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APPENDIX

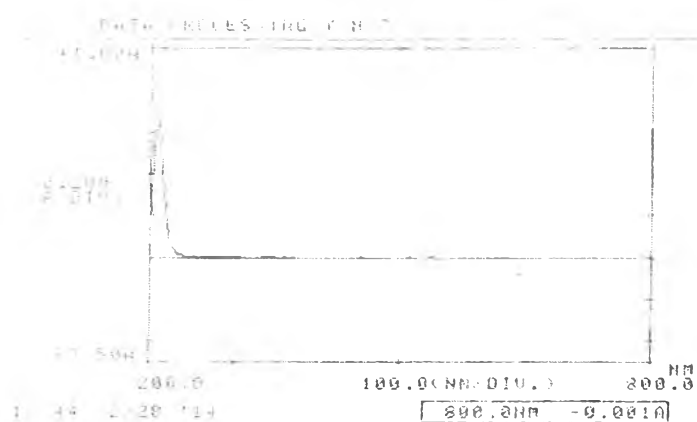


Figure 13. UV spectrum of C3 (in MeOH).

Scientific and Technological Research Experiment Course
Chemical Engineering Laboratory

Fourier Transform Infrared Spectroscopy (Spectrum One)

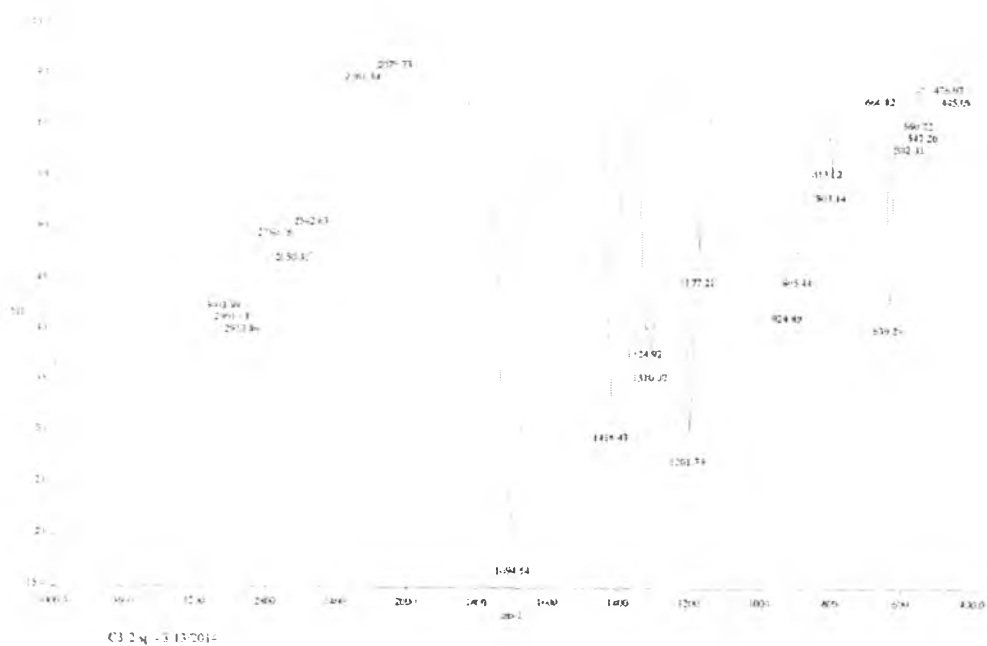


Figure 14. IR spectrum of C3 (KBr).



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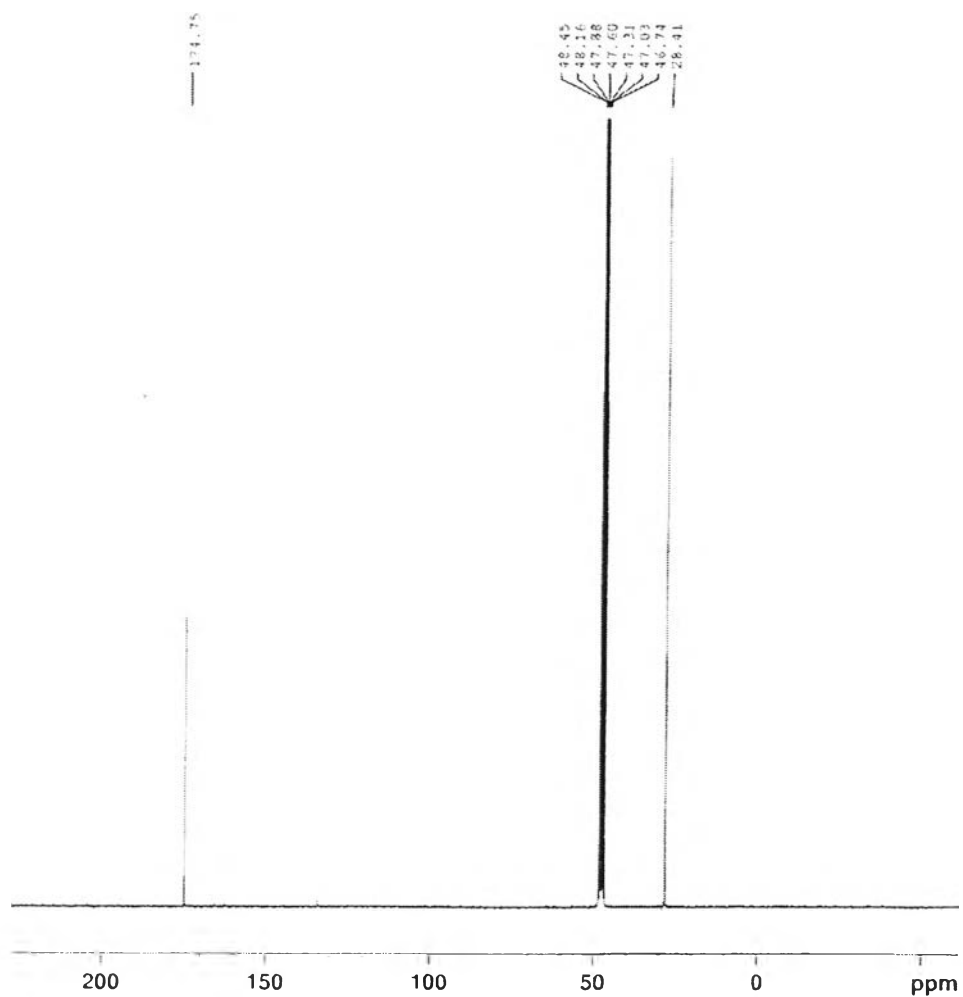


Figure 17. ^{13}C -NMR (75 MHz) spectrum of C3 (in CD_3OD).

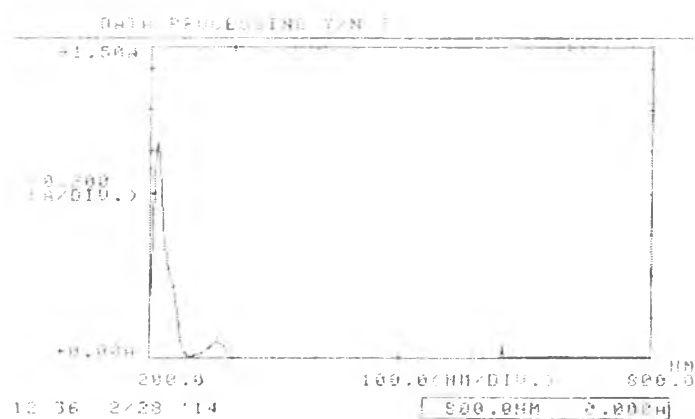


Figure 18. UV spectrum of BB21-C (in MeOH).

Scientific and Technological Research Equipment Centre
Changchun University

Fourier Transform Infrared Spectroscopy, Pe-Kali line (5 Spectra Cases)

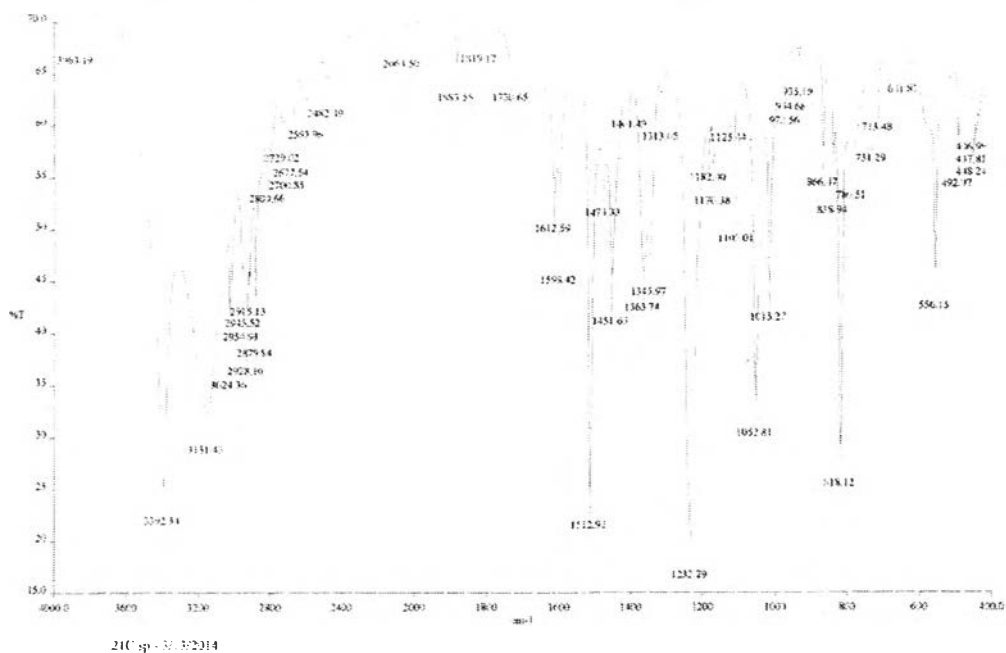


Figure 19. IR spectrum of BB21-C (KBr).

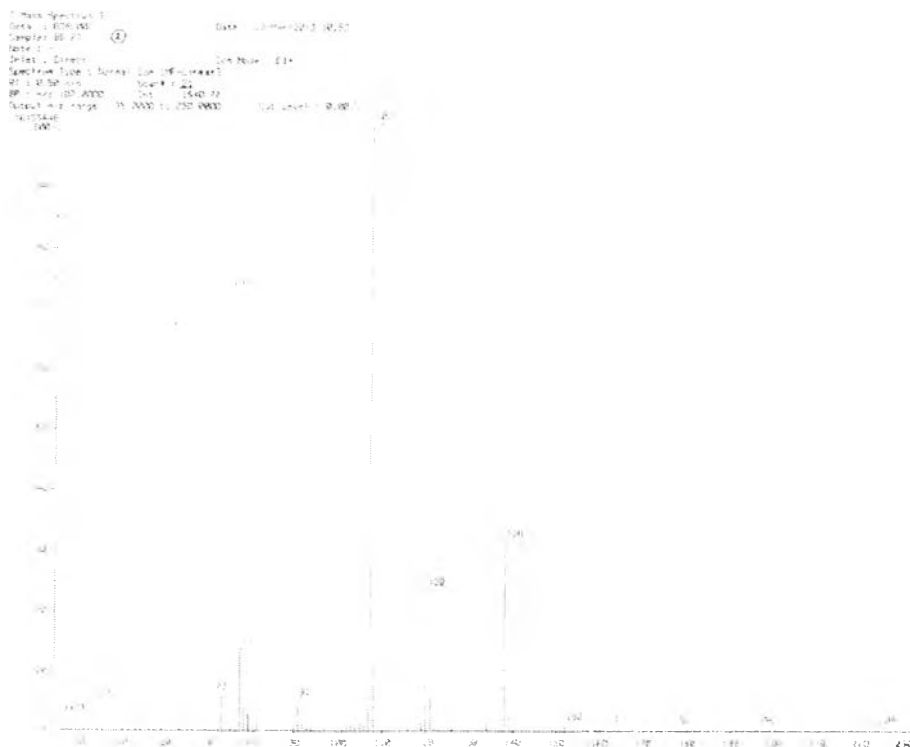


Figure 20. EI Mass spectrum of BB21-C.

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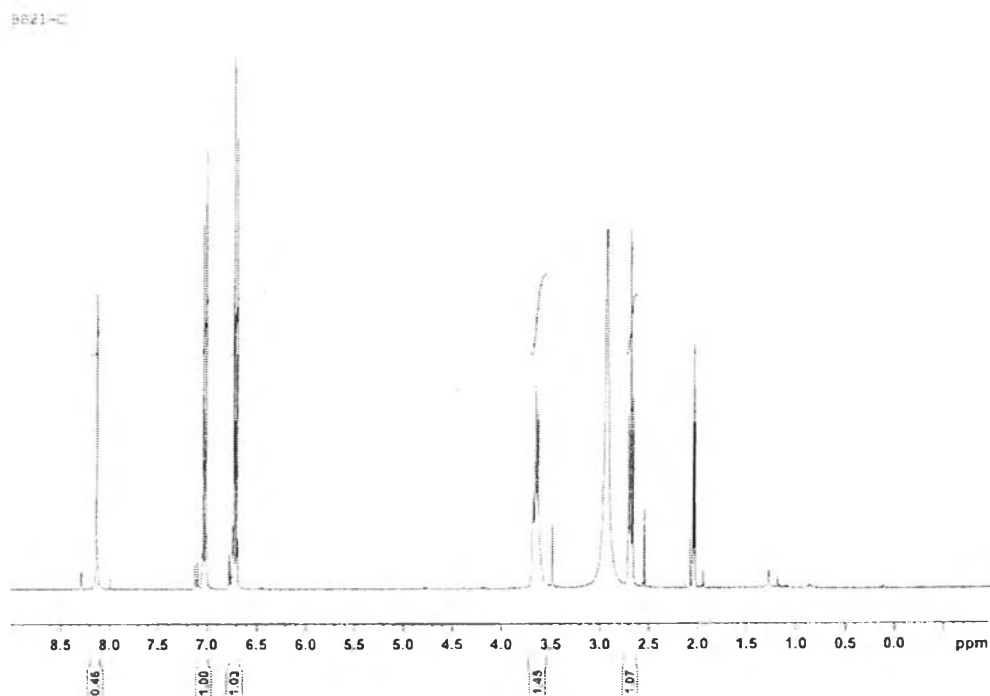


Figure 21. ^1H -NMR (300 MHz) spectrum of BB21-C (in acetone- d_6).

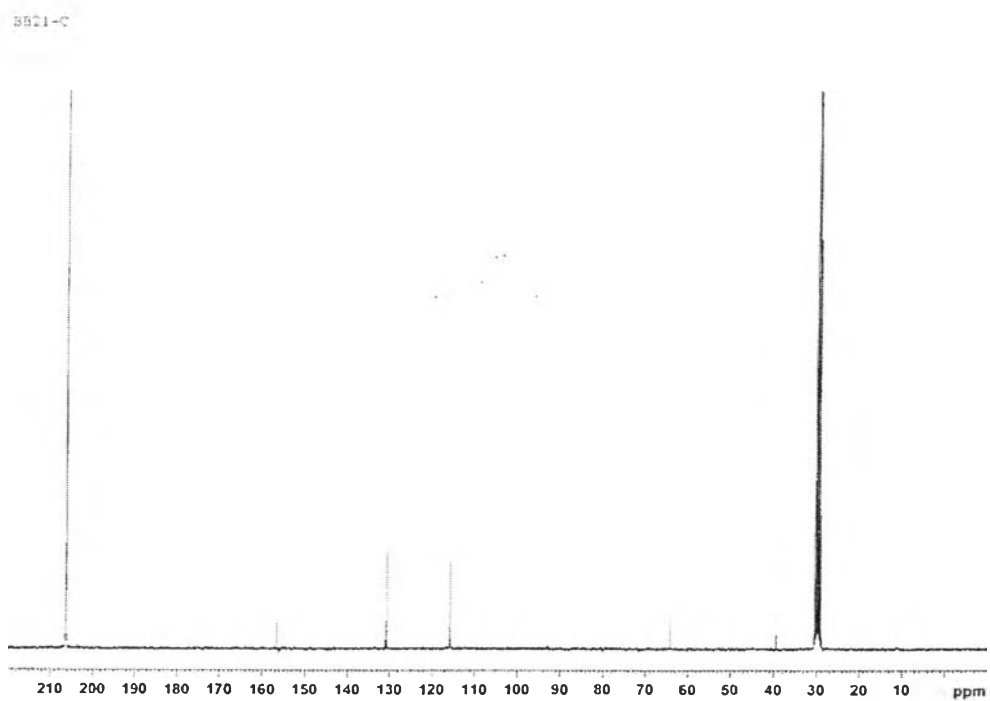


Figure 22. ^{13}C -NMR (75 MHz) spectrum of BB21-C (in acetone- d_6).

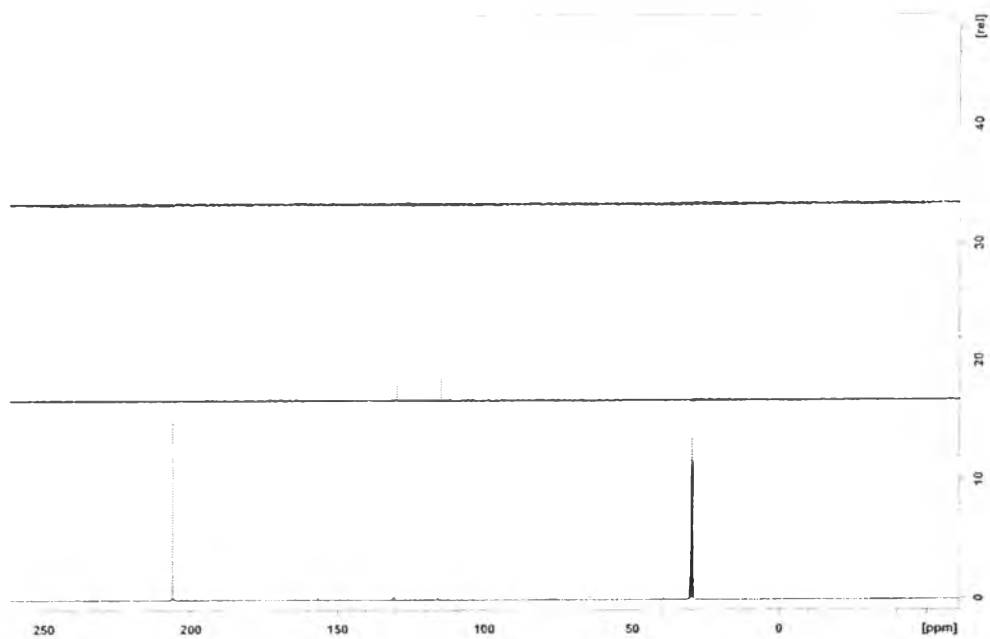


Figure 23. ^{13}C -NMR (75 MHz) and DEPT135 spectra of BB21-C (in acetone- d_6).

Scientific and Technological Research Equipment Center
Changsha University of Science and Technology

Fourier Transform Infrared Spectroscopy, Peak List Spectrum in Crest

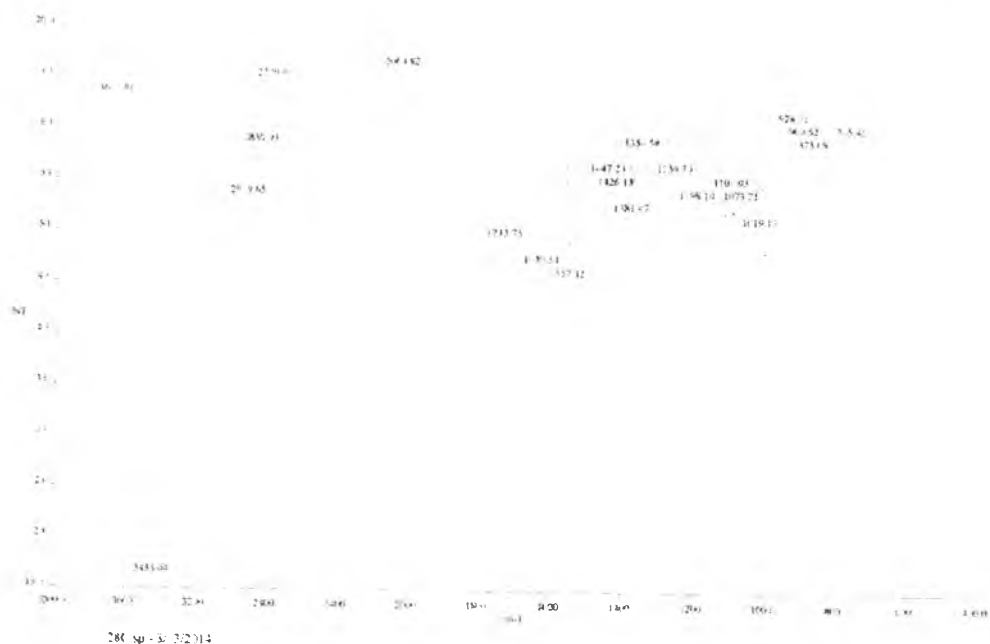


Figure 24. IR spectrum of BB28-C (KBr).

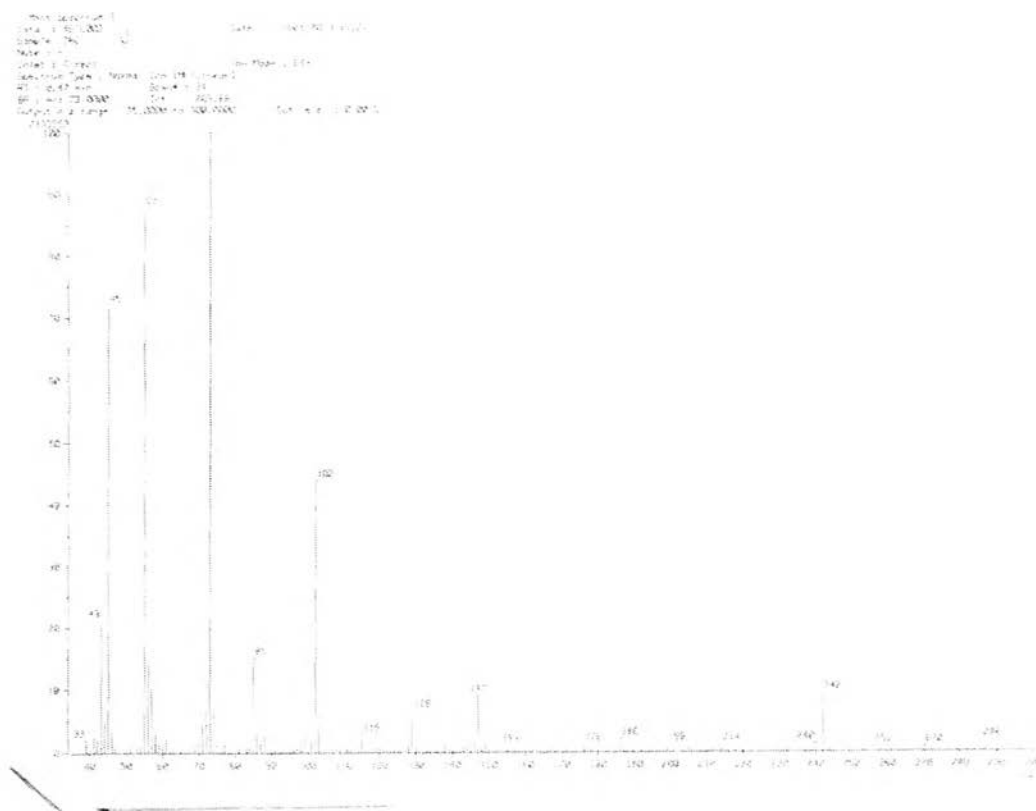
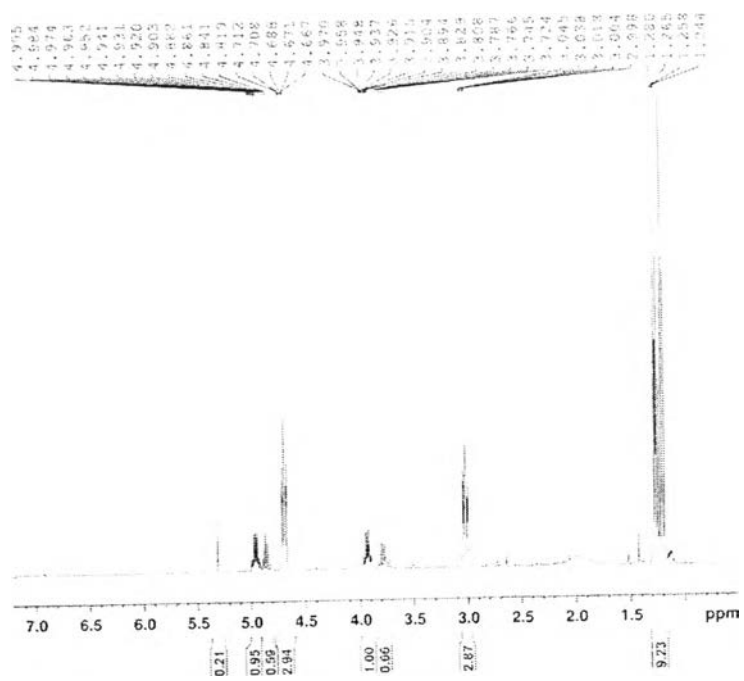


Figure 25. EI Mass spectrum of BB28-C.

Figure 26. $^1\text{H-NMR}$ (300 MHz) spectrum of BB28-C (in CDCl_3).

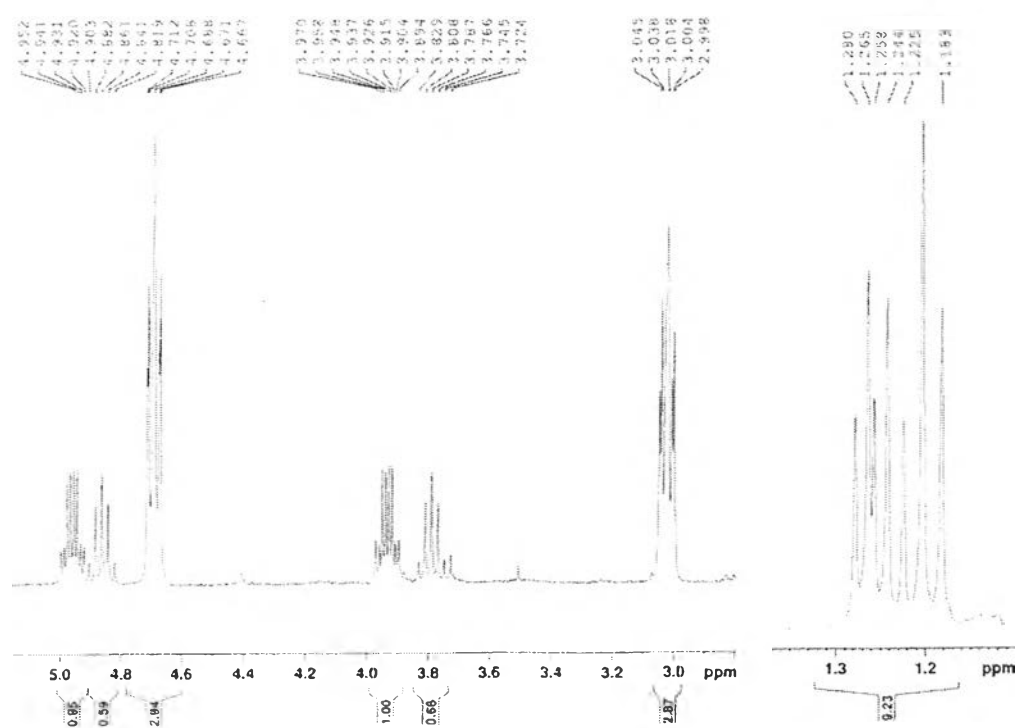


Figure 27. $^1\text{H-NMR}$ (300 MHz) spectrum of BB28-C (in CDCl_3) (expansion between δ_{H} 1.0-5.5 ppm).

BB28-C 13C NMR 300 MHz in CDCl3

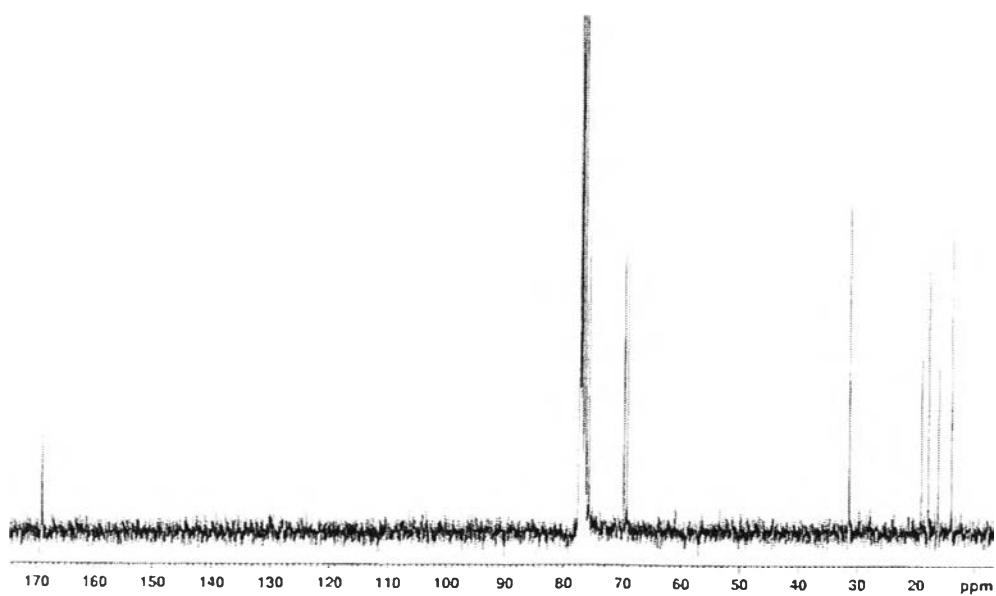


Figure 28. $^{13}\text{C-NMR}$ (75 MHz) spectrum of BB28-C (in CDCl_3).

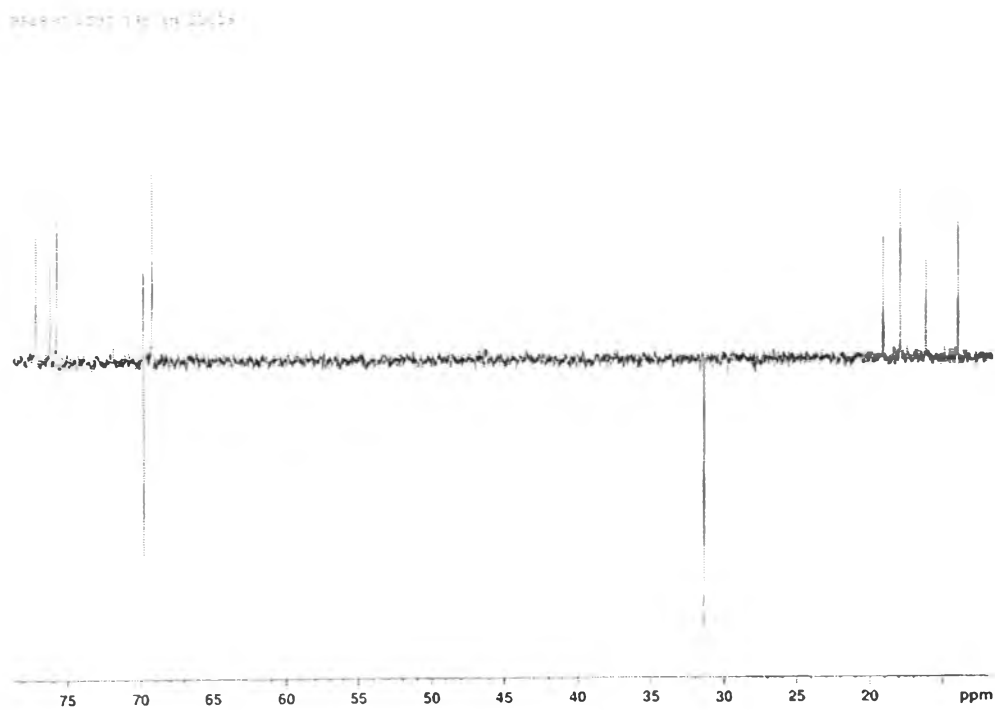


Figure 29. DEPT135 spectrum of BB28-C (in CDCl_3).

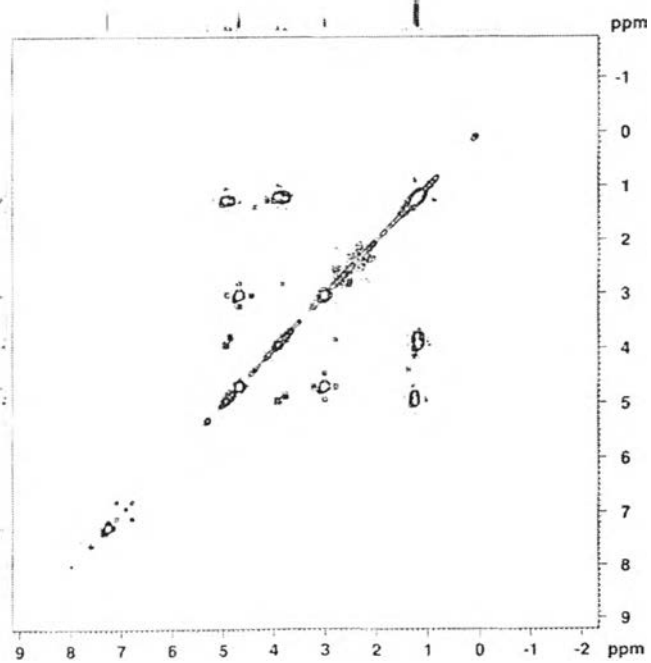
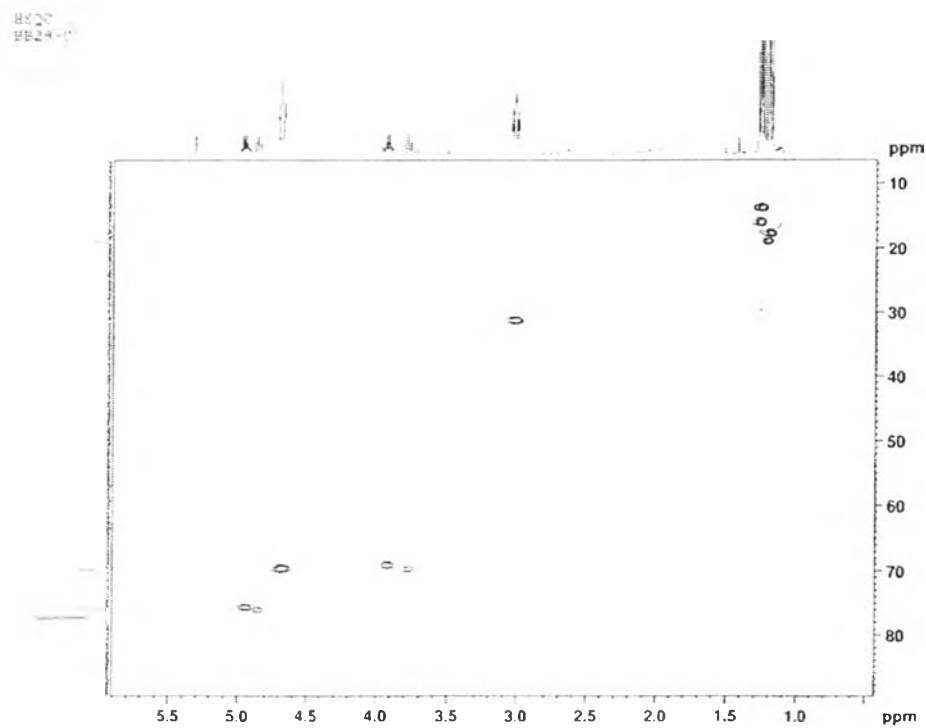
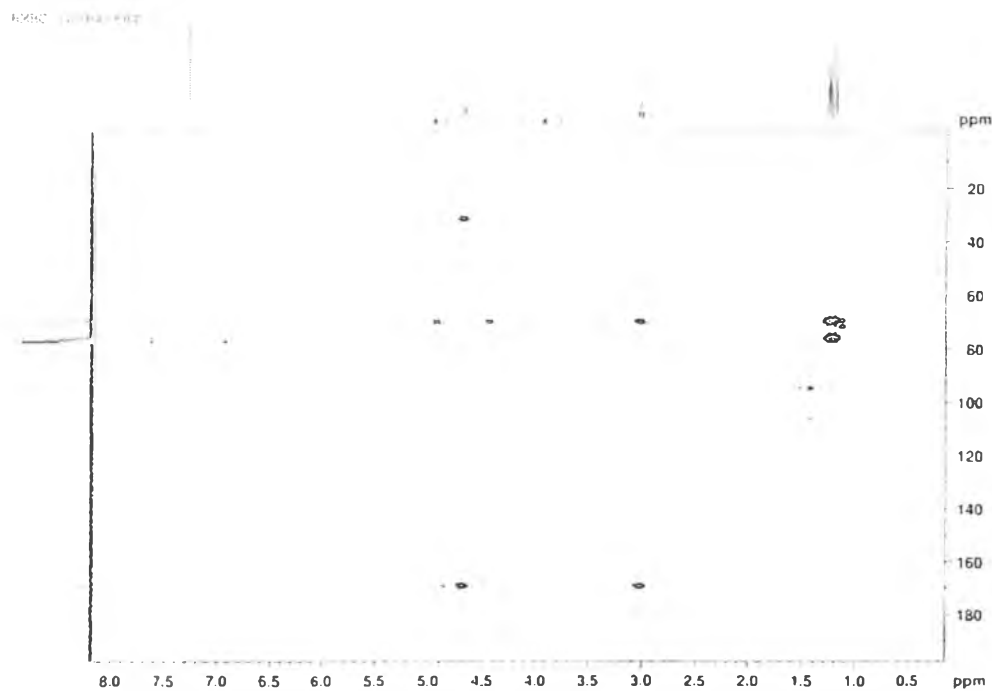


Figure 30. ^1H - ^1H COSY spectrum of BB28-C (in CDCl_3).

Figure 31. HSQC spectrum of BB28-C (in CDCl_3).Figure 32. HMBC spectrum of BB28-C (in CDCl_3).

VITA

Miss Punyisa Ngankaranatikarn was born on September 6, 1988 in Phuket, Thailand. She received her B.Sc. in Pharmacy (Second class honours) in 2010 from the Faculty of Pharmaceutical Sciences, Chulalongkorn University, Thailand.

Poster presentation

Punyisa Ngankaranatikarn, Taksina Chuanasa, Nongluksna Sriubolmas and Khanit Suwanborirux. Antileukemic activity and secondary metabolites of an endophytic fungus *Phomopsis* sp. from *Artemisia annua*. Proceeding of the 30th Annual Research conference in Pharmaceutical Sciences, December 6, 2013. Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok, Thailand. p. 37-40.

