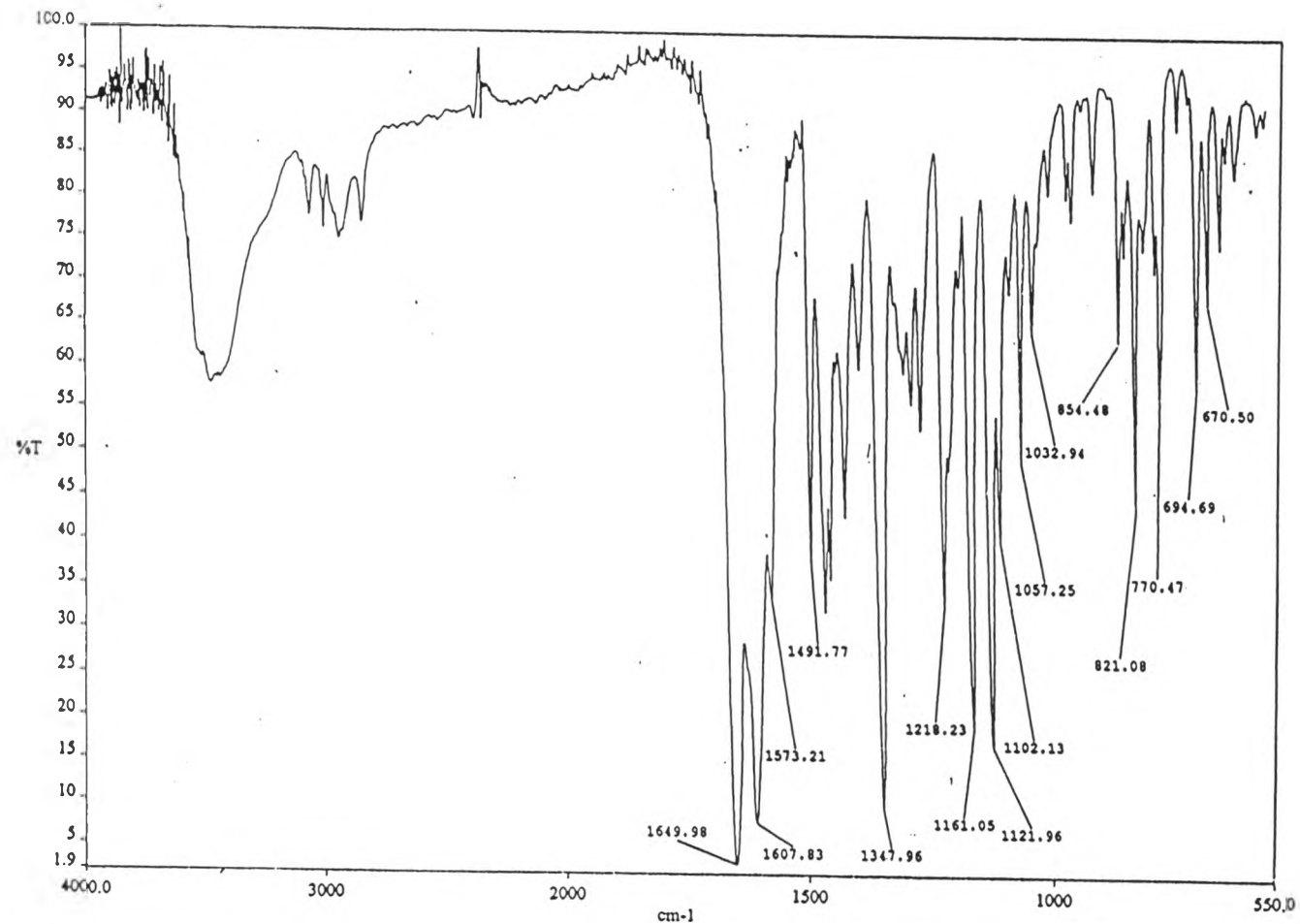


Figure 38: Infrared Spectrum of Compound MF-4

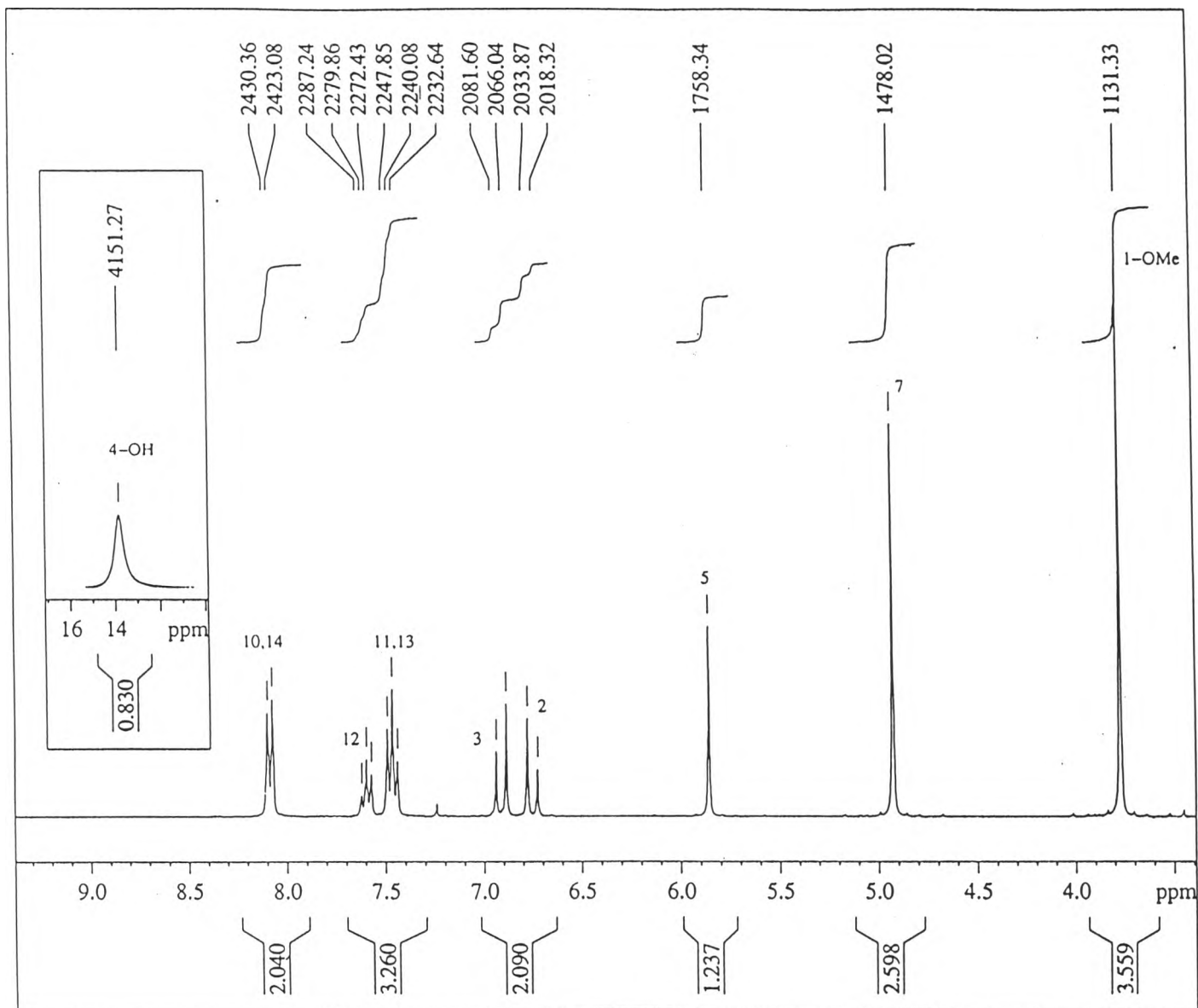


Figure 39: 300 MHz Proton NMR Spectrum of Compound MF-5

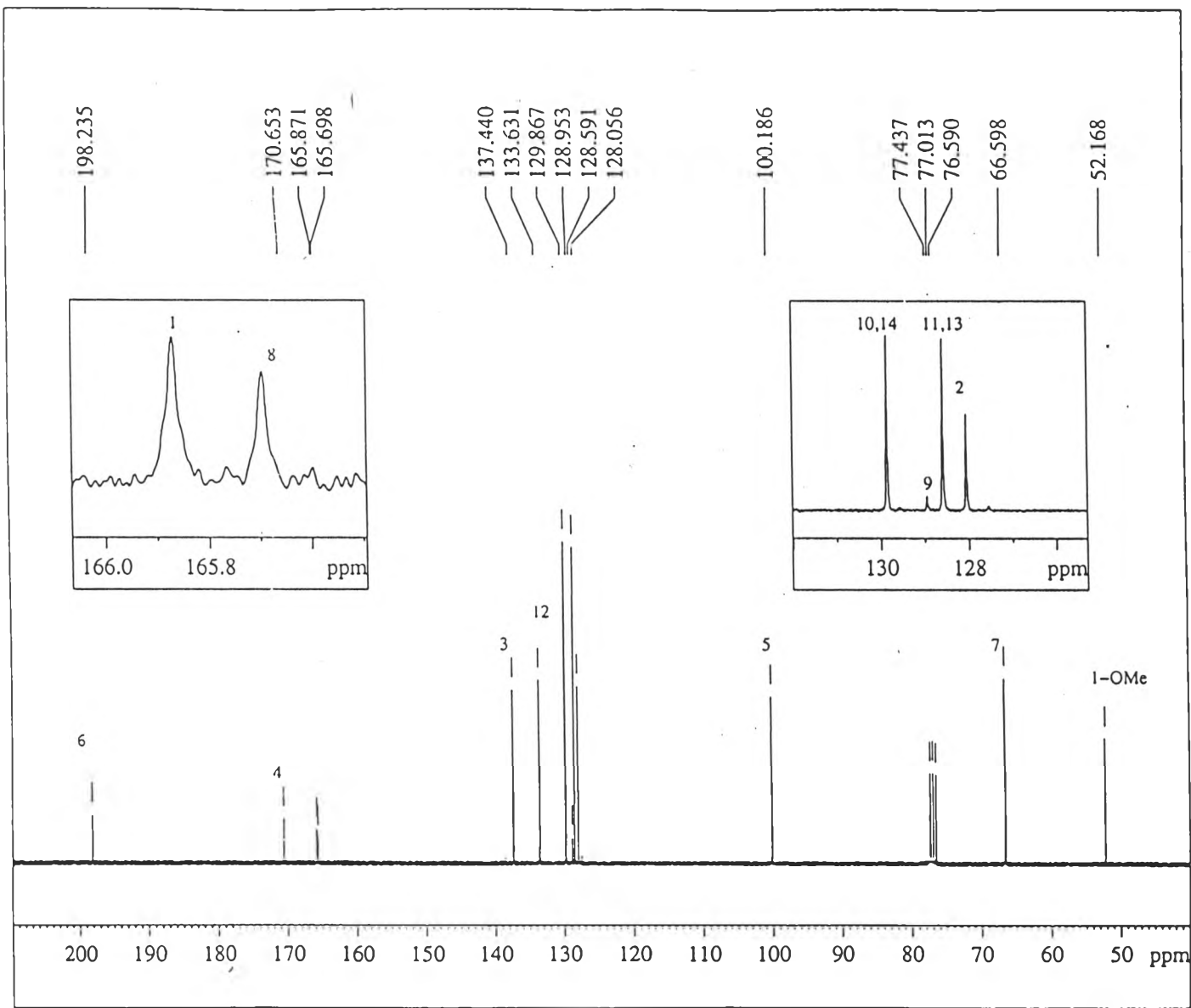


Figure 40: 75 MHz Carbon-13 NMR Spectrum of Compound MF-5

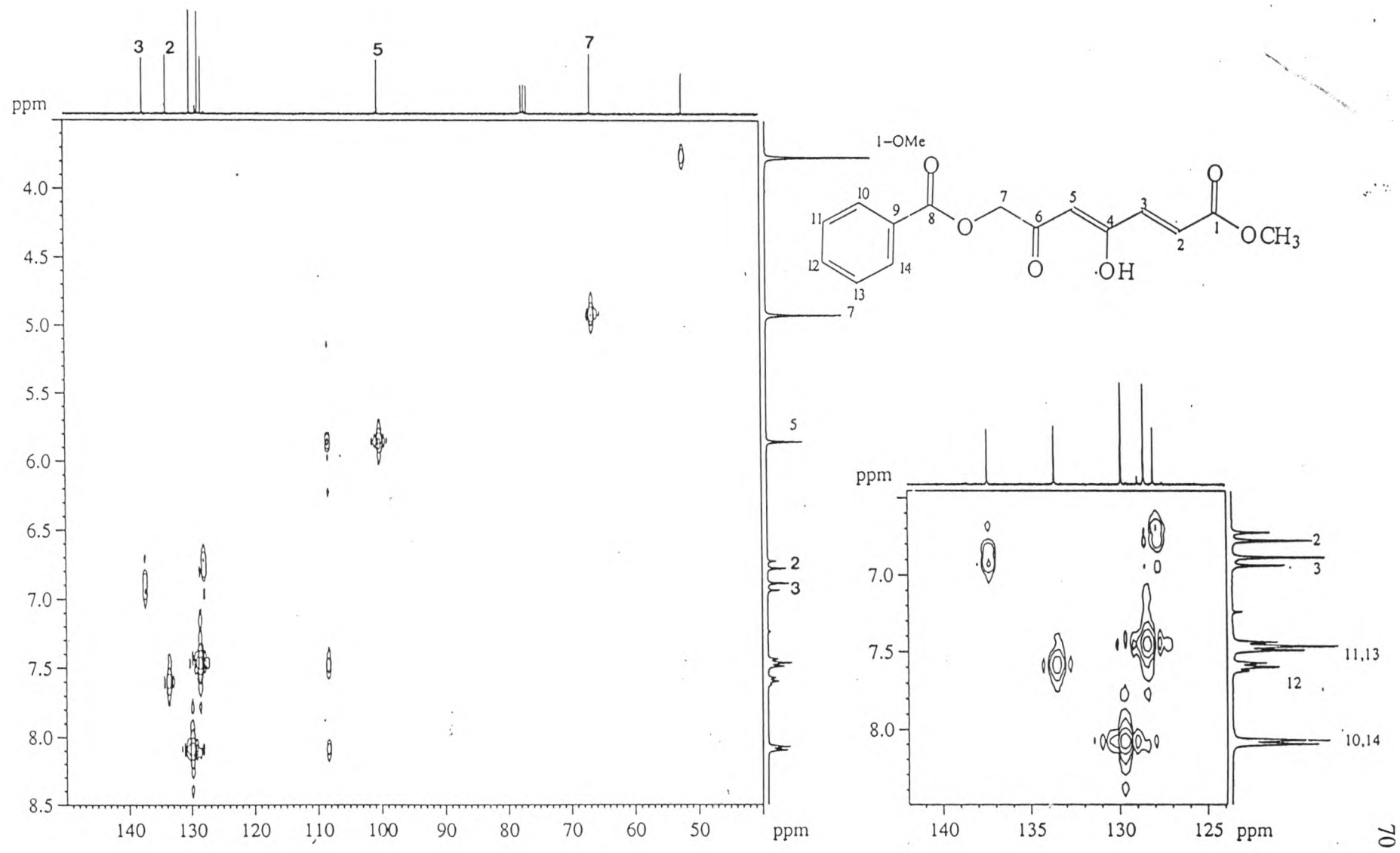


Figure 41: C-H COSY NMR Spectrum of Compound MF-5

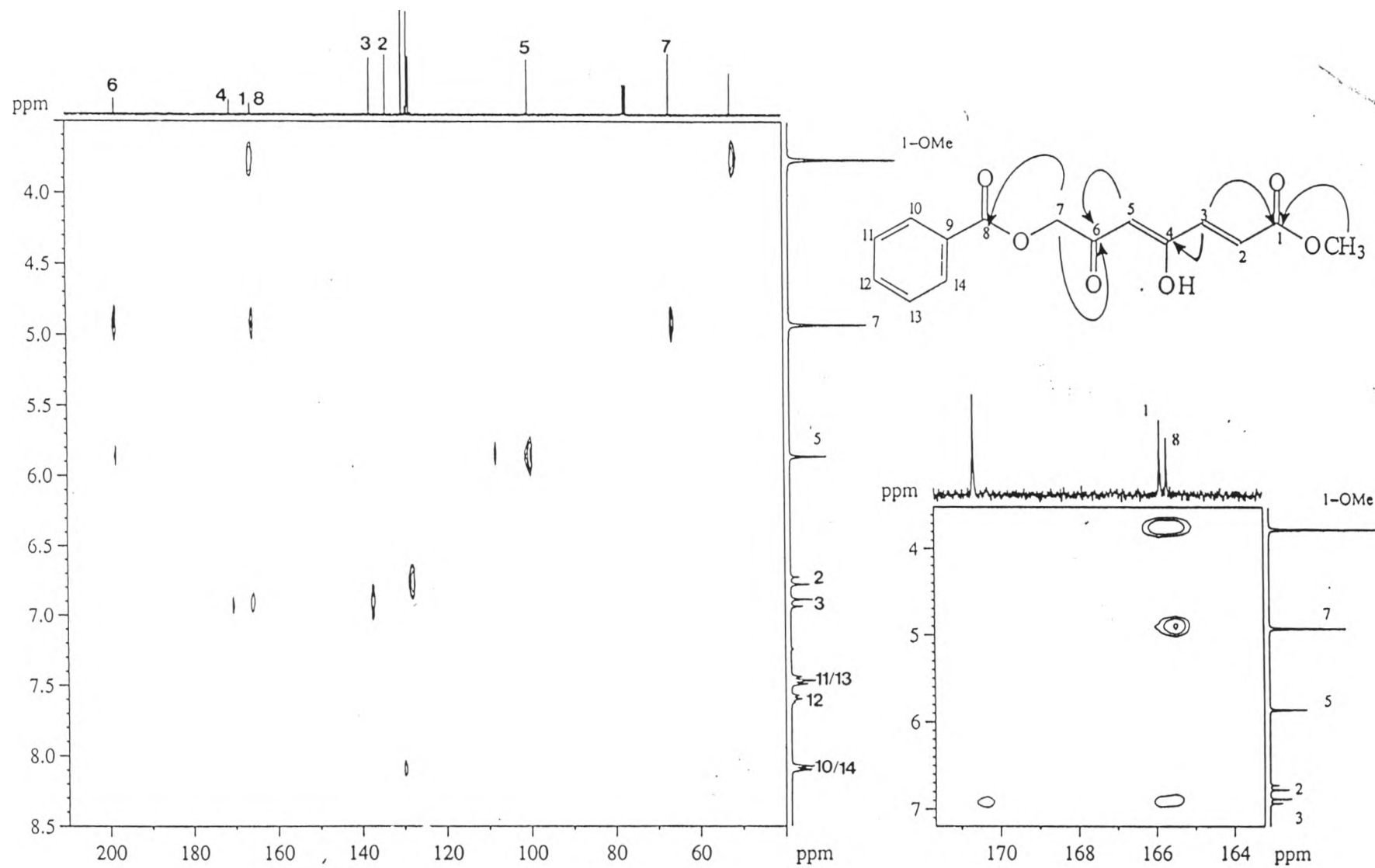


Figure 42: COLOC NMR Spectrum of Compound MF-5

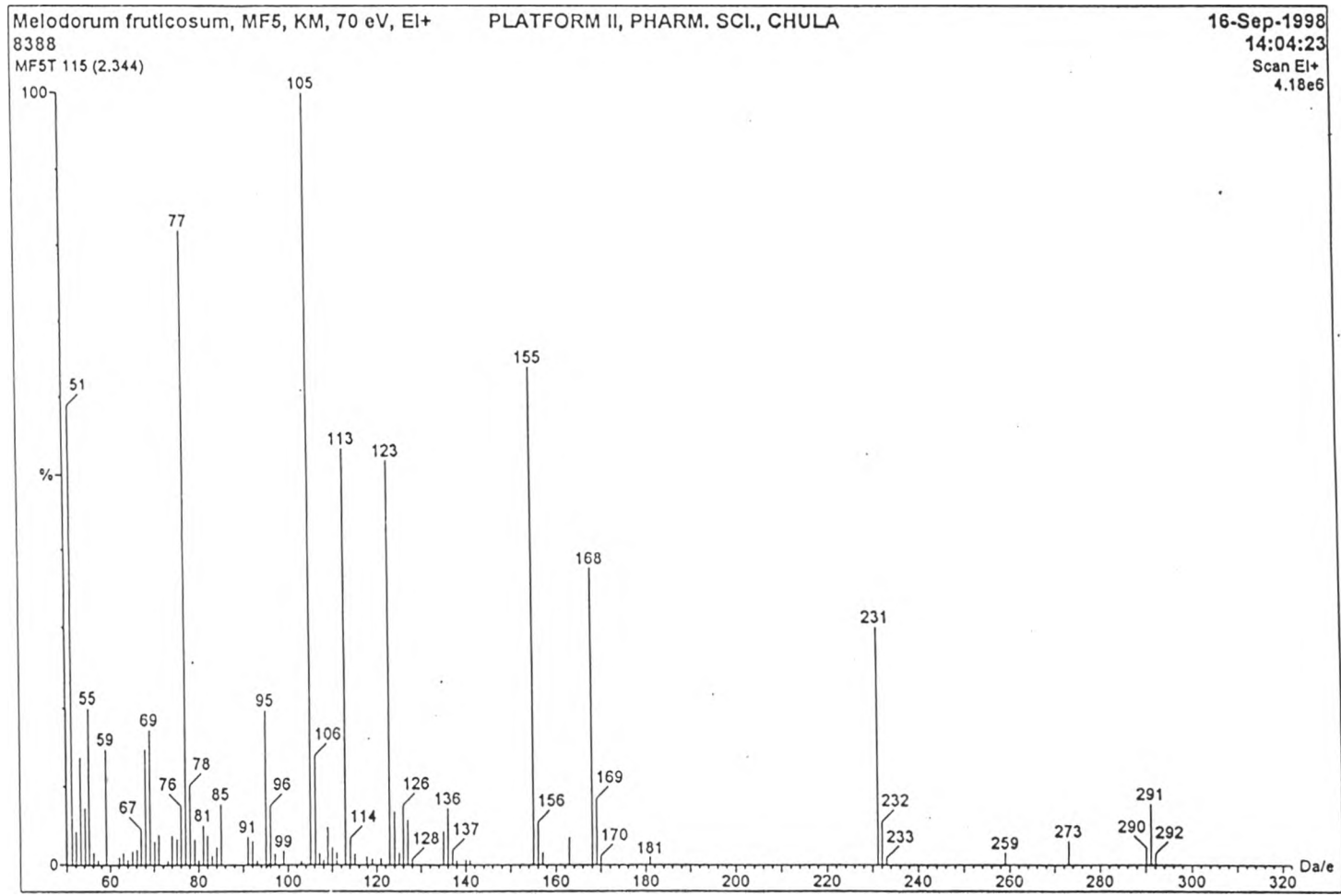


Figure 43: 70 eV EI Mass Spectrum of Compound MF-5

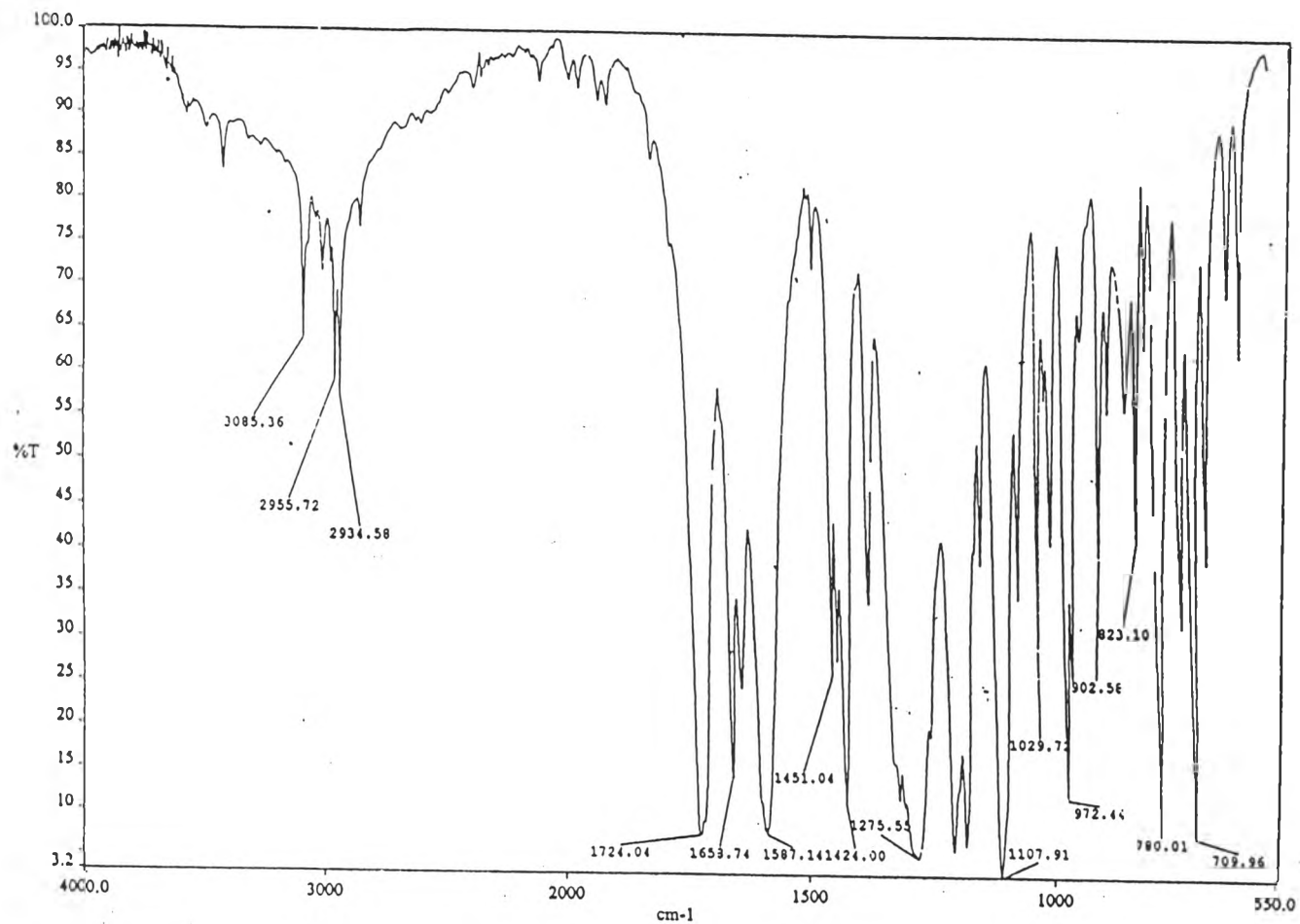


Figure 44: Infrared Spectrum of Compound MF-5

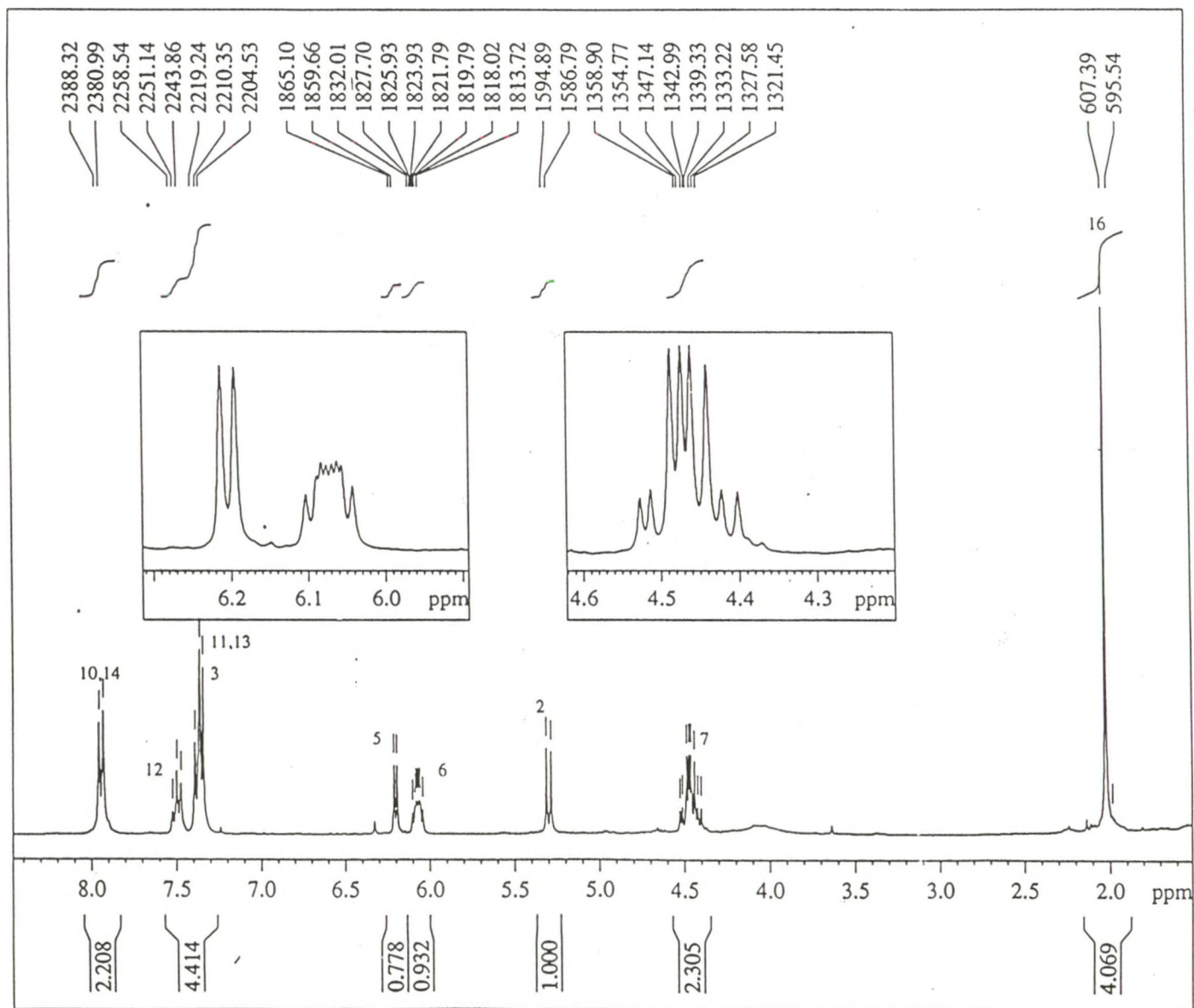


Figure 45: 300 MHz Proton NMR Spectrum of Compound MF-6

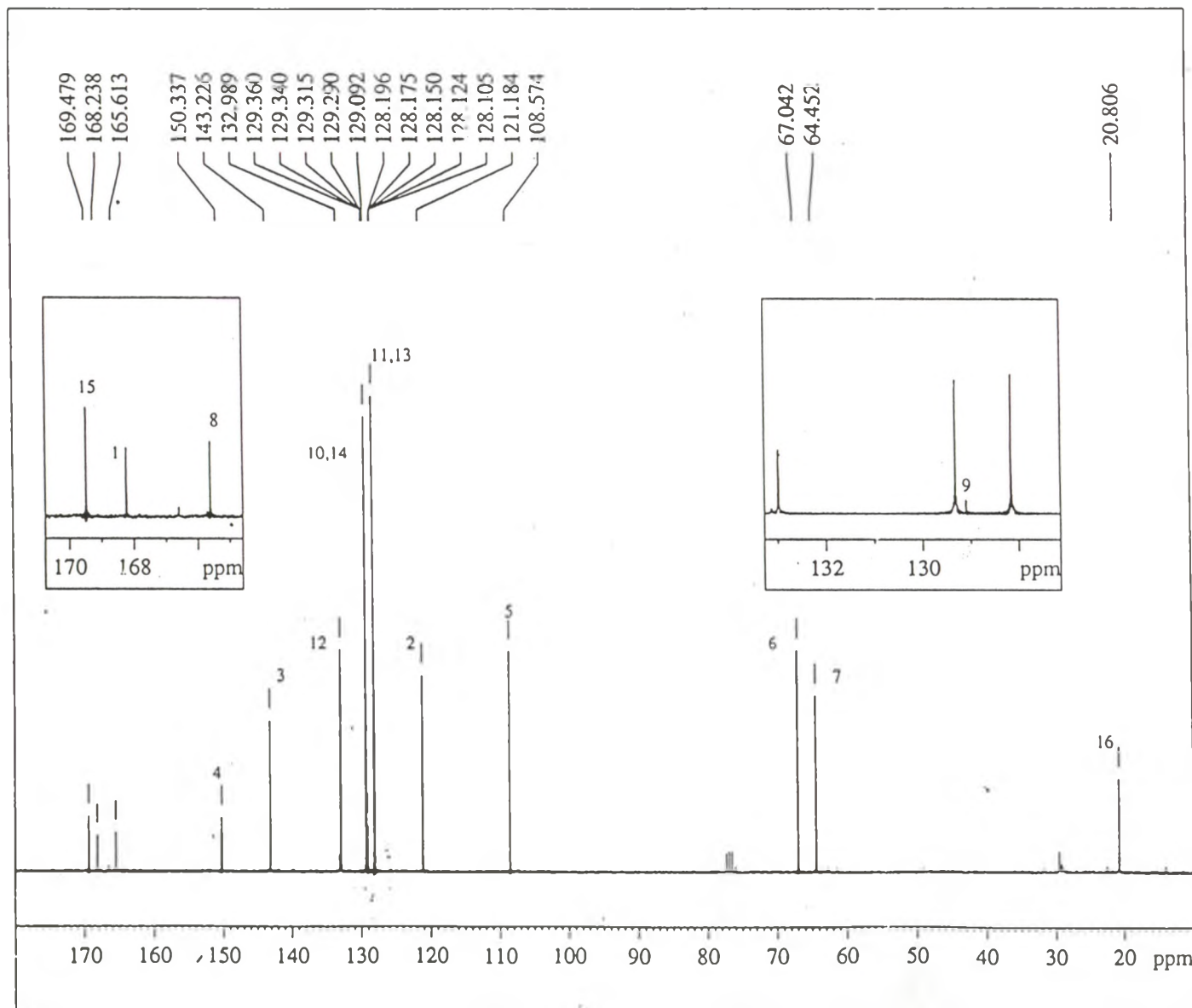


Figure 46: 75 MHz Carbon-13 NMR Spectrum of Compound MF-6

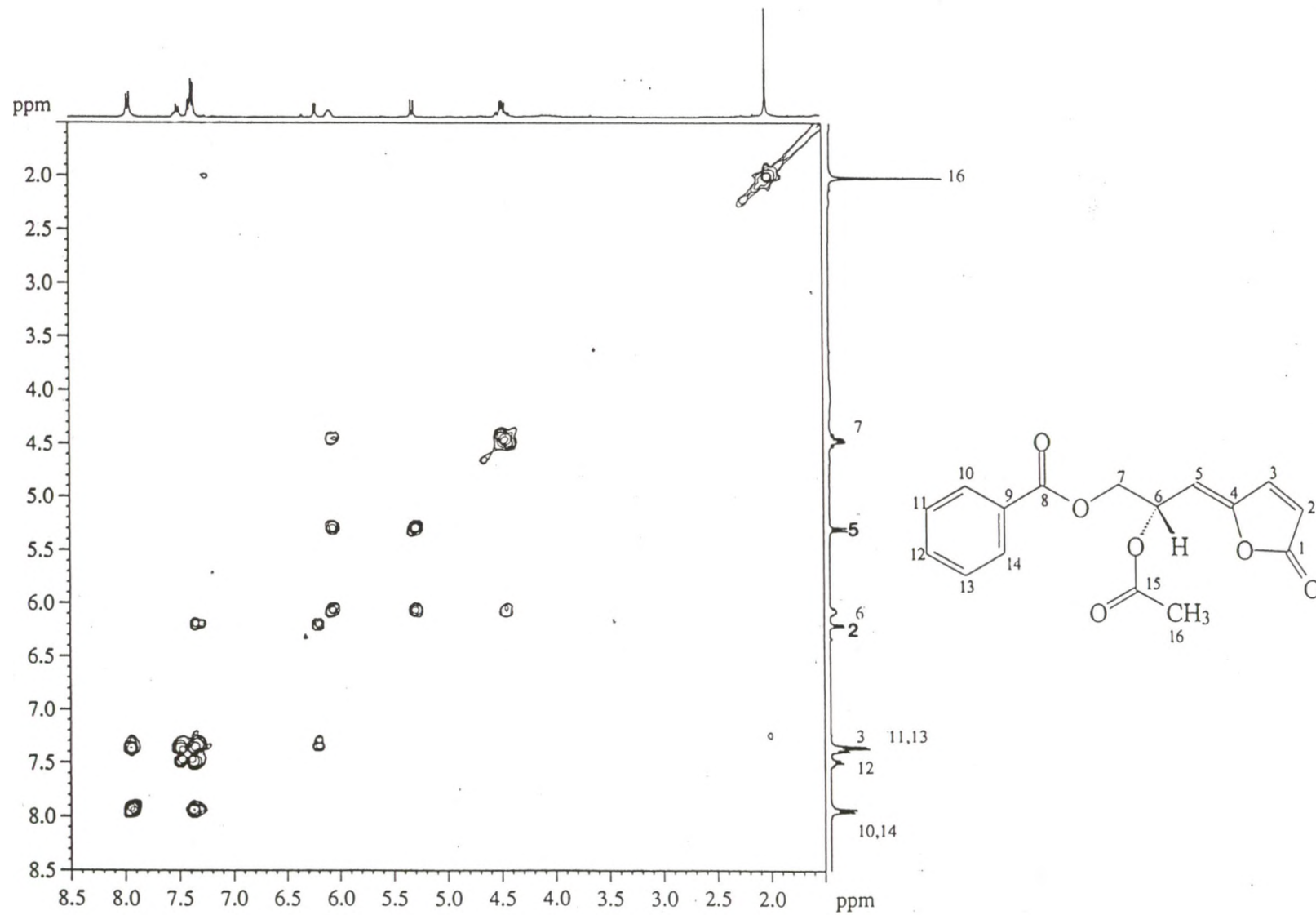


Figure 47: H-H COSY NMR Spectrum of Compound MF-6

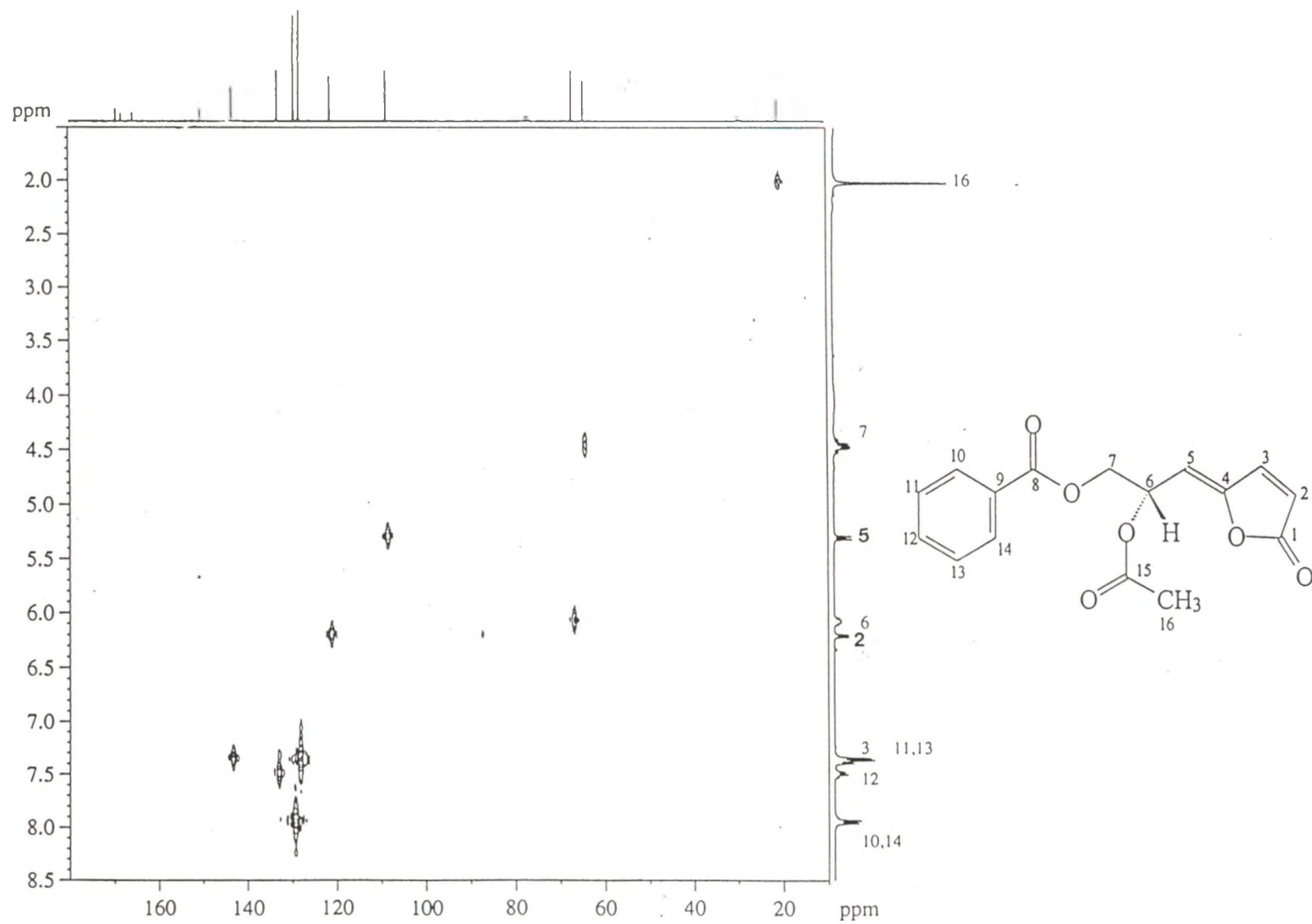


Figure 48: C-H COSY NMR Spectrum of Compound MF-6

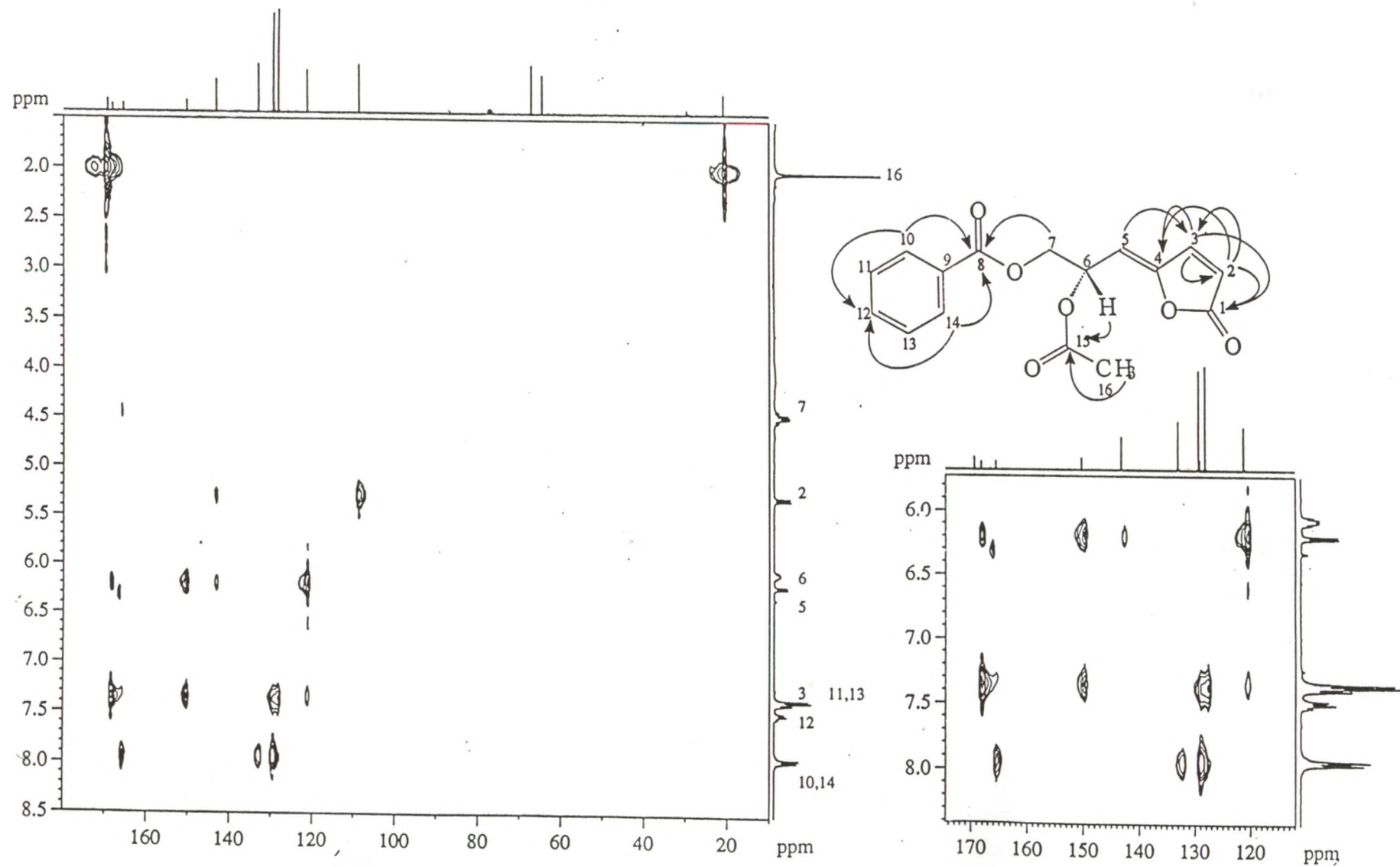


Figure 49: COLOC NMR Spectrum of Compound MF-6

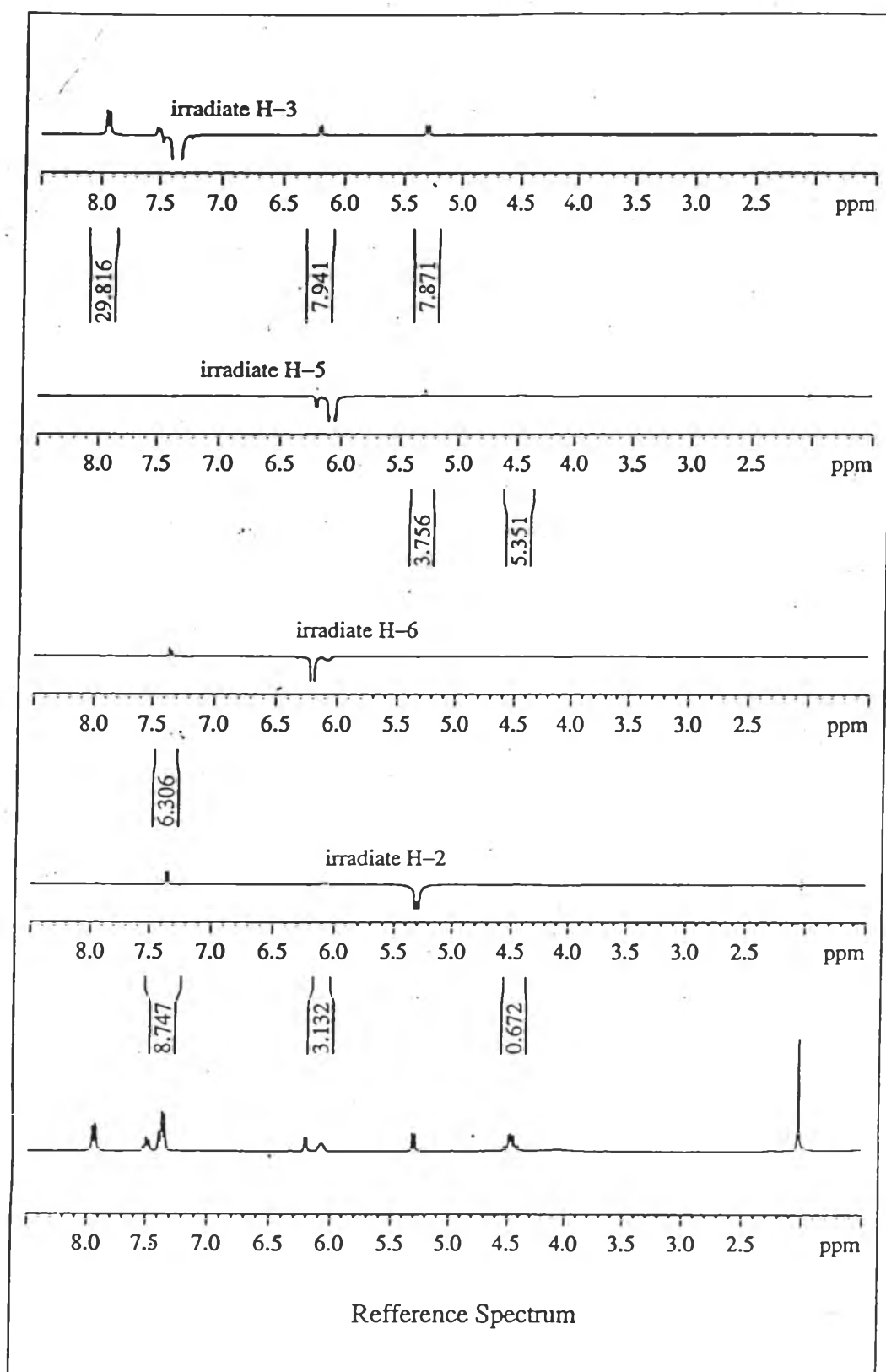


Figure 50: NOE Difference Spectra of Compound MF-6

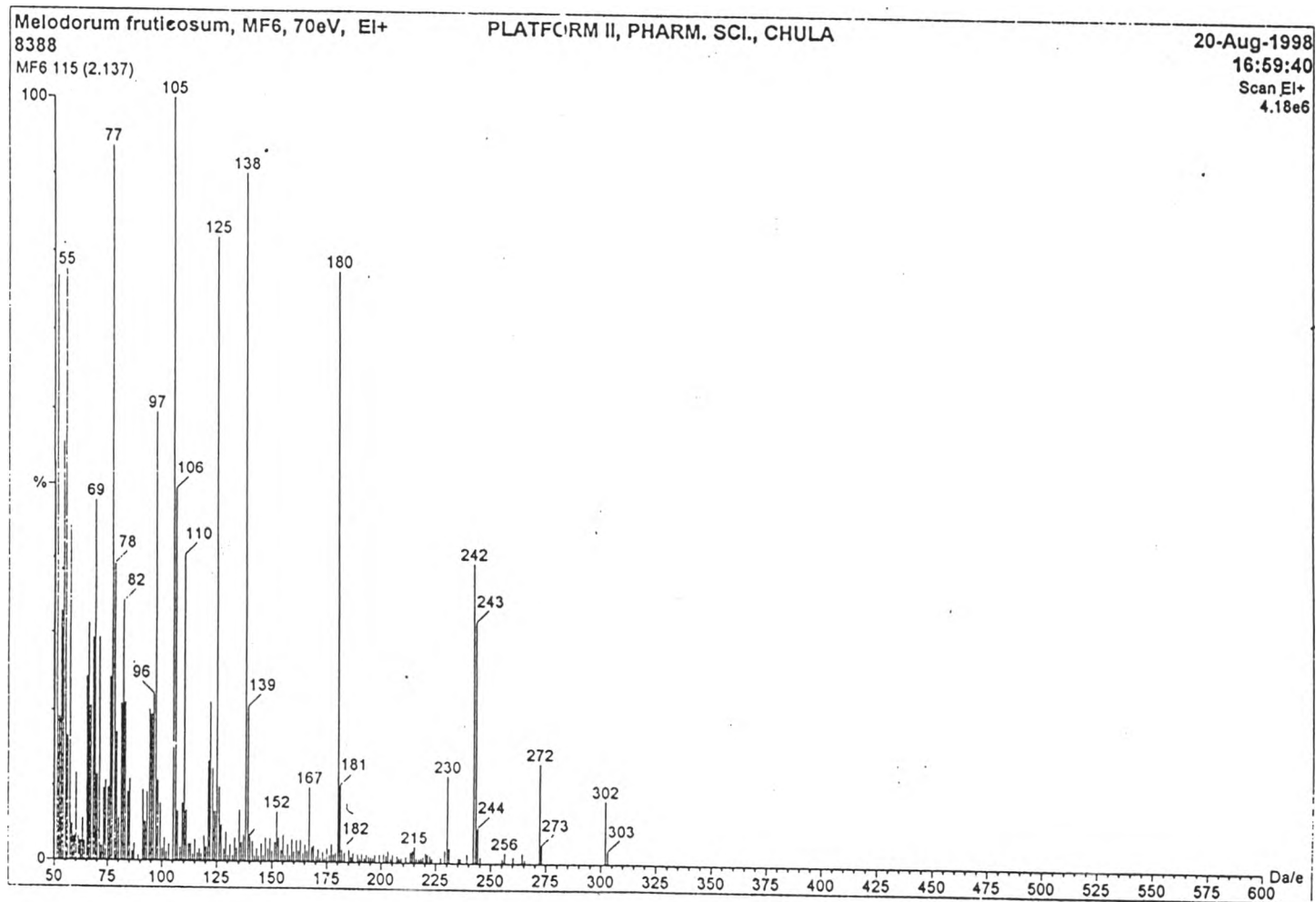


Figure 51: 70 eV EI Mass Spectrum of Compound MF-6

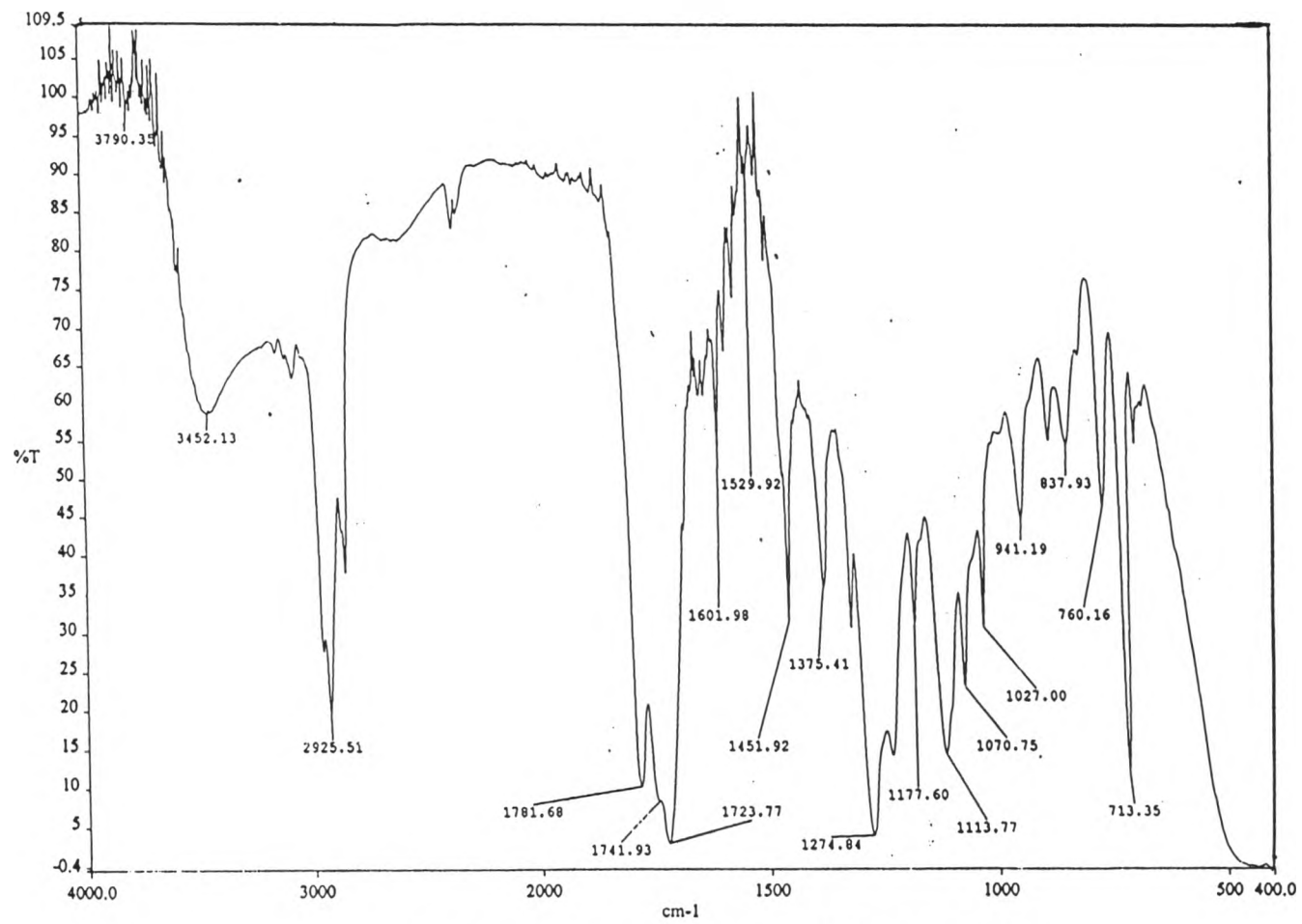
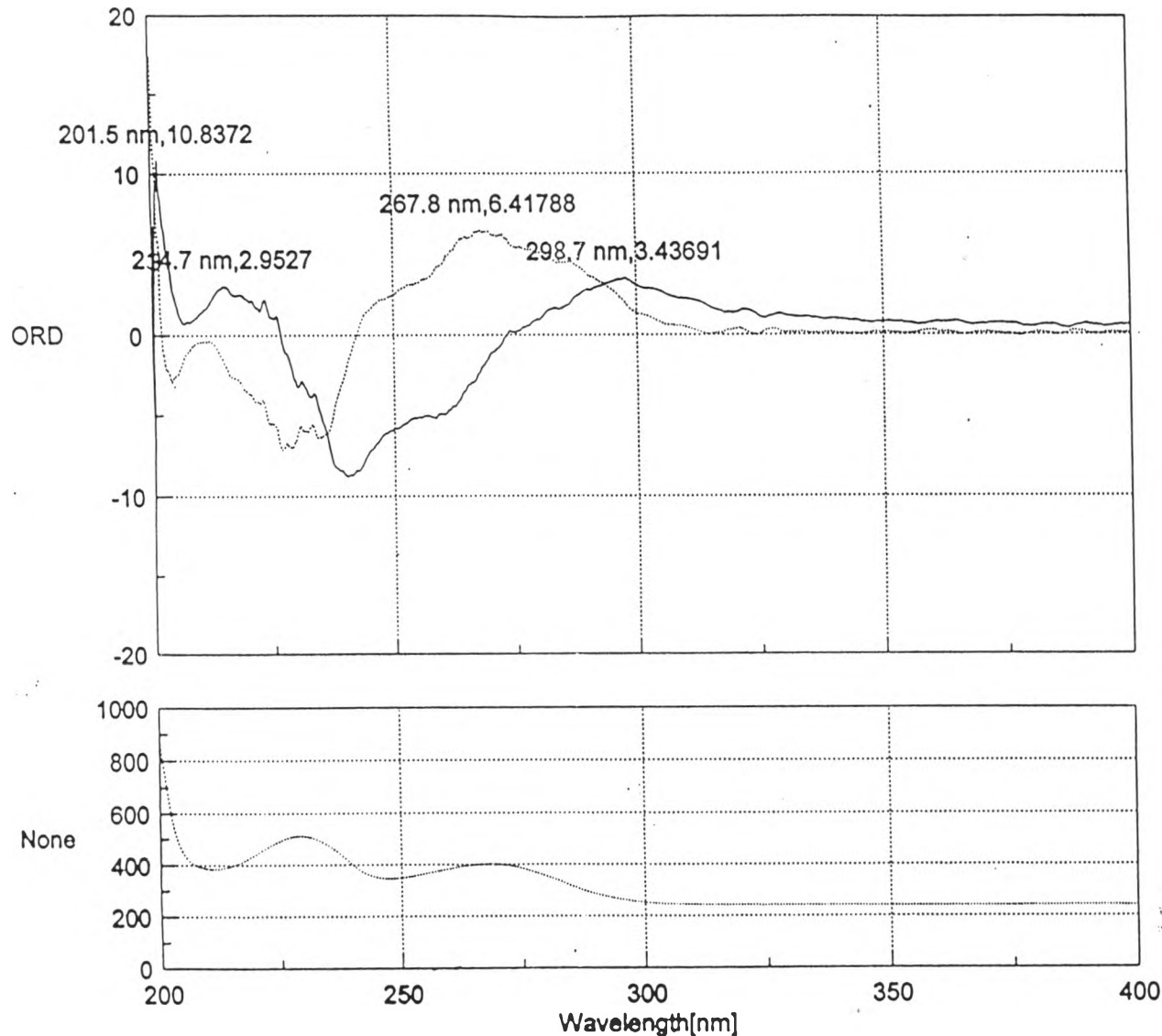


Figure 52: Infrared Spectrum of Compound MF-6



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 Sample : MF6 from *Melodorum fruticosum*
 Cell Length : 0.1 cm
 Concentration : 0.062 %
 Solvent : MeOH
 Temperature : 25 C
 Operator :
 Organization :
 Comment : Optical Rotation

Data mode : ORD
 Ch2-mode : None
 Range : 400 - 200 nm
 Band width : 1.0 nm
 Sensitivity : 100 mdeg
 Resolution : 0.1 nm
 Response : 1 sec
 Speed : 200 nm/min
 Accumulation : 4

— Optical Rotation
 Circular Dichroism

Figure 53: Circular Dichroism Spectrum of Compound MF-6