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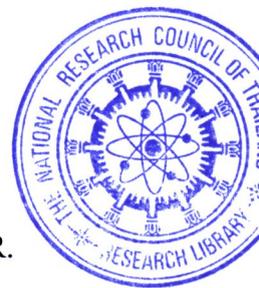
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APPENDICES

APPENDIX A**List of chemicals and apparatus used in the study****1. Chemicals**

All chemicals used in this study were analytical grades and list as following

1. Acetaminophen, Fluca
2. 5,5'-dithio-bis 2-nitrobenzoic acid (DTNB), Fluca
3. Diazepam, Sigma
4. Acetonitrile HPLC grade, Fisher Scientific
5. B- Nicotinamide adenine dinucleotide phosphate, Sigma
6. B- Nicotinamide adenine dinucleotide, Sigma
7. BCA protein assay kit, Sigma
8. Bovine serum albumin, Sigma
9. Flunitrazepam, Sigma
10. Oxazepam, Merck
11. Disodium hydrogen phosphate anhydrous, Ajax Finechem
12. DCC, T.O. Pharma.Co.LTD
13. Ethylenediaminetetraaceticacid (EDTA), Fluca
14. Formaldehyde, Chiang Mai Winner
15. Glucose -6- phosphate, Sigma
16. Glycerol, Merck

17. Hydrochloric acid, Merck
18. Magnesium chloride, May and baker
19. Metaphosphoric acid, Merck
20. Methanol HPLC grade, Fisher Scientific
21. NADP, Fluka
22. *p*- nitrophenol, Fluka
23. Perchloric acid, J.F. Baker
24. Potassium chloride, Merck
25. Reduced glutathione, Sigma
26. Sodium chloride, Merck
27. Sodium citrate dihydrate, Merck
28. Sodium dihydrogen phosphate dihydrate ,Seelza-hannover
29. Sodium hydroxide, Merck
30. Sucrose, Fisher Chemical
31. Trichloroacetic acid, Merck

Apparatus

1. Autopipette size 100-1000 ul
2. Autopipette size 2-20 ul
3. Centrifuge
4. Centrifuge tube, Kontron
5. Freezer - 70° C, Forma- Scientific
6. Freezer -20 °C, Sharp
7. Homogenizer, Glass- Col

8. High performance liquid chromatography system, Agilent
9. Ice generator, NT 609 New ton
10. Light microscope, Olympus provis
11. Materials for surgery such as tissue forceps, scissors, artery clamp
12. Spectrophotometer, Beckman Du 650
13. Ultracentrifuge, Kontron
14. Vortex mixture, VM-300
15. Weighting balance, Oertling NA 164



APPENDIX B

Chromatogram structure of caffeic acid derivatives

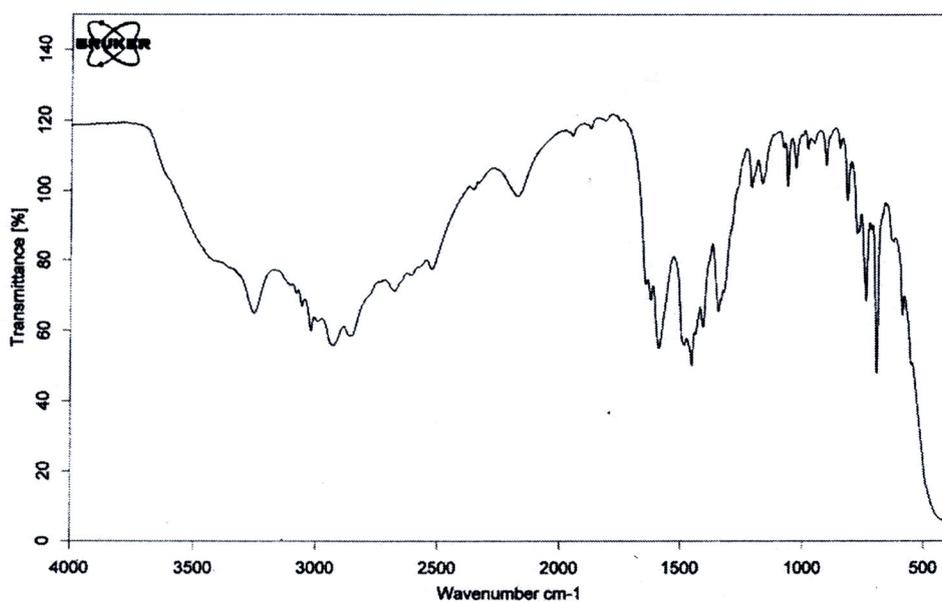


Fig. 1B Infrared spectrum of EDP

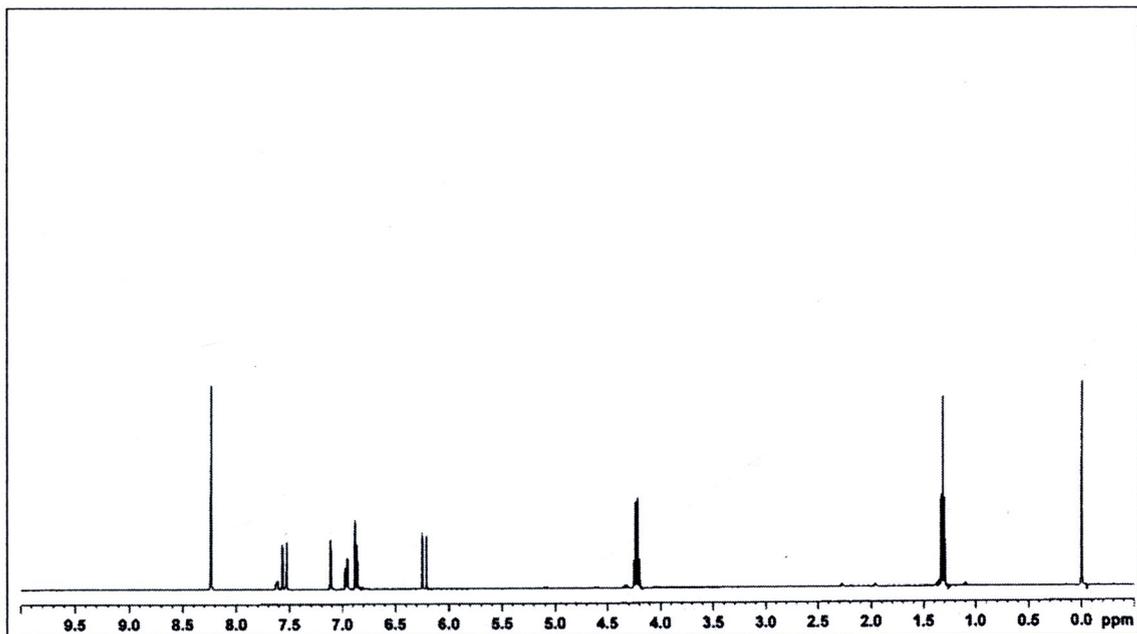


Fig 2B ^1H -NMR spectrum of EDP

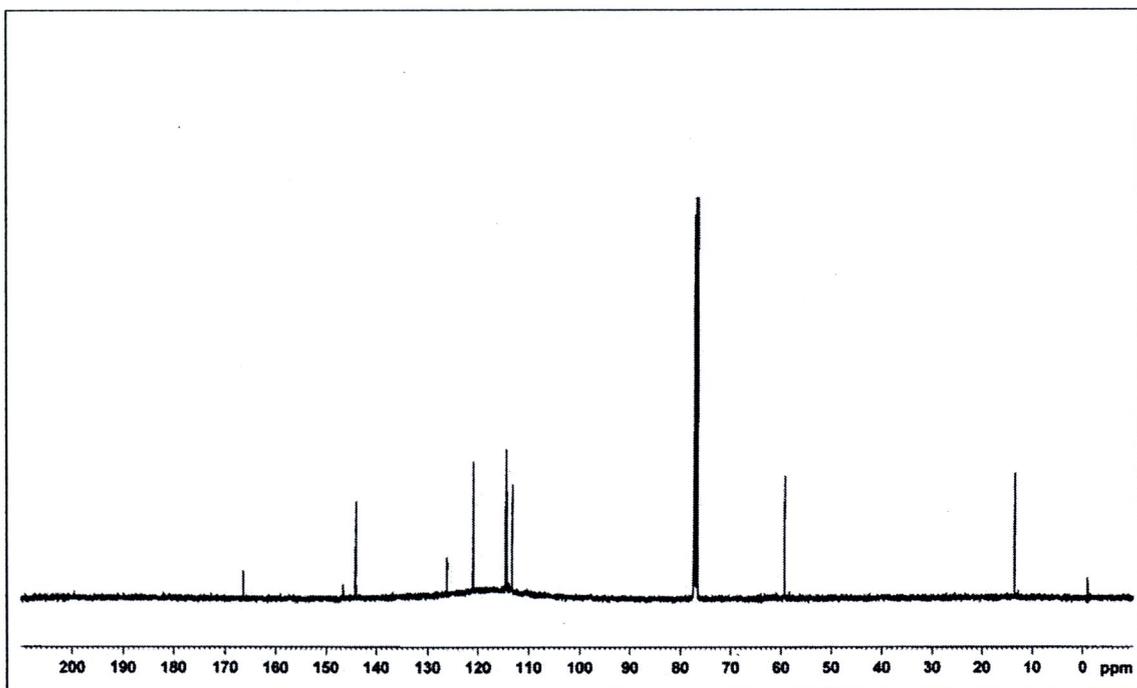


Fig 3B ^{13}C -NMR spectrum of EDP

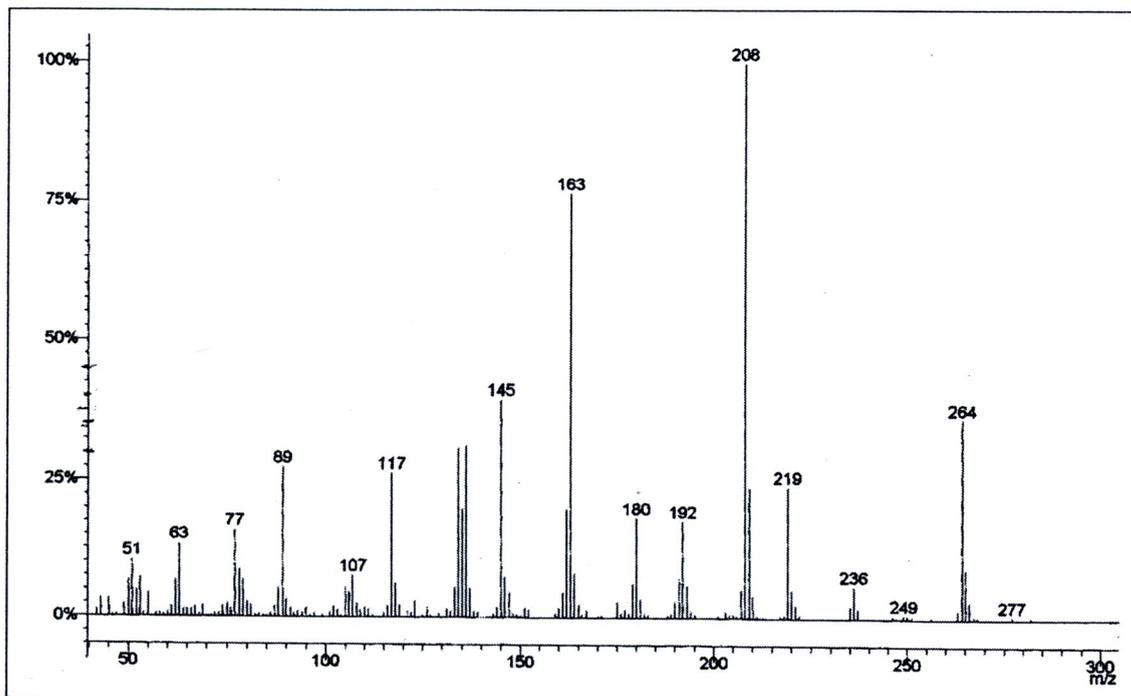


Fig 4B Mass spectrum of EDP

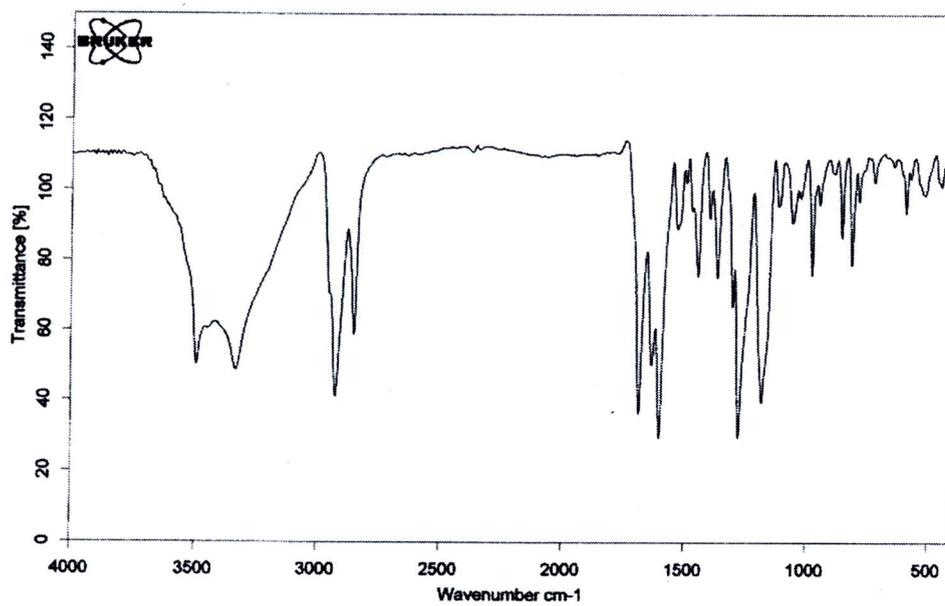


Fig 5B Infrared spectrum of ODP

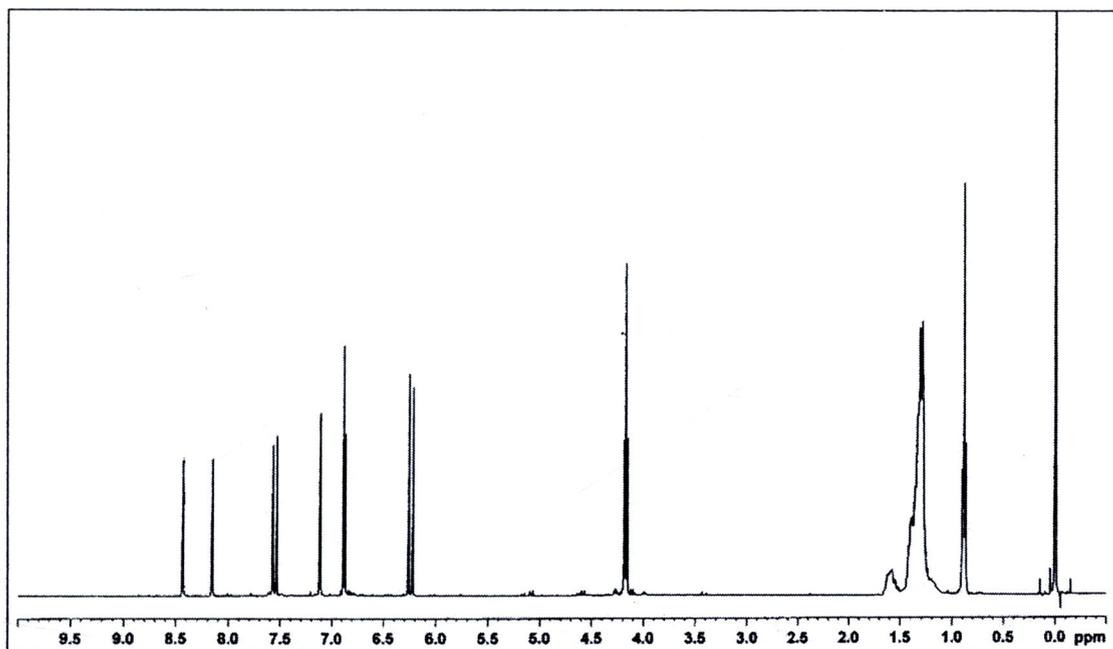


Fig 6B H^1 -NMR spectrum of ODP

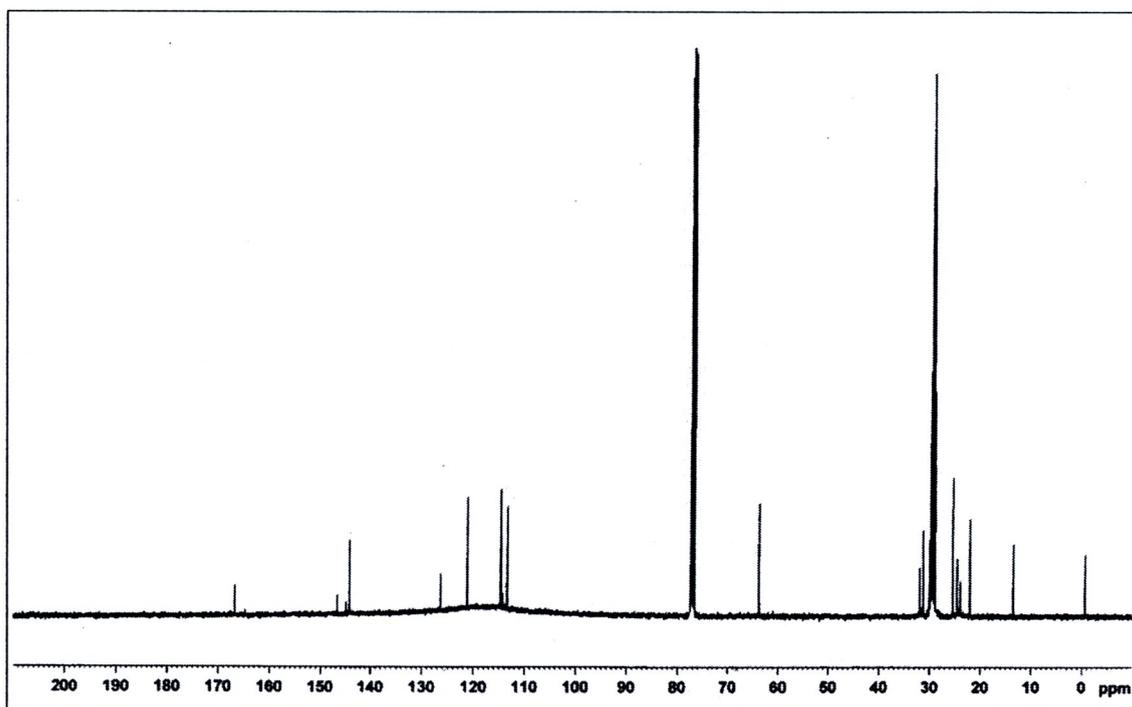


Fig7B C^{13} -NMR spectrum of ODP

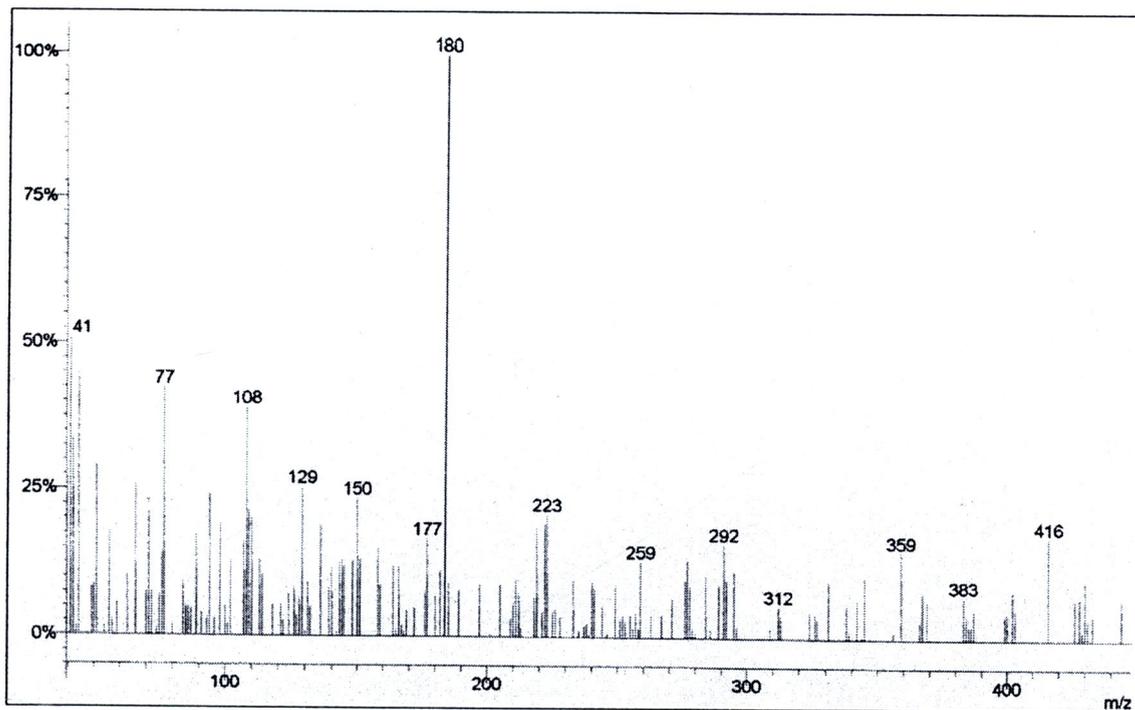


Fig8B Mass spectrum of ODP

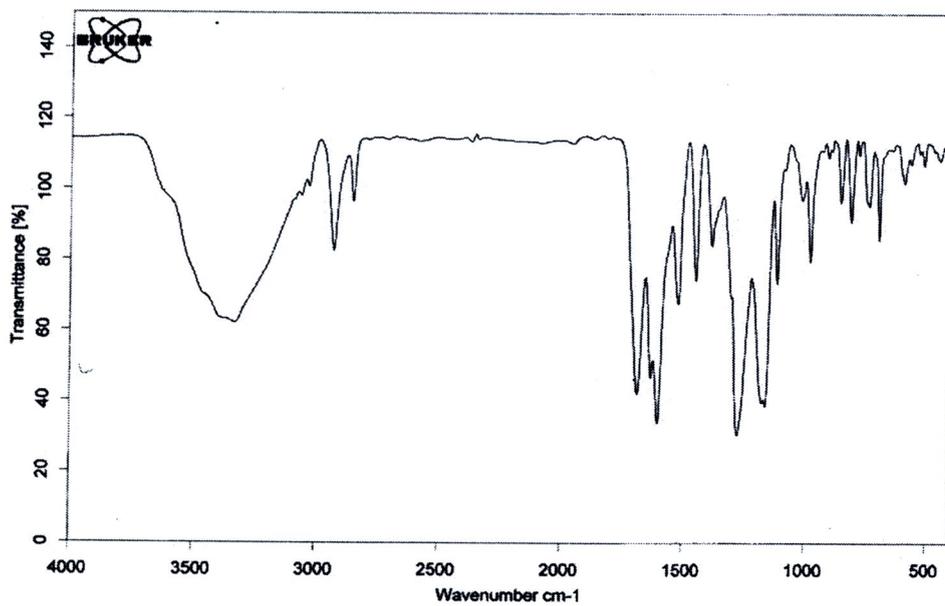


Fig 9B Infrared spectrum of PMDP

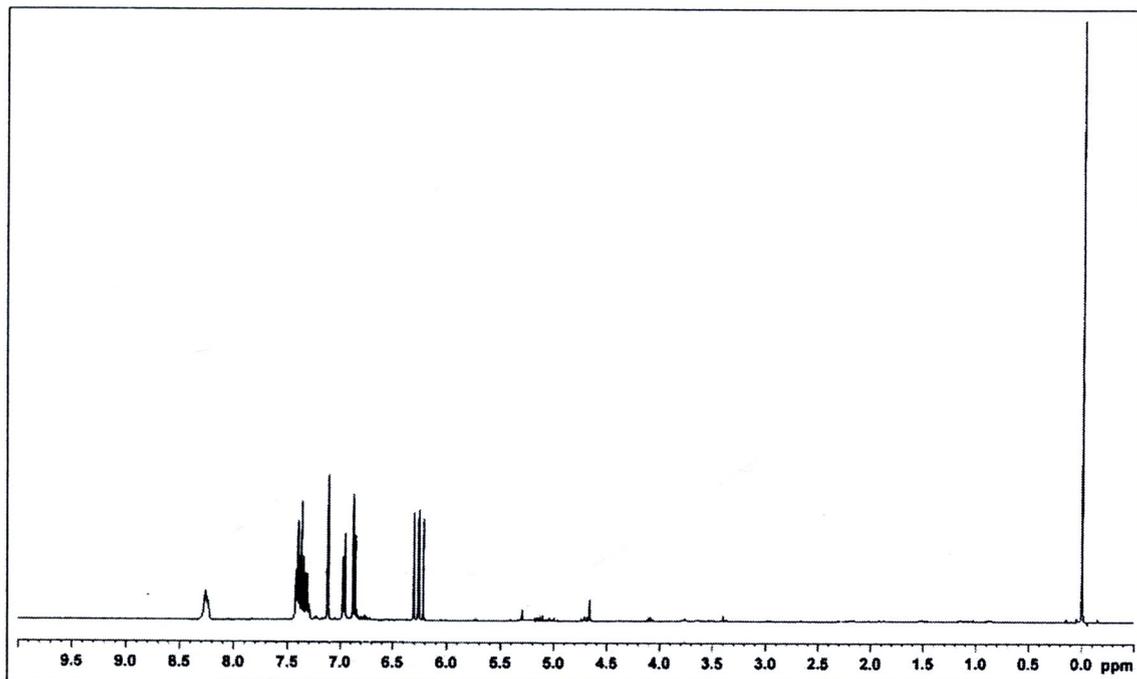


Fig 10B H^1 -NMR spectrum of PMDP

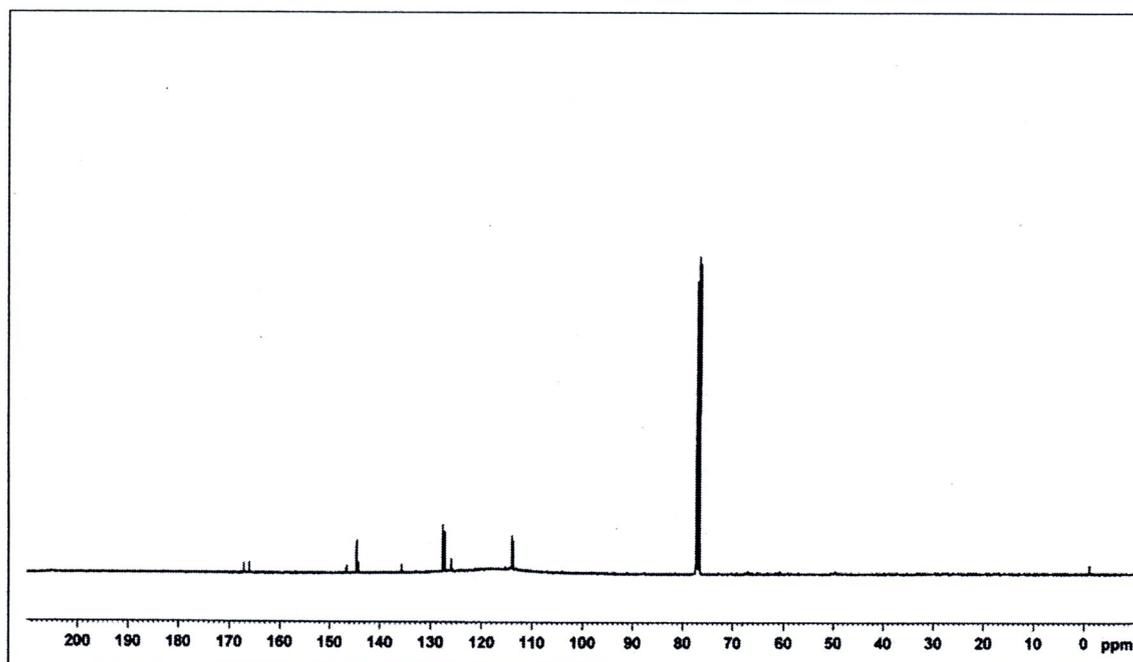


Fig 11B C^{13} -NMR spectrum of PMDP

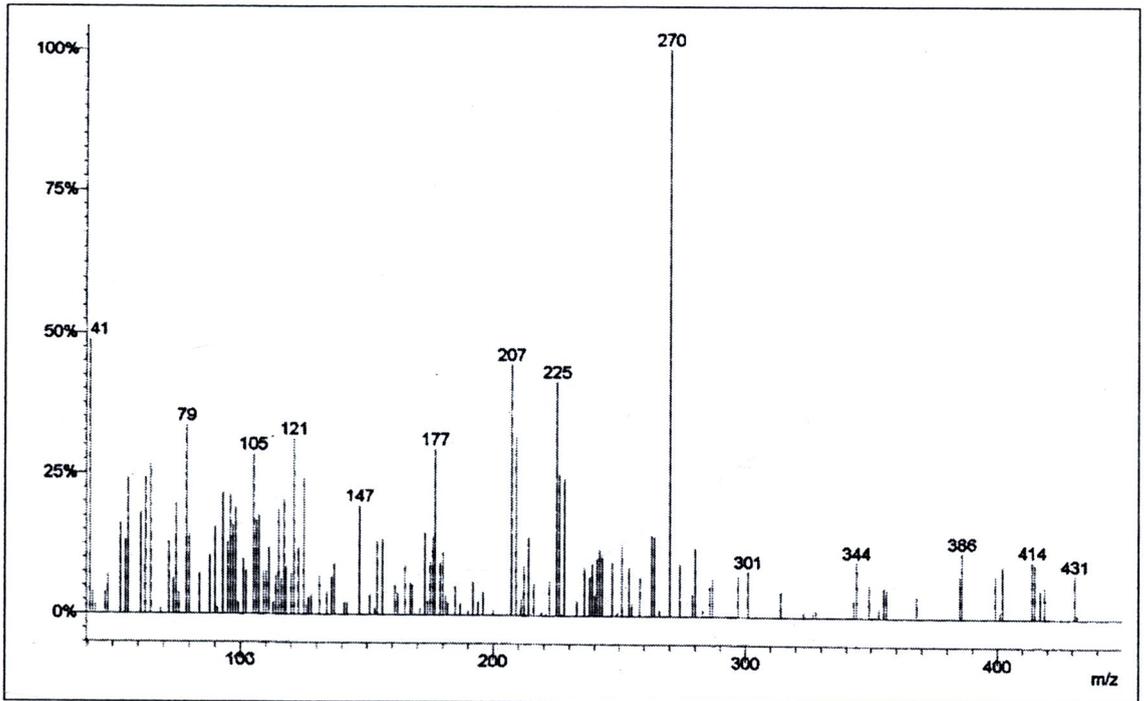


Fig 12B Mass spectrum of PMDP

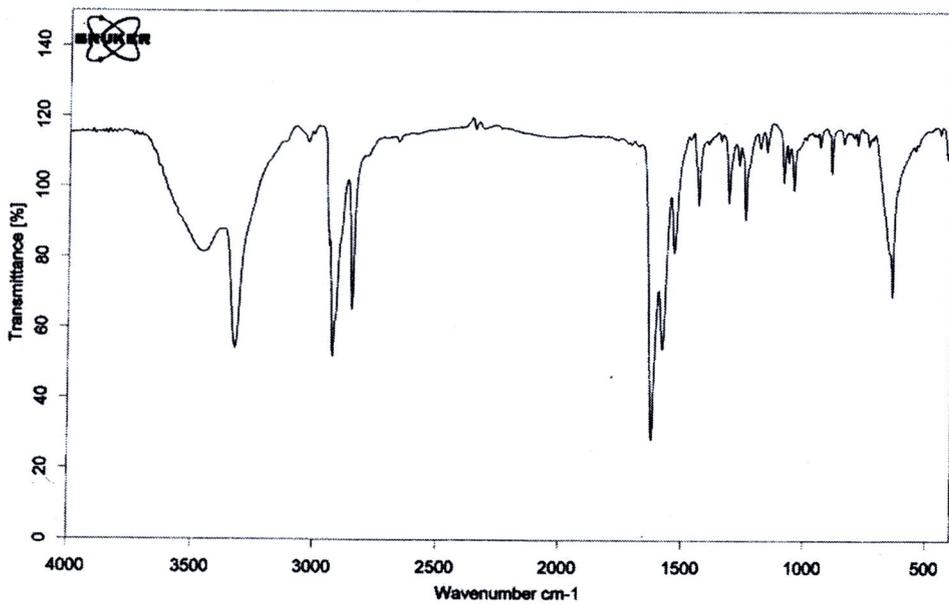


Fig 13B Infrared spectrum of PEDP

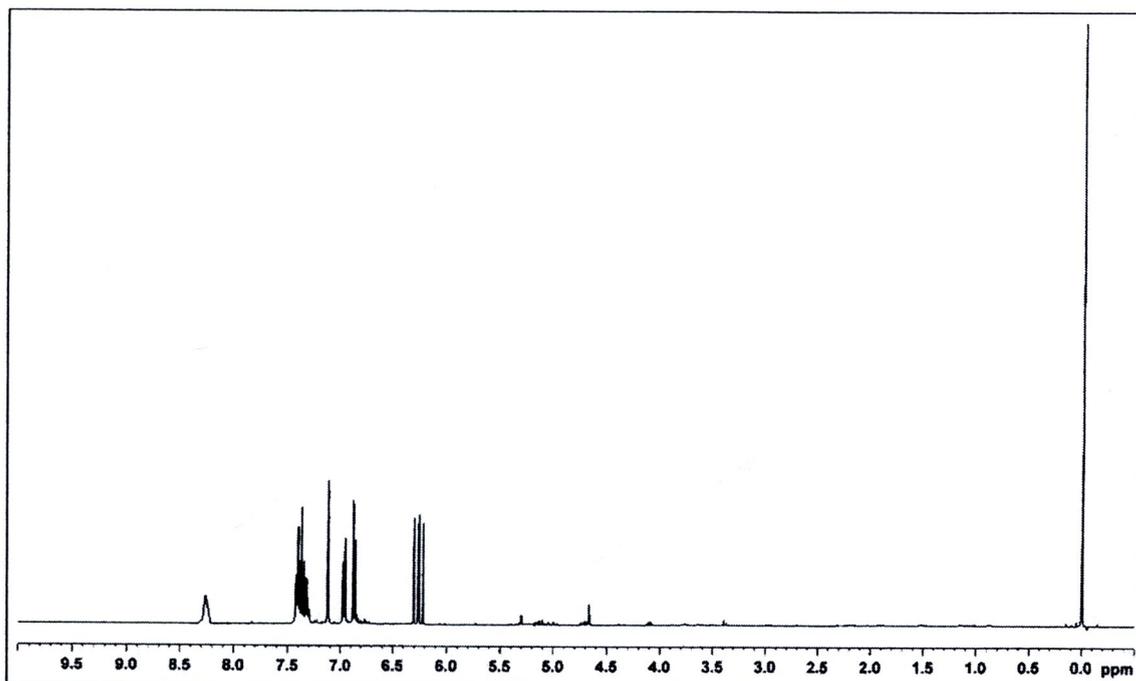


Fig 14B ^1H -NMR spectrum of PEDP

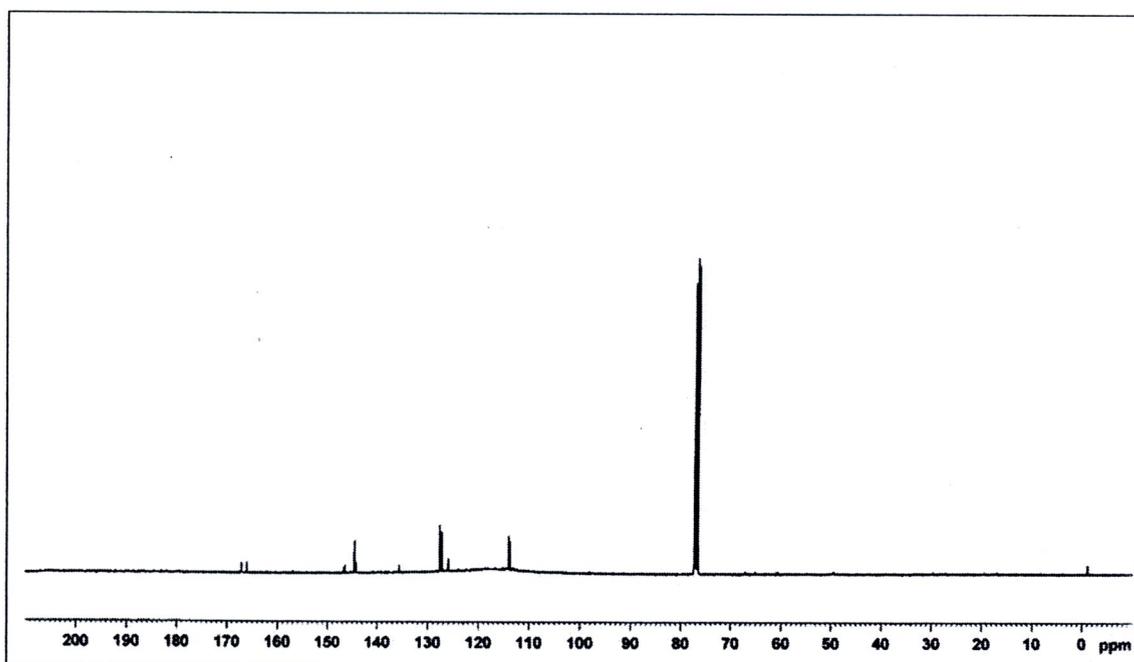


Fig 15B ^{13}C -NMR spectrum of PEDP

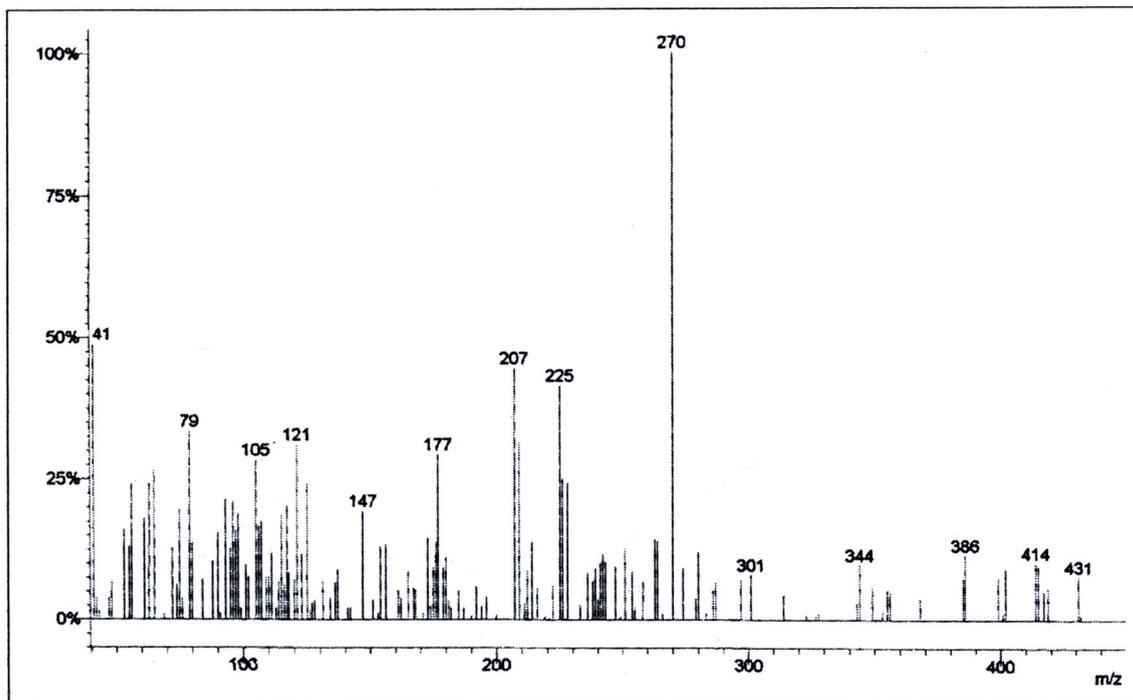


Fig 16B Mass spectrum of PEDP

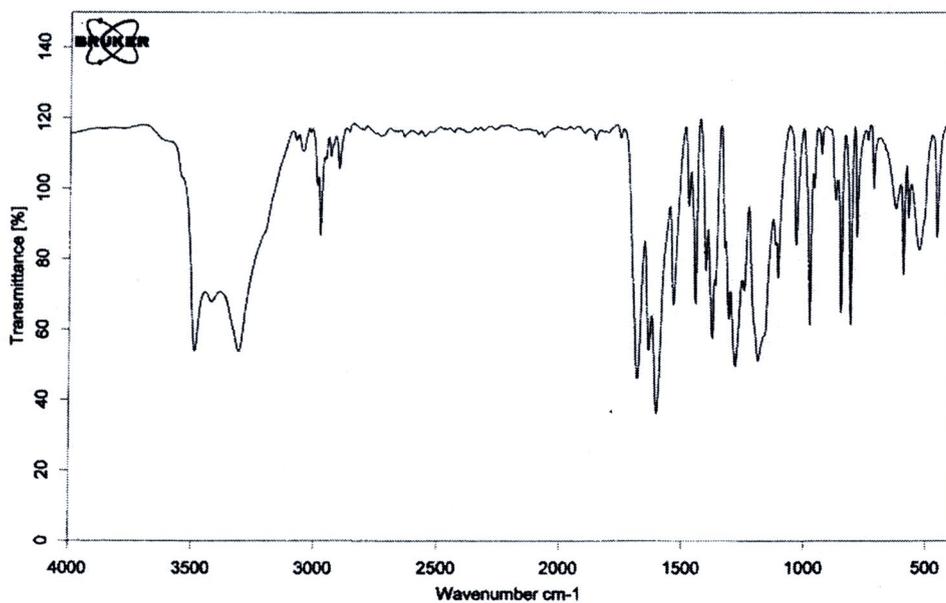


Fig 17B Infrared spectrum of EDPA

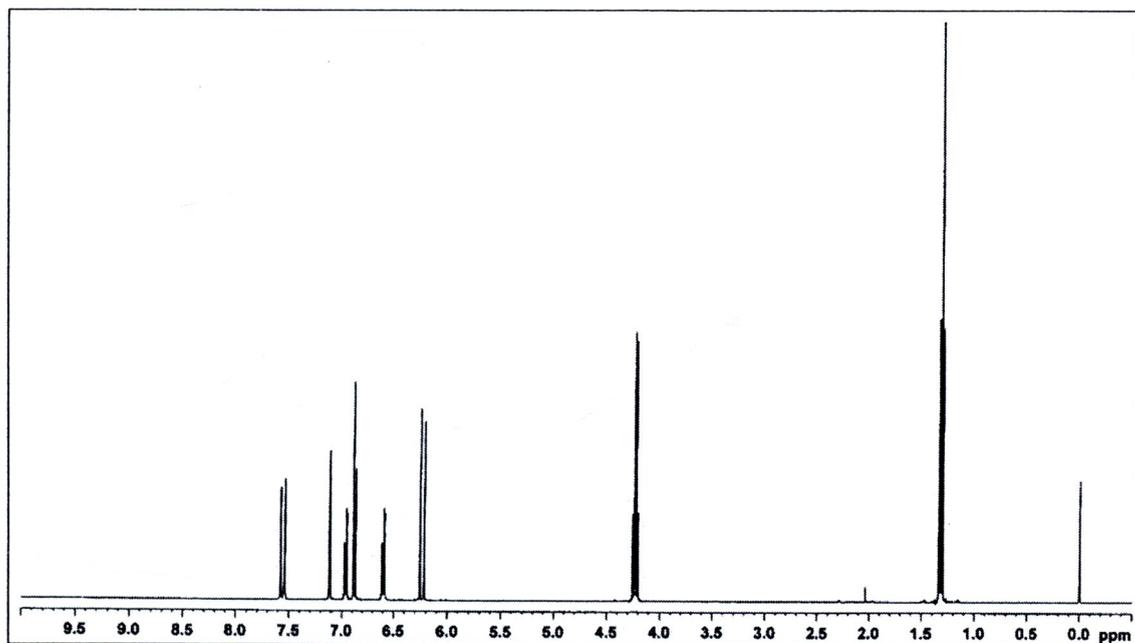


Fig 18B H^1 -NMR spectrum of EDPA

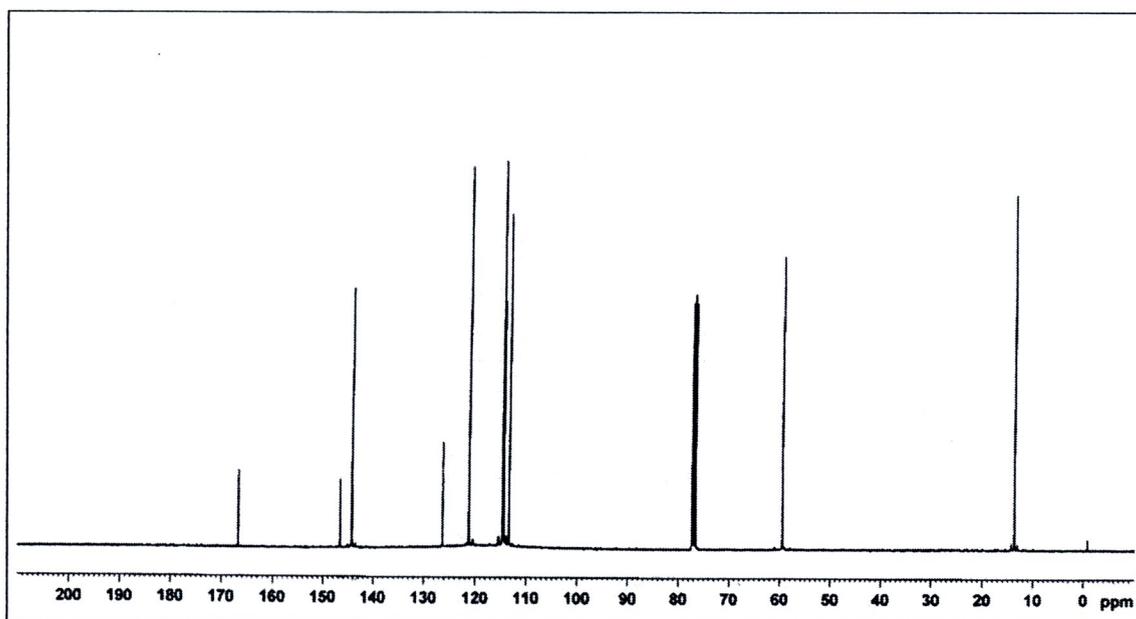


Fig 19B C^{13} -NMR spectrum of EDPA

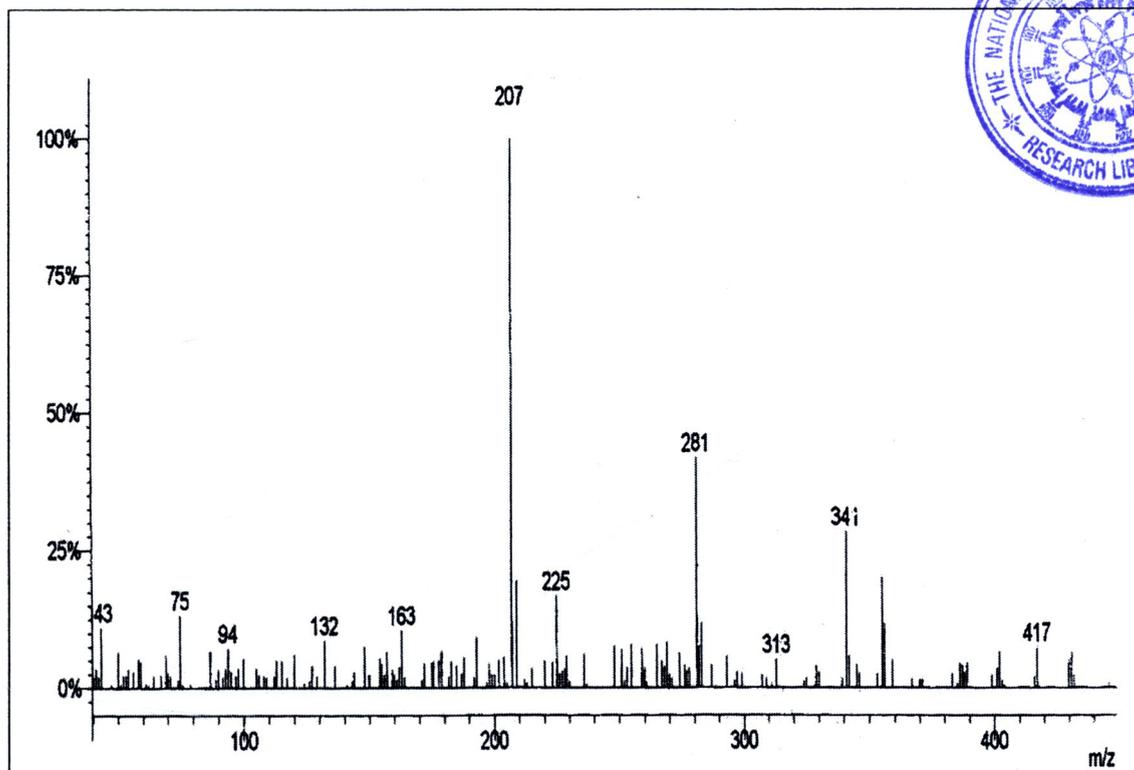


Fig 20B Mass spectrum of EDPA

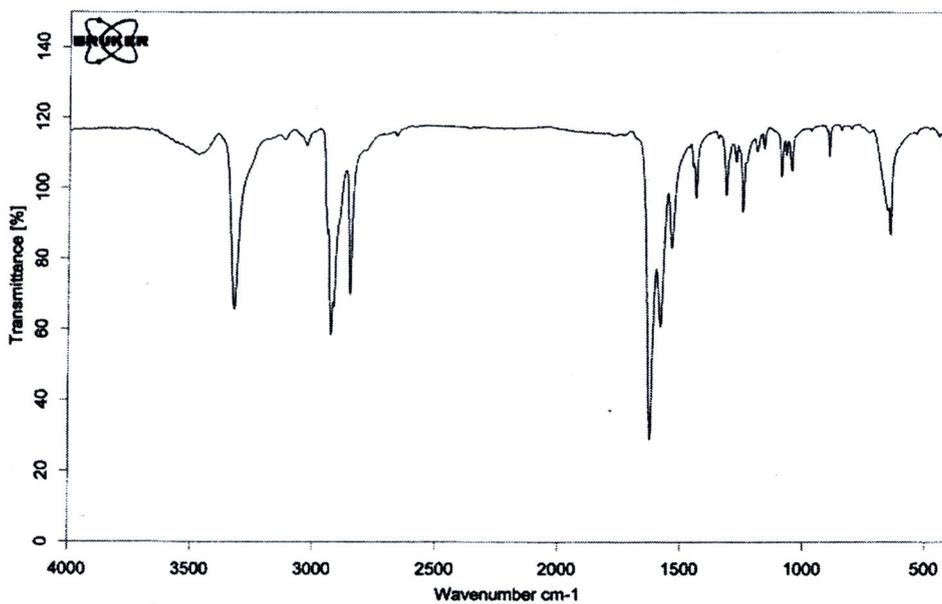


Fig 21B Infrared spectrum of ODPA

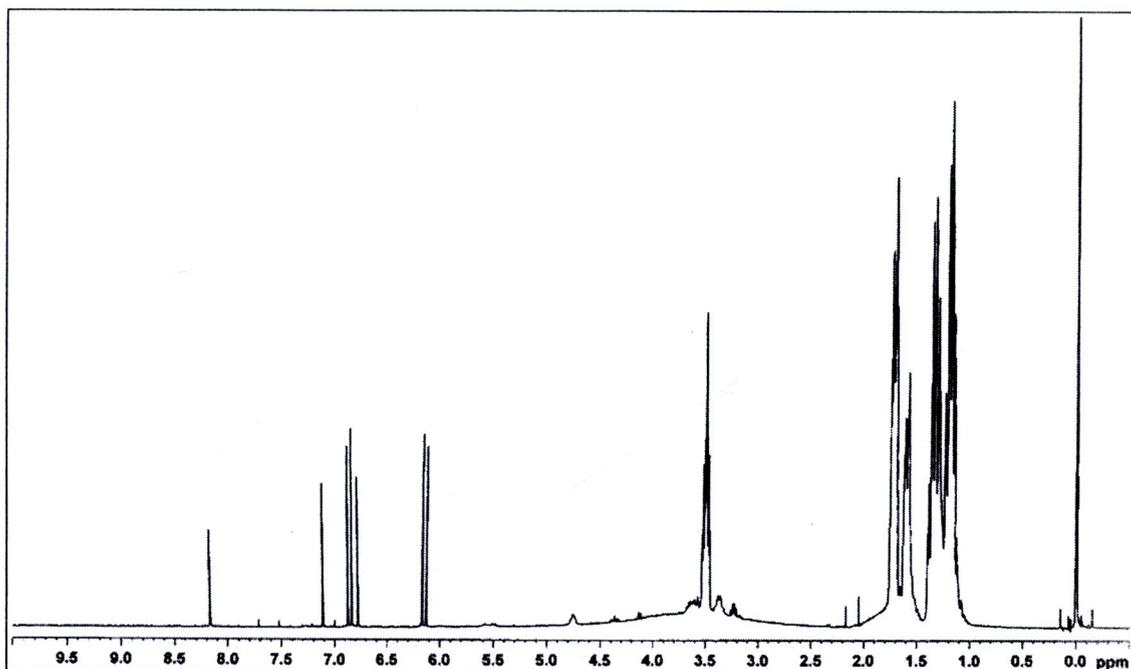


Fig 22B H^1 -NMR spectrum of ODPA

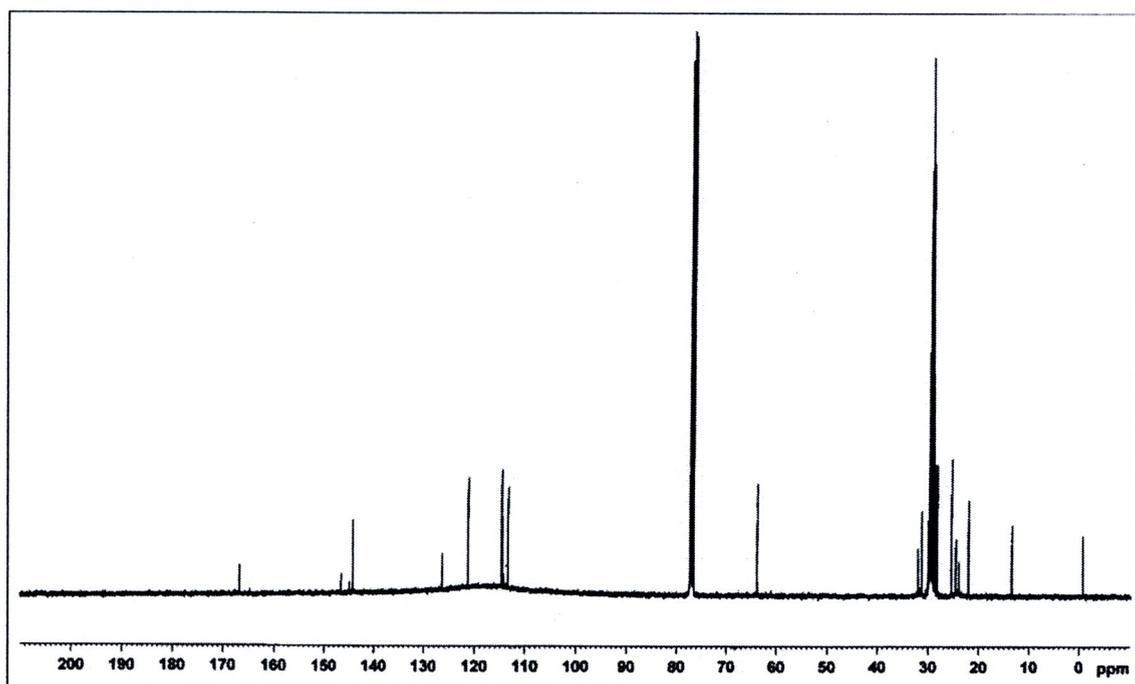


Fig 23B C^{13} -NMR spectrum of ODPA

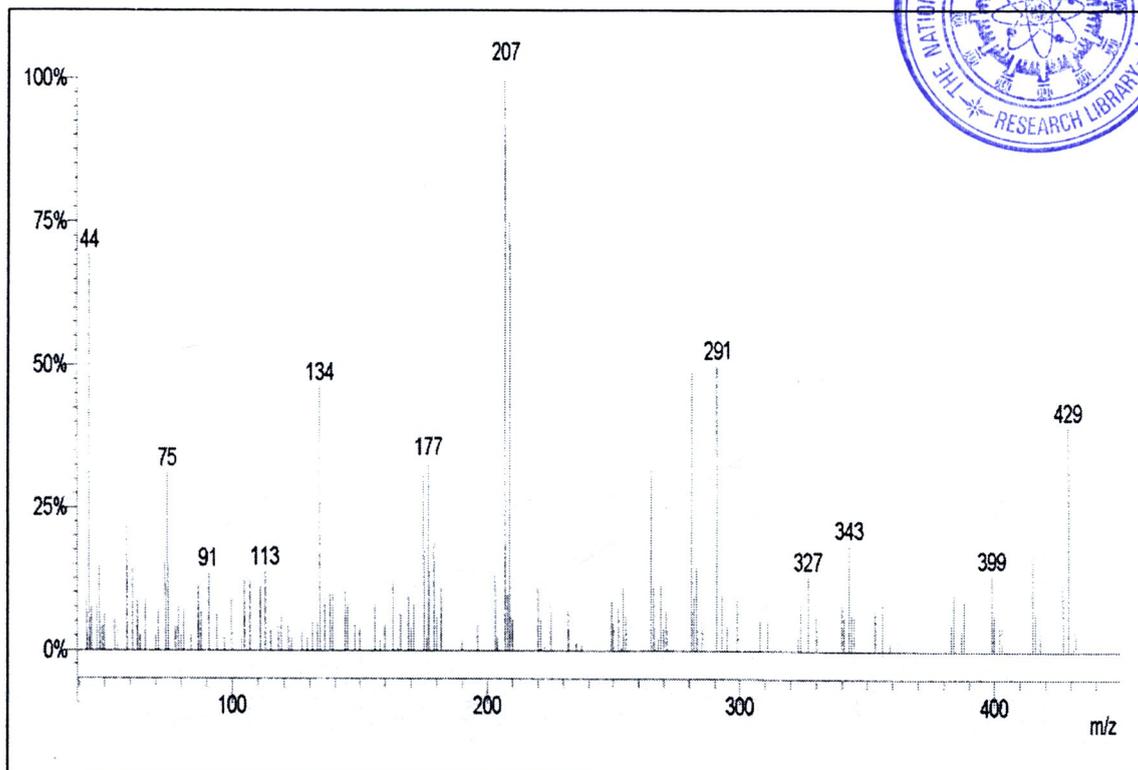


Fig 24B Mass spectrum of ODPA

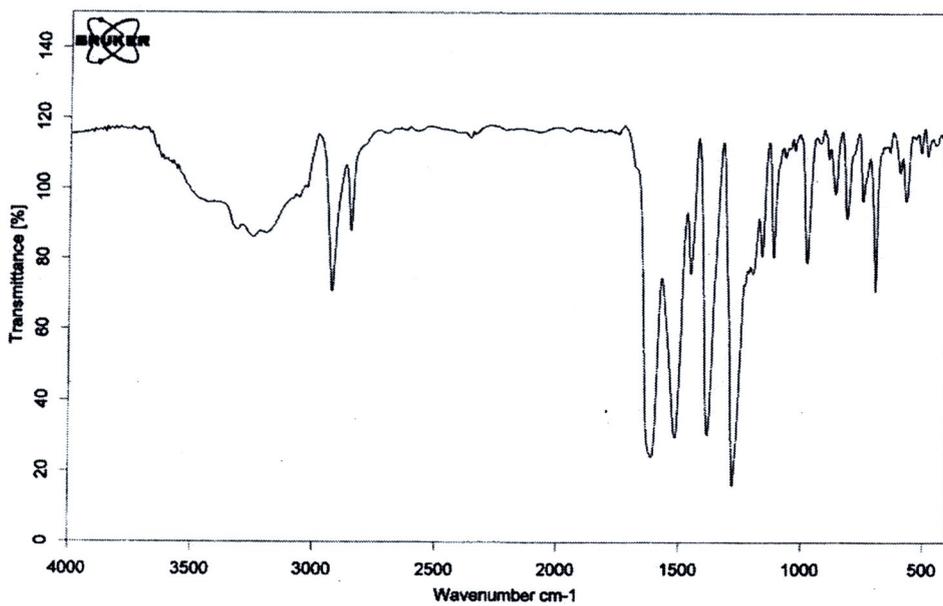
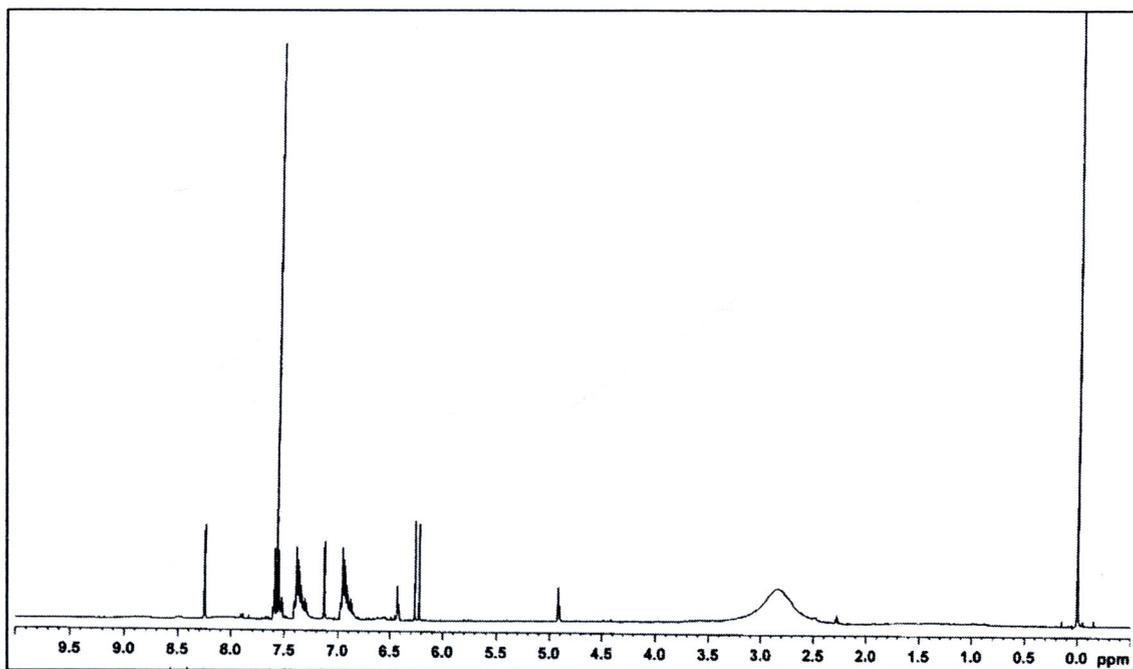
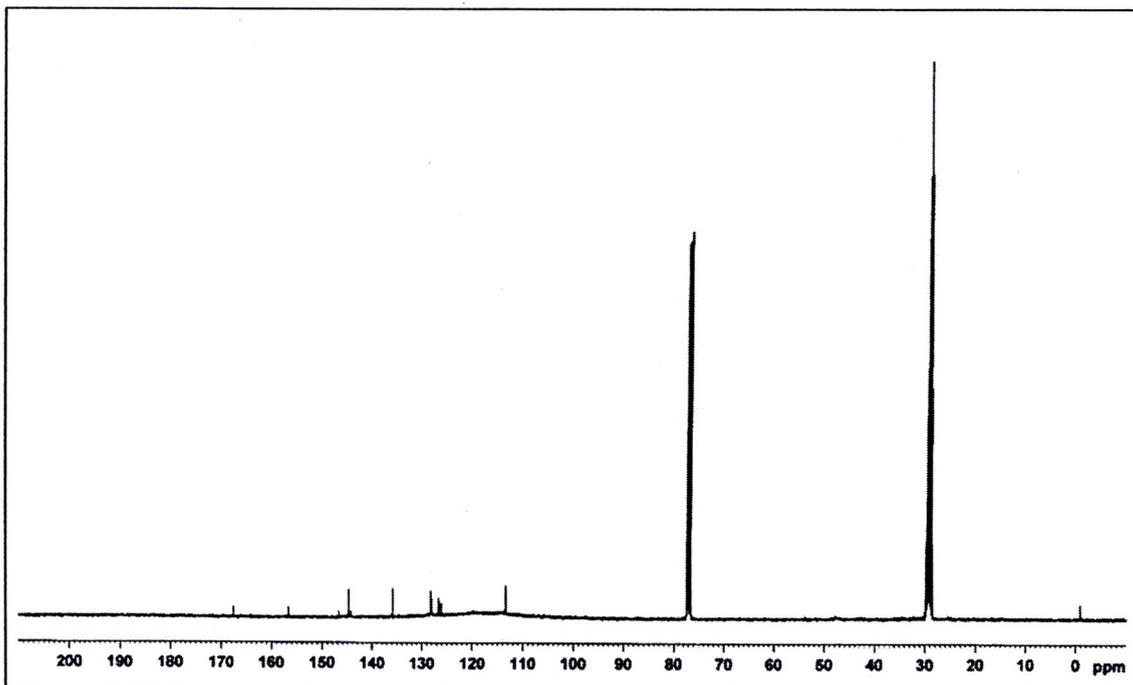


Fig 25B Infrared spectrum of PMDPA**Fig 26B** H^1 -NMR spectrum of PMDPA**Fig 27B** C^{13} -NMR spectrum of PMDPA

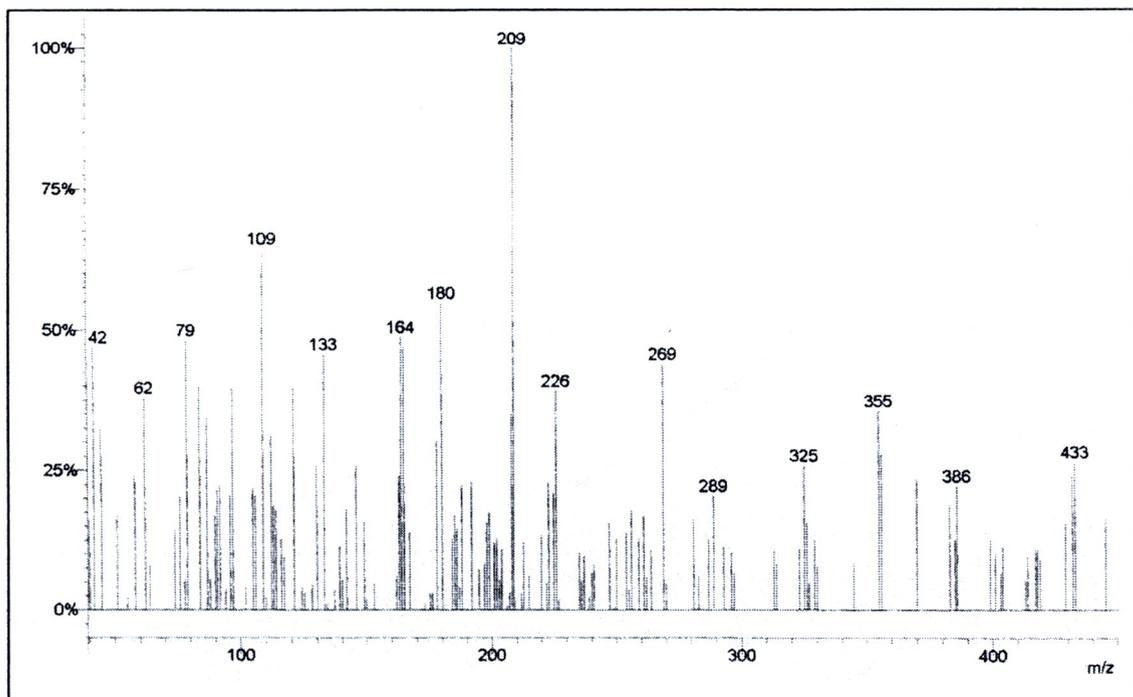


Fig 28B Mass spectrum of PMDPA

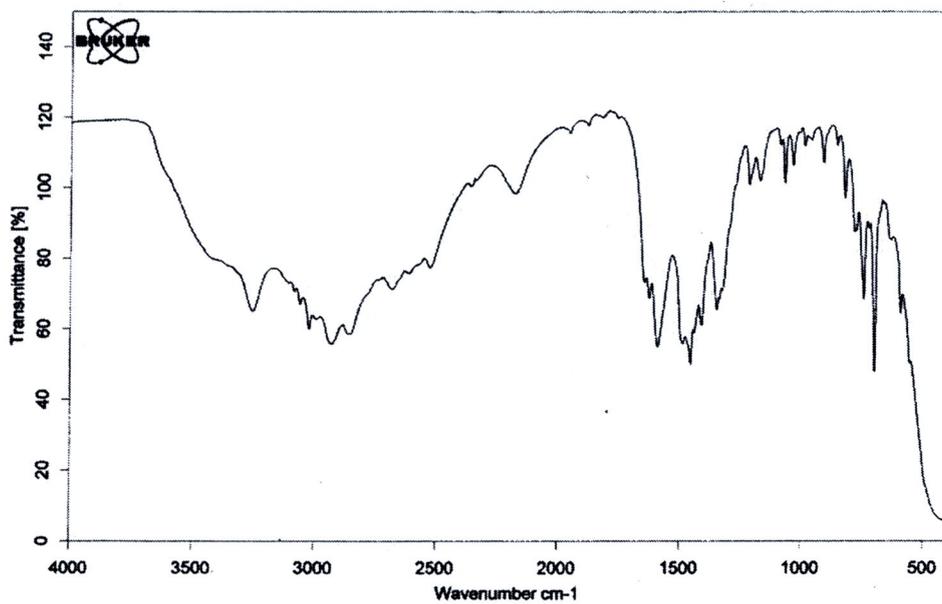


Fig 29B Infrared spectrum of PEDPA

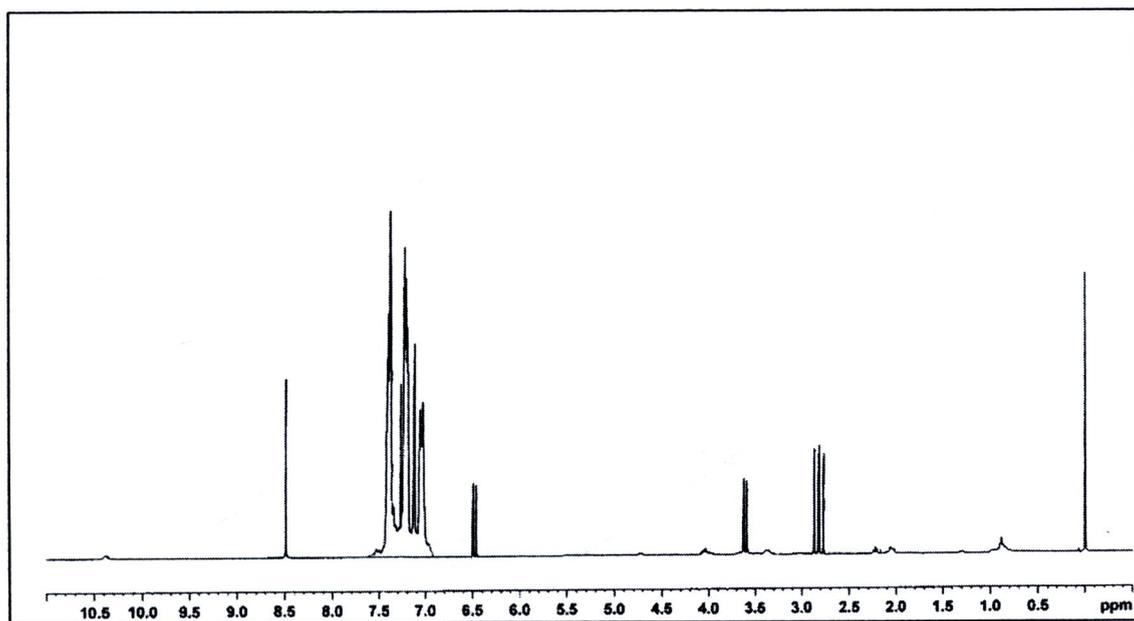


Fig 30B ^1H -NMR spectrum of PEDPA

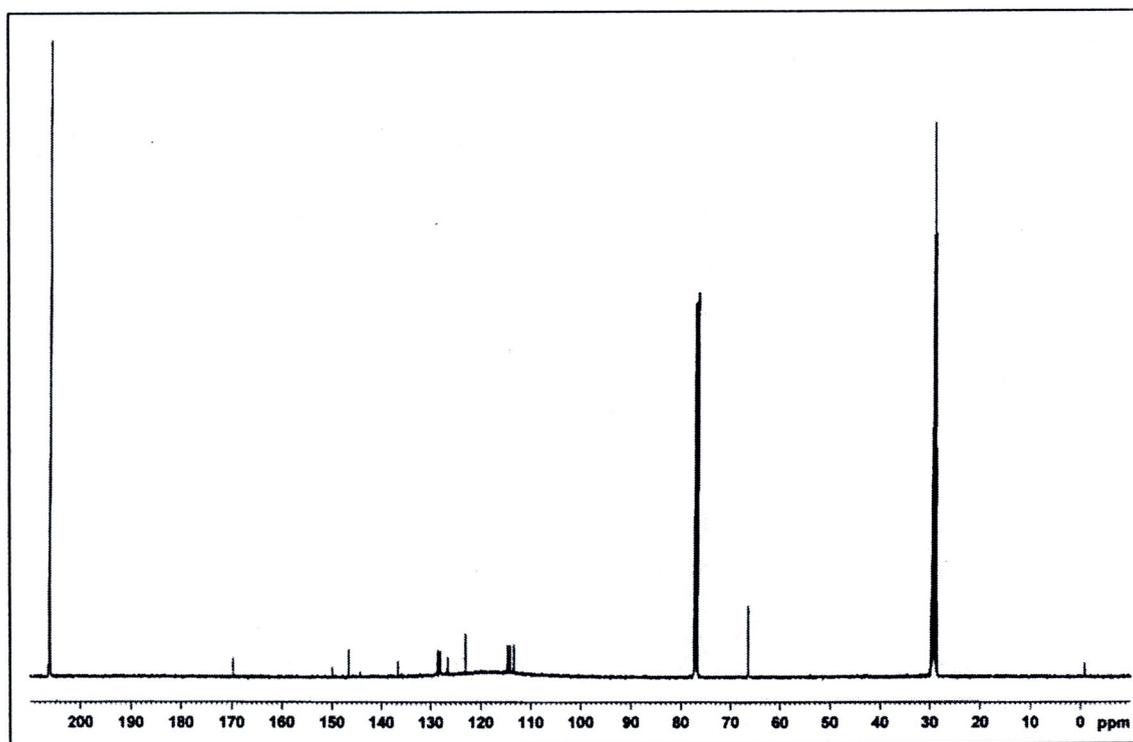


Fig 31B ^{13}C -NMR spectrum of PEDPA

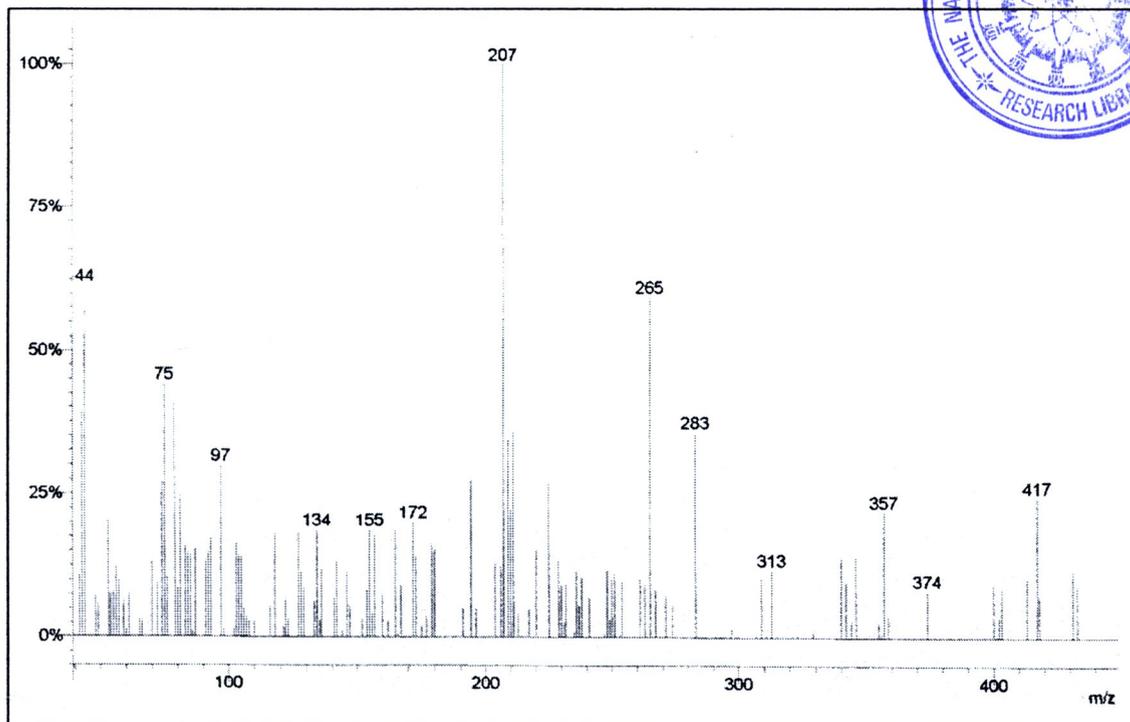


Fig 32B Mass spectrum of PEDPA

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List of Publication

1. **Jaikang C.**, Narongchai P., Niwatananun K., Narongchai S and Chaiyasut C.
Inhibition of procarcinogen activating enzyme CYP1A2 activity and
free radical formation of caffeic acid and its amide analogues. *J.*
enzyme inhibition and Medicinal chemistry. (submitted)
2. **Jaikang C.**, Chaiyasut C., Narongchai P., Niwatananun K., Narongchai S.,
Kusirisin W. Inhibitory effects of caffeic acid ester analogues on free
radicals and human liver microsome CYP1A2 activities. *Med Chem.*
2011; 7: 99-105.
3. **Jaikang C.**, Niwatananun K., Narongchai P., Narongchai S., Chaiyasut C.
Inhibitory effect of caffeic acid and its derivatives on human liver

4. cytochrome P450 3A4 activity. *J. Med. Plant. Research.* (article inpress)
5. **Jaikang C.** and Chaiyasut C. Caffeic acid and its derivatives on heme oxygenase 1 inducer in Hep G2 cell line. *J Medicinal Plants Research.* 2010; 4(10):940-946.
6. Kusirisin W, **Jaikang C.**, Chaiyasut C, Narongchai P. Effect of polyphenolic compounds from *Solanum torvum* on plasma lipid peroxidation, superoxide anion and cytochrome P450 2E1 in human liver microsomes. *Med Chem.* 2009 Nov;5(6): 583-8.
7. Kusirisin W, Srichairatanakool S, Lerttrakarnnon P, Lailerd N, Suttajit M, **Jaikang C.**, Chaiyasut C. Antioxidative activity, polyphenolic content and anti-glycation effect of some Thai medicinal plants traditionally used in diabetic patients. *Med Chem.* 2009 Mar;5(2):139-47
8. **Jaikang C.**, Niwatananun K., Narongchai S., Narongchai P., Chaiyasut C. Inhibitory effects of caffeic acid and its amide derivatives on human liver microsome P4501A2. *Drug Metab Reviews.* 2009. 41(suppl 2)
9. Kusirisin W., **Jaikang C.**, Chaiyasut C., Narongchai P., Srichairattanakool S. Effect of ployphenolic compounds from *Solanum torvum* on drug metabolizing enzymes(cytochrome P450 2E1) and lipid peroxidation in diabetic patients. *Annals of Nutrition and Meatbolism.* 2009. 55(suppl 1)
10. Kusirisin W., Chaiyasut C., Srichairatanakool S., Lailerd N., Lerttrakannon P., **Jaikang C.** Antioxidant activity of indigenous plants on diabetic

oxidative stress: potential of polyphenolic compound *in vitro*. *Chiang Mai Medical Bullutin*. 2007; 46 (suppl. 3): 34.

11. Kusirisin W., Chaiyasut C., Srichairatanakool S., Lailerd N., Lertrakannon P., **Jaikang C.** Free radical scavenging and antiglycation of some Thai medicinal plants: effect of antioxidant capacity on diabetic oxidative stress. *Naresuan Phayao Journal*. 2008; 1: 183

Poster presentation

1. Narongchai P., Narongchai S., Jaikang C., Niwatananun K., and Chaiyasut C. Prevention hepatocellular carcinoma by ethyl caffeate. 2010 Petchaburee, Thailand.
2. Jaikang C., Chaiyasut C., Narongchai P., Narongchai S., Niwatananun K. Free radical scavenging and antioxidative properties of caffeic acid ethylamide. The 1st SFRR-Thai Meeting and International workshop on advance of Free radicals, oxidative stress and their evaluation methods. 2008. Chiang Mai Thailand.
3. **Jaikang C.**, Chaiyasut C., Narongchai P., Narongchai S., Niwatananun K. Free radical scavenging and antioxidative properties of ethyl caffeate. The 2nd International conference on natural products for health and beauty (NATPRO). 2008. Phayao, Thailand
4. Kusirisin W., Chaiyasut C., Srichairattanakool S., Lertrakarannon P., Lailerd N., **Jaikang C.**, Suttajit M. Free radical scavenging and anti-glycation activities of some Thai medicinal plants used in

diabetes on diabetic oxidative stress. The 2 nd International conference on natural products for health and beauty (NATPRO).2008. Phayao , Thailand

5. Kusirisin W., **Jaikang C.**, Chaiyasut C., Narongchai P., Srichairattanakool S. Effect of polyphenolic compounds from *Solanum torvum* on drug metabolizing enzymes(cytochrome P450 2E1) and lipid peroxidation in diabetic patients. 19th International Congress of Nutrition ,2009, Bangkok Thailand.
6. **Jaikang C.**, Niwatananun K., Narongchai S., Narongchai P., Chaiyasut C. Inhibitory effects of caffeic acid and its amide derivatives on human liver microsome P4501A2. The 3rd Asian Pacific Regional ISSX Meeting. 2009. Bangkok, Thailand.
7. Kusirisin W., Chaiyasut C., Srichairattanakool S., Lailerd N., Lertrakannon P., **Jaikang C.** Antioxidant activity of indigenous plants on diabetic oxidative stress: potential of polyphenolic compound *in vitro*. Mahidol Meeting day, Faculty of Medicine, Chiang Mai University, 24 September 2007.



