



References

1. Farnsworth, N.R. "Biological and Phytochemical Screening of Plants." J. Pharm. Sci. 55 (January 1966):225.
2. Gosselin, R.A. "The Status of Natural Products in the American Pharmaceutical Market." Lloydia 25 (December 1962): 241.
3. Burkill, I.H. "Dictionary of the Economic Products of the Malay Peninsula." Vol. I pp 26-28 and Vol. II pp. 1579 London: Crown Agents for the Colonies 1935.
4. The Council of Scientific and Industrial Research. The Wealth of India, Raw Materials. Vol. I pp 21 and Vol. V pp. 14. New Delhi: Sree Saraswaty Press Ltd. Calcutta 1962.
5. บุศบรรณ ณ สงขลา สมุนไพรไทย ตอนที่ 1 หน้า 1 ปี 2519.
6. Paranijspe, Agricultured Journal of India. 15 (1920):350.
7. Kupchan, S.M.; Eakin, M.A., and Thomas, A.M. "Tumour Inhibitors: Structure-Cytotoxicity Relationships Among the Sesquiterpene Lactones." J. Med. Chem. 14 (January 1971):1147.
8. Ferguson, L.N. "Cancer: How Can Chemists help ?" J. Chem. Educ. 52 (July 1975):688.

9. Silverstein, R.M.; Bassler, G.C., and Morrill, T.C. "Infrared Spectrometry." In Spectrometric Identification of Organic Compound. 3rd ed. New York: John Wiley and Sons, Inc., 1974.
10. Nakanishi, K. Infrared Absorption Spectroscopy-Practical London:Holden-Day, Inc., 1962.
11. Ruzicka, L.; Goldberg, M.W., and Wirz, H. "Sexualhormone III: Zur Konstitutionsaufklärung des Androsterons." Helv. Chim. Acta. 18 (January 1935): 61.
12. Brieskorn, C.H., and Capuano, L. "Der Chemismus des Farbreaktionen nach Liebermann und Salkowski bei Triterpenen und Sterinen." Chem. Ber. 86 (May 1953): 866.
13. Teshima, S.I.; Kanazawa, A., and Ando, T. "A C-26 Sterol in the Clam, *Tapes Philippinarum*." Comp. Biochem. Physiol. 41B (January 1972):121.
14. Idler, D.R., and Baumann, C.A. "Skin Sterols:Isolation of Δ^7 Cholestenol." J.Biol. Chem. 195 (March 1952):623.
15. Jones, R.N., et al. "Studies in Steroid Metabolism:The Detection and Location of Ethylenic Double Bonds in Steroids by Infrared Spectrometry." J. Am. Chem. Soc. 72 (May 1950):86.

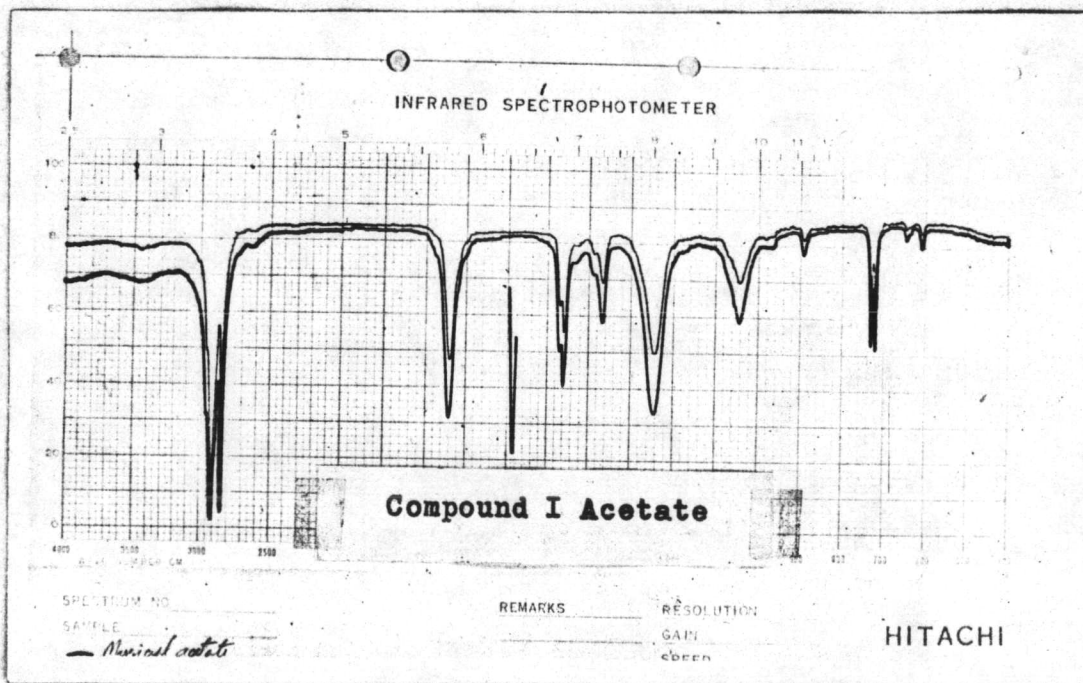
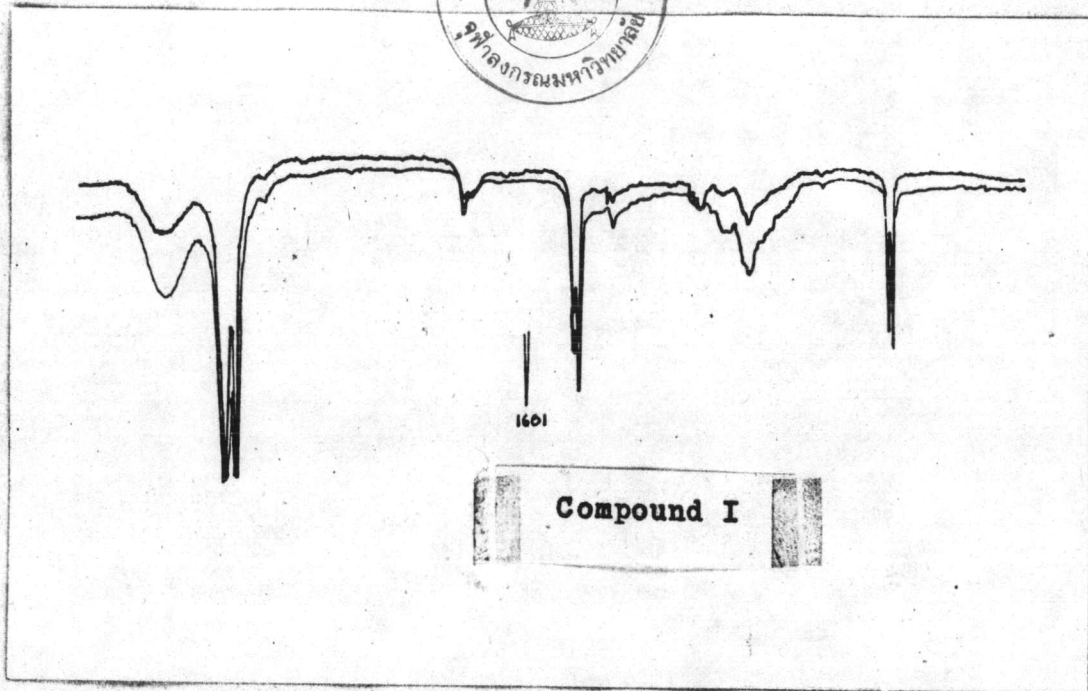
16. Jones, R.N., et al. "Studies in Steroid Metabolism: The Characterization of Carbonyl and Other Functional Groups in Steroids by Infrared Spectrometry." ibid. 70 (April 1948):2024.
17. Hirschmann, H. "The Characterization of Δ^5 -Unsaturated Steroids by Infrared Spectroscopy." ibid. 74 (October 1952):5357.
18. Smith, L.L. et al. "Sterols of the Brown Alga Sargassum Fluitans" Phytochemistry 12 (September 1973):2727.
19. Fieser, L.F., and Fieser, M. "Infrared Spectra:Physical Methods of Characterization." In Steroids, pp. 169-176. New York:Reinhold Inc., 1959.
20. Jones, R.N. "The Stereochemical Configuration of the Δ^{22} Ergostenyl Side Chain." J. Am. Chem. Soc. 72 (September 1950): 5322.
21. Turnbull, J.H.; Whiffen, D.H., and Wilson, W. Chem. Ind. (London) (1950):626.
22. Idler, D.R.; Wisemann, P.M., and Safe, L.M. "A New Marine Sterol, 22-trans-24-norcholesta-5, 22-dien-3 β -ol." Steroid 16 (January 1970):451.
23. Metayer, A.; Quesneau-Thierry, A., and Barbier, M. "New Synthesis of the $\Delta^{(5, 22)}$ cis and tran C₂₆ and C₂₇ Sterols:Dimethyl-24-Chola-5, 22-diene-3 β -ol and

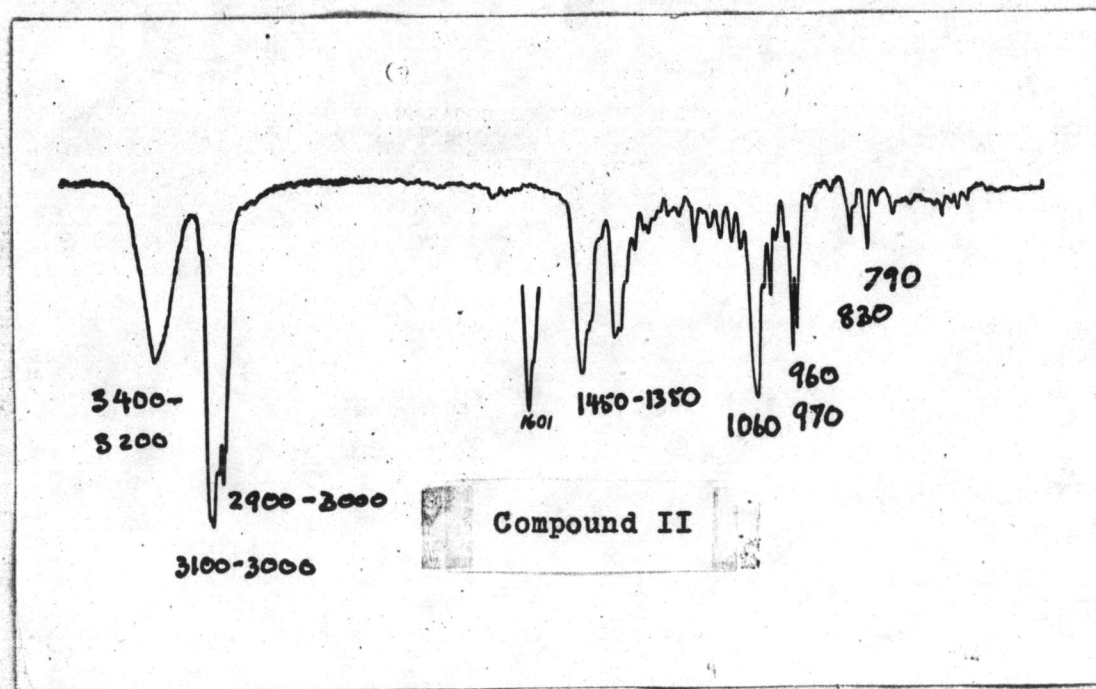
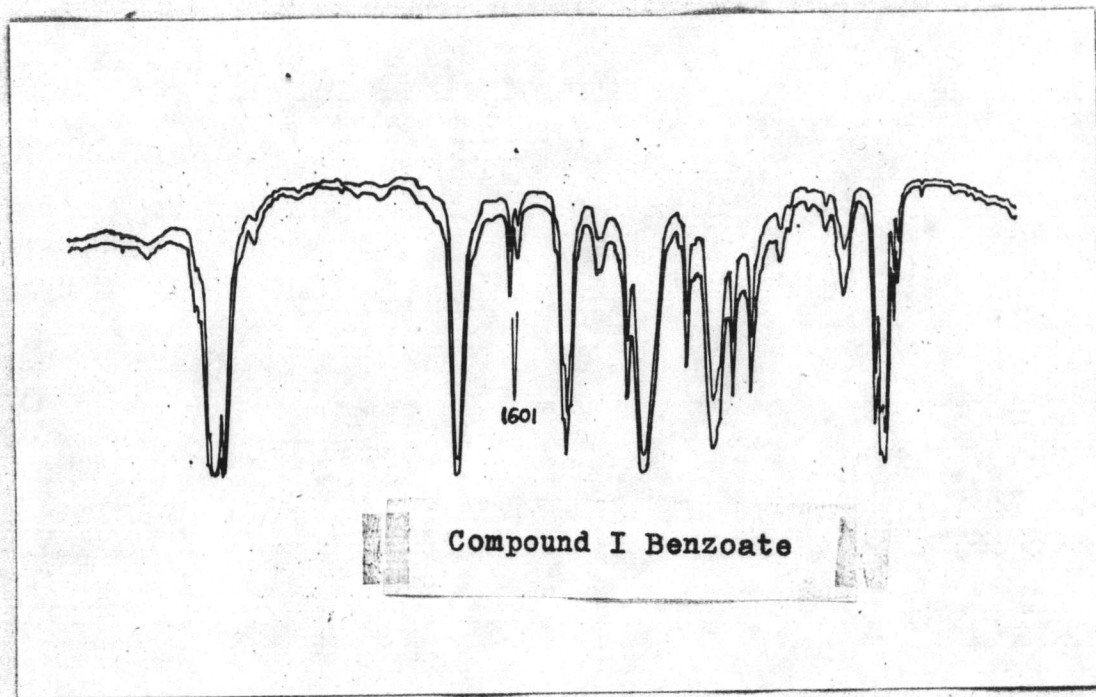
- and Cholesta-5, 22-dien-3 β - ol. Tet. Lett. 7
(January 1974):595.
24. Kobayashi, M., and Mitsuhashi, H. "Marine Sterols: Isolation and Structure of Oocelasterol, A New 27-Norengostane-Type Sterol, from an Annelida, Pseudopotamilla oocelata." Steroid 24(3) (July 1974):399.
25. Kobayashi, M., et al. "Marine Sterols: Sterols of Annelida, Pseudopotamilla oocelata Moore." Chem. Pharm. Bull. 21(2) (1973):323.
26. Dobriner, K.; Katzenellenbogen, E.R., and Jones, R.N. Infrared Absorption Spectra of Steroid. New York : Interscience. 1953.
27. Sheikh, Y.M., and Djerassi, C. "Synthesis of Sterols with Modified Side Chains." Steroid 26(1) (1975):129.
28. Williams, D.H., and Flemming, I. Spectroscopic Method in Organic Chemistry, pp. 97. New York : Mc Graw-Hill 1973.
24. Kobayashi, M., and Mitsuhashi, H. "Marine Sterols: Isolation and Structure of Oocelasterol, A New 27-Norengostane-Type Sterol, from an Annelida, Pseudopotamilla oocelata." Steroid 24(3) (July 1974):399.
29. Jones, R.N., et al. "Studies in Steroid Metabolism: X. The Effects of Stereochemical Configuration at Positions 3 and 5 on the Infrared Spectra of 3-Acetoxy Steroids." J. Am. Chem. Soc., 73 (1951) 3215.
25. Kobayashi, M., et al. "Marine Sterols: Sterols of Annelida, Pseudopotamilla oocelata Moore." Chem. Pharm. Bull. 21(2) (1973):323.
30. Jones, R.N., and Herling, F. "Characteristic Group Frequencies in the Infrared Spectra of Steroids." J. Org. Chem. 19 (July 1954):1252.
26. Dobriner, K.; Katzenellenbogen, E.R., and Jones, R.N. Infrared Absorption Spectra of Steroid. New York : Interscience. 1953.

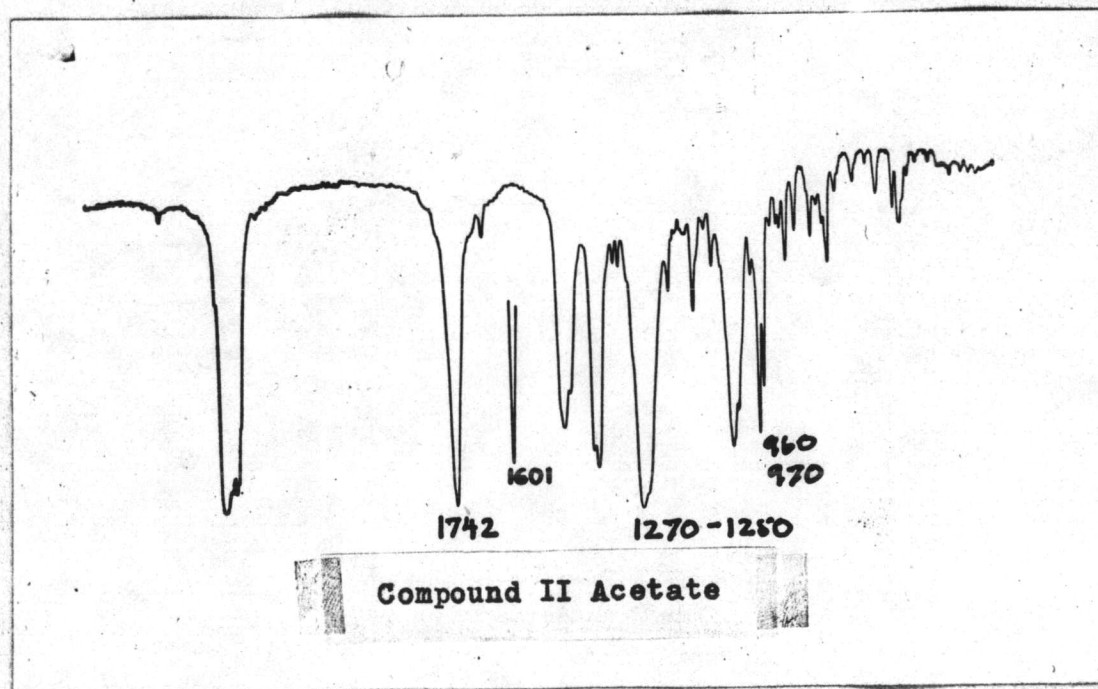
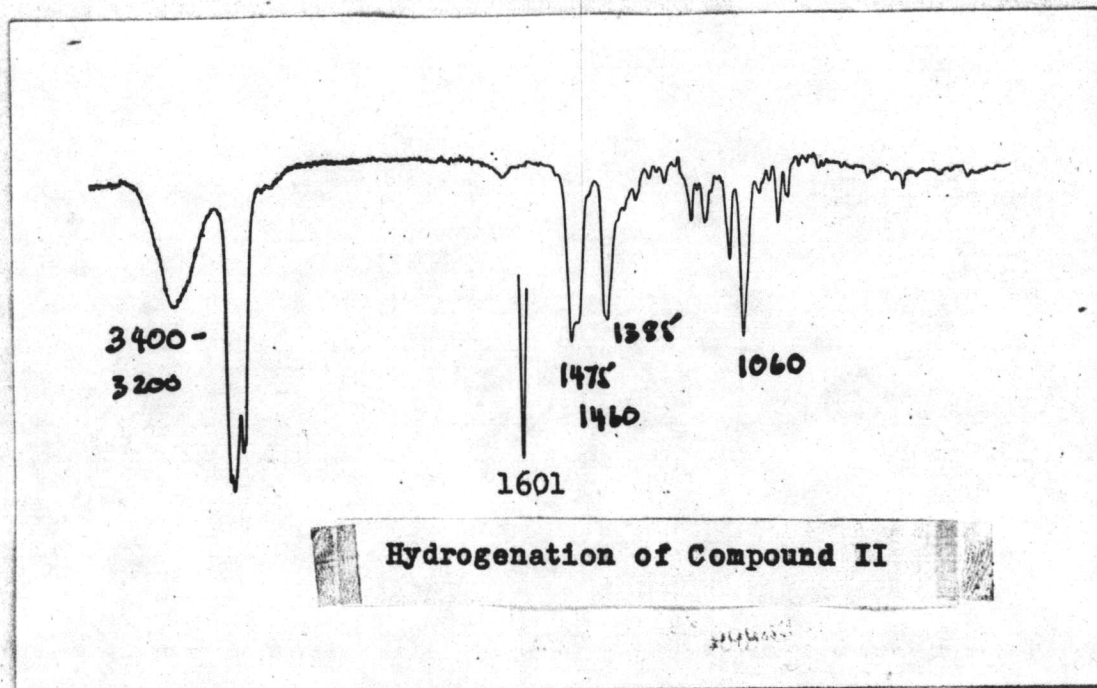
31. Kobayashi, M. and Mitsunashi, H. "Marine Sterols: Structure and Synthesis of Amuresterol, A New Marine Sterol with Unprecedented Side Chain, from *Asterias amurensis* Lutken." Tetrahedron. 30 (July 1974) : 2147.
32. Slomp, G. and Mackellar, F.A. "Nuclear Magnetic Resonance Studies on Some Hydrocarbon Side Chains of Steroids." J. Am. Chem. Soc. 84 (January 1962):204.
33. Wyllie, G., and Djerassi, C. "Mass Spectrometry in Structural and Stereochemical Problems: Mass Spectrometric Fragmentations Typical of Sterols with Unsaturated Side Chains." J. Org. Chem. 33 (January 1968):305.
34. Hutchins, R.F.N.; Thompson, M.J., and Svoboda, J.A. "The Synthesis and the Mass and Nuclear Magnetic Resonance Spectra of Side Chain Isomers of Cholesta-5, 22-dien-3 β -ol and Cholesta-5, 22, 24-trien-3 β -ol." Steroid 15 (January 1970): 113.
35. Venkataraman, K. "Methods for Determining the Structures of Flavonoid Compounds." In The Chemistry of Flavonoid Compounds. Edited by T.A. Geissman. New York: Pregamon Press, 1962.
36. Seshadri, T.R. "Isolation of Flavonoid Compounds from Plant Materials." ibid. Edited by T.A. Geissman. New York: Pregamon Press, 1962.
37. Wyllie, G., and Djerassi, C. "Mass Spectrometry in Structural and Stereochemical Problems: Mass Spectrometric Fragmentations Typical of Sterols with Unsaturated Side Chains." J. Org. Chem. 33 (January 1968):305.
38. Hutchins, R.F.N.; Thompson, M.J., and Svoboda, J.A. "The

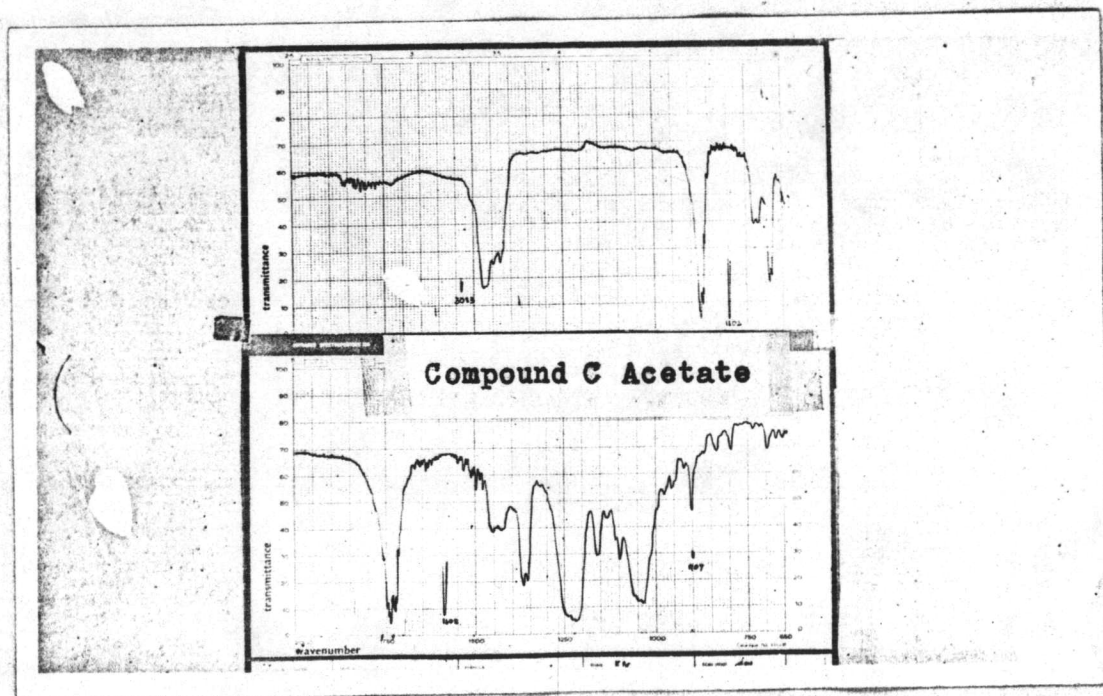
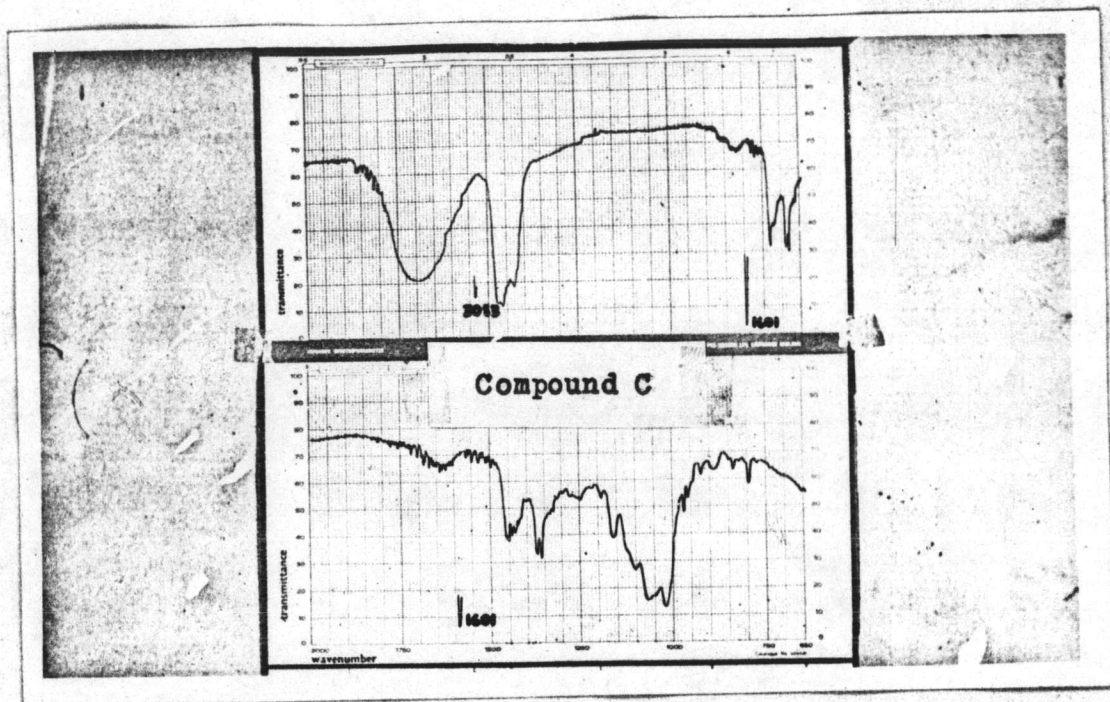
37. Vogel, A.I. A Text - Book of Practical Organic Chemistry
3rd ed. London: Longmans, Green and Co Ltd. 1971.
38. Fieser, L.F., and Fieser, M. Reagents for Organic Synthesis.
New York: John Wiley & Sons, Inc., 1967.
39. Harborne, J.B. "Sugars and their derivative." In
Phytochemical method - A Guide to Modern Techniques of
Plant Analysis, pp 212-232. Edited by Chapman and
Hall. New York: John Wiley & Sons, Inc., 1973.

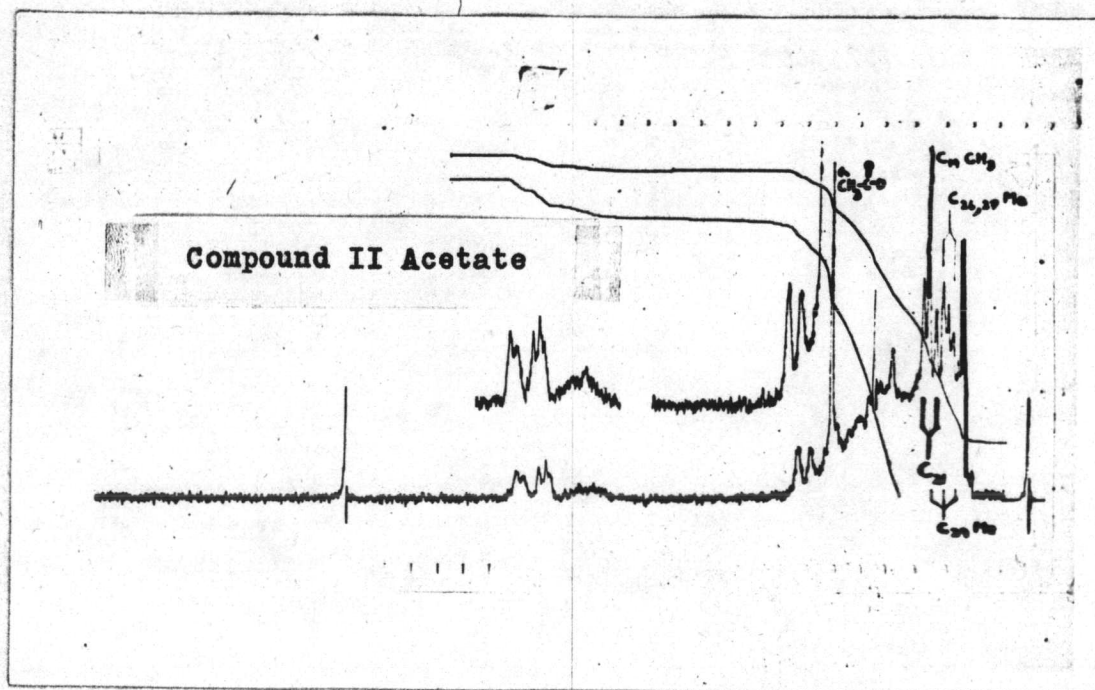
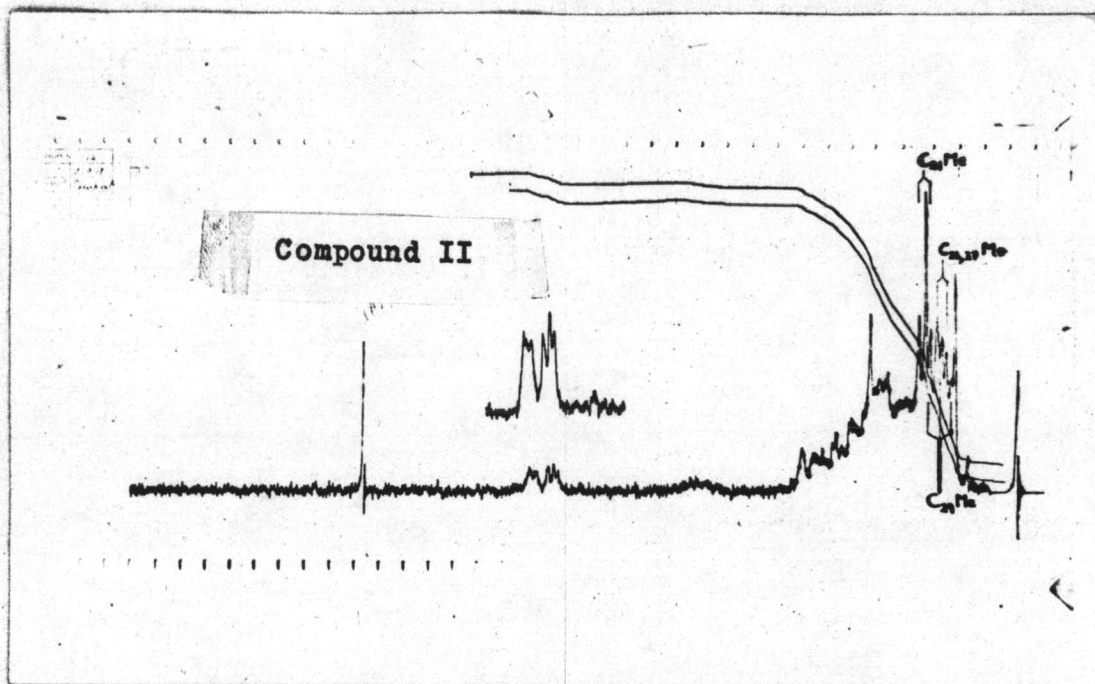
37. Vogel, A.I. A Text - Book of Practical Organic Chemistry
3rd ed. London: Longmans, Green and Co Ltd. 1971.
38. Fieser, L.F., and Fieser, M. Reagents for Organic Synthesis.
New York: John Wiley & Sons, Inc., 1967.
39. Harborne, J.B. "Sugars and their derivative." In
Phytochemical method - A Guide to Modern Techniques of
Plant Analysis, pp 212-232. Edited by Chapman and
Hall. New York: John Wiley & Sons, Inc., 1973.

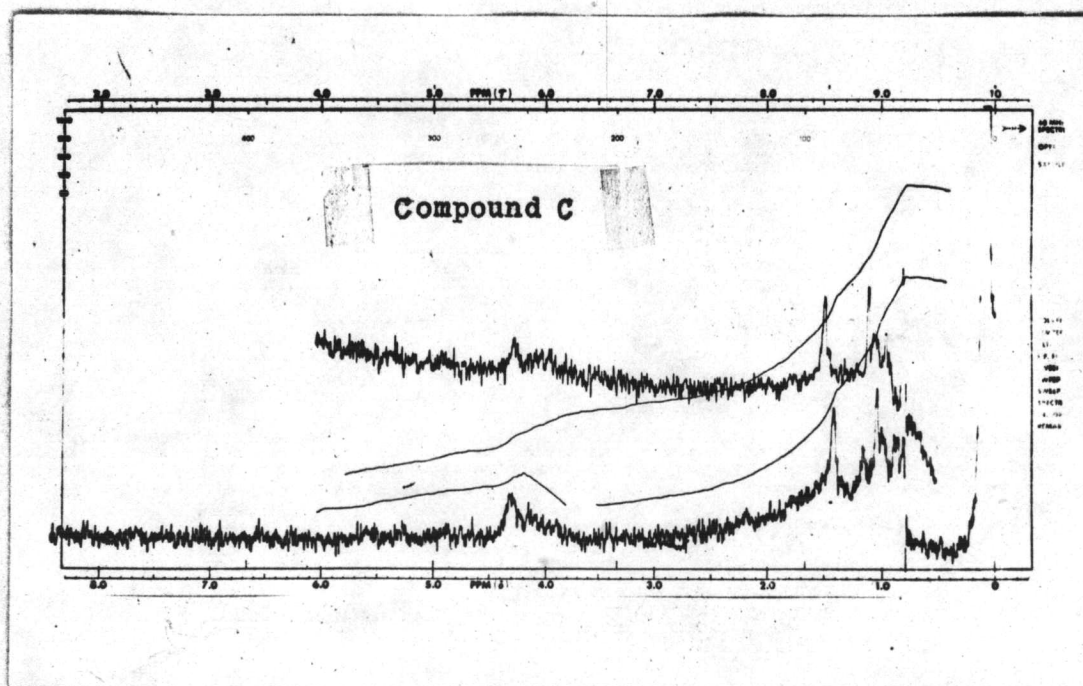
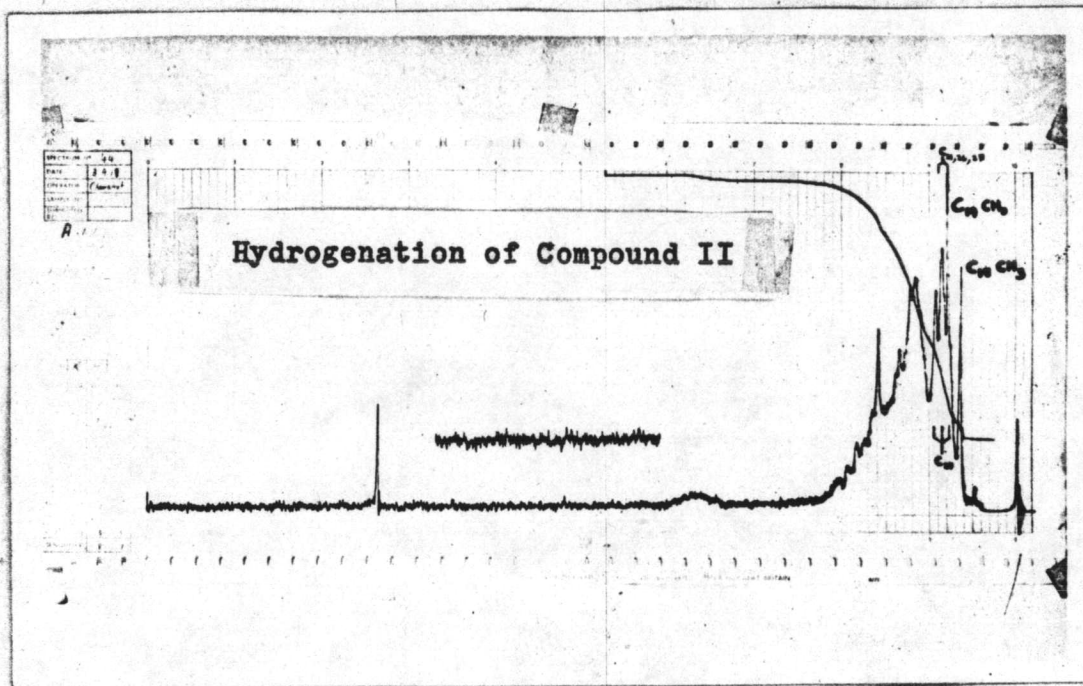


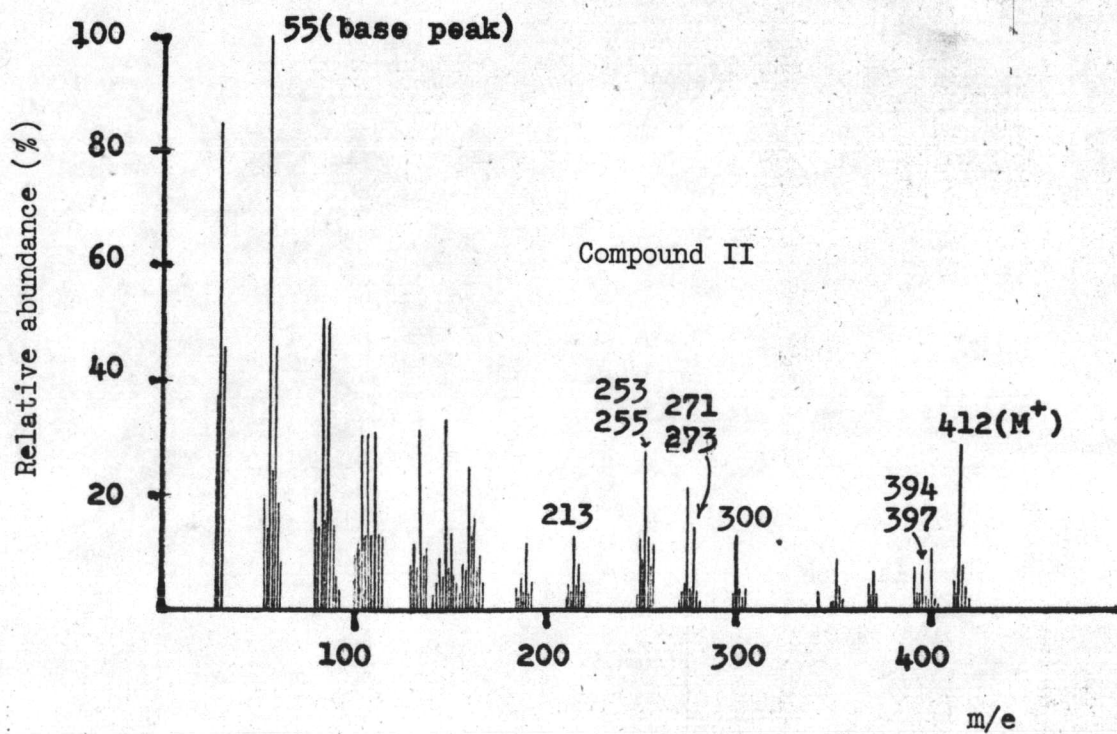
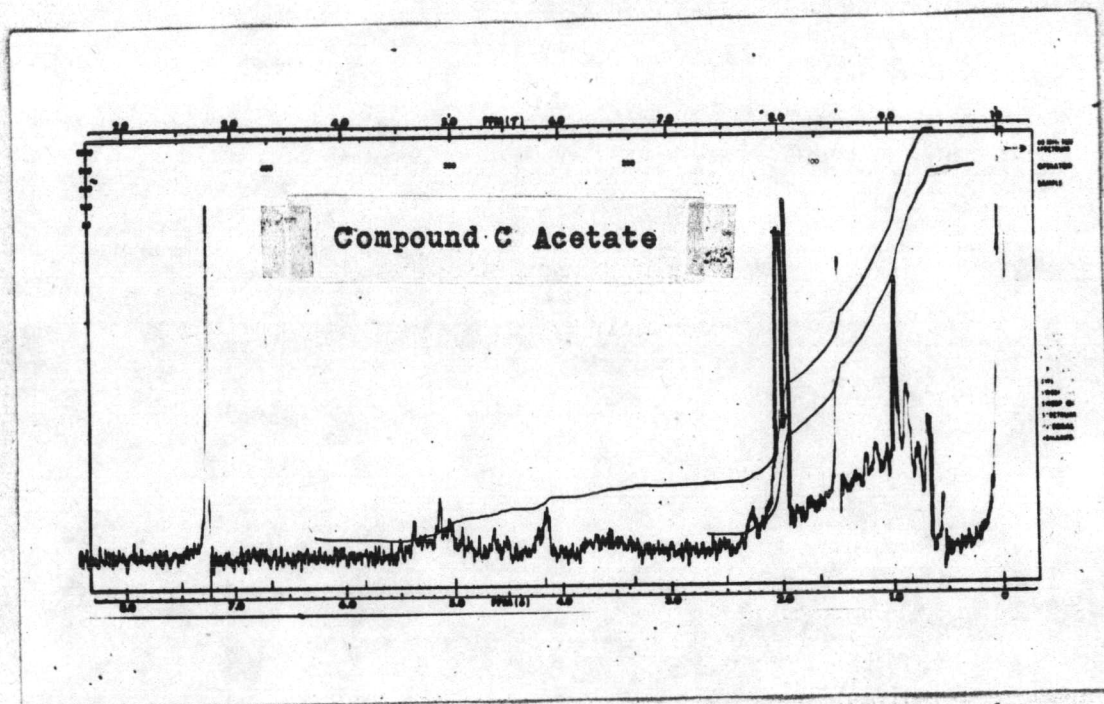


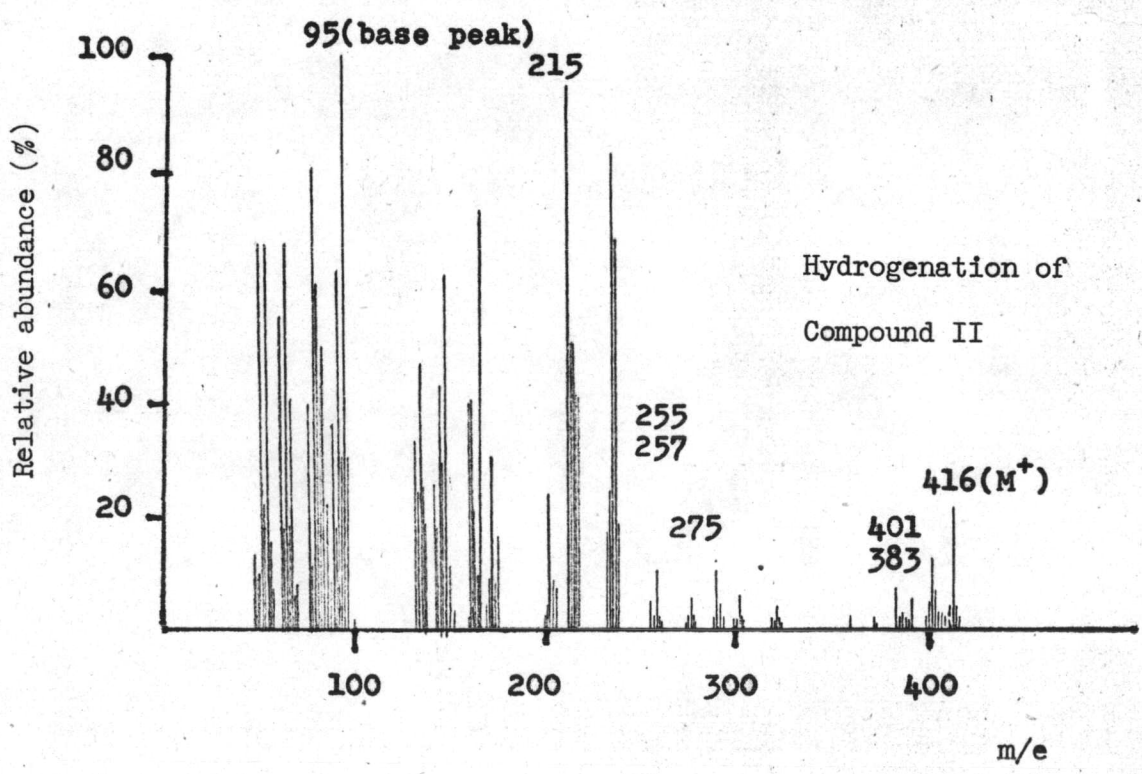
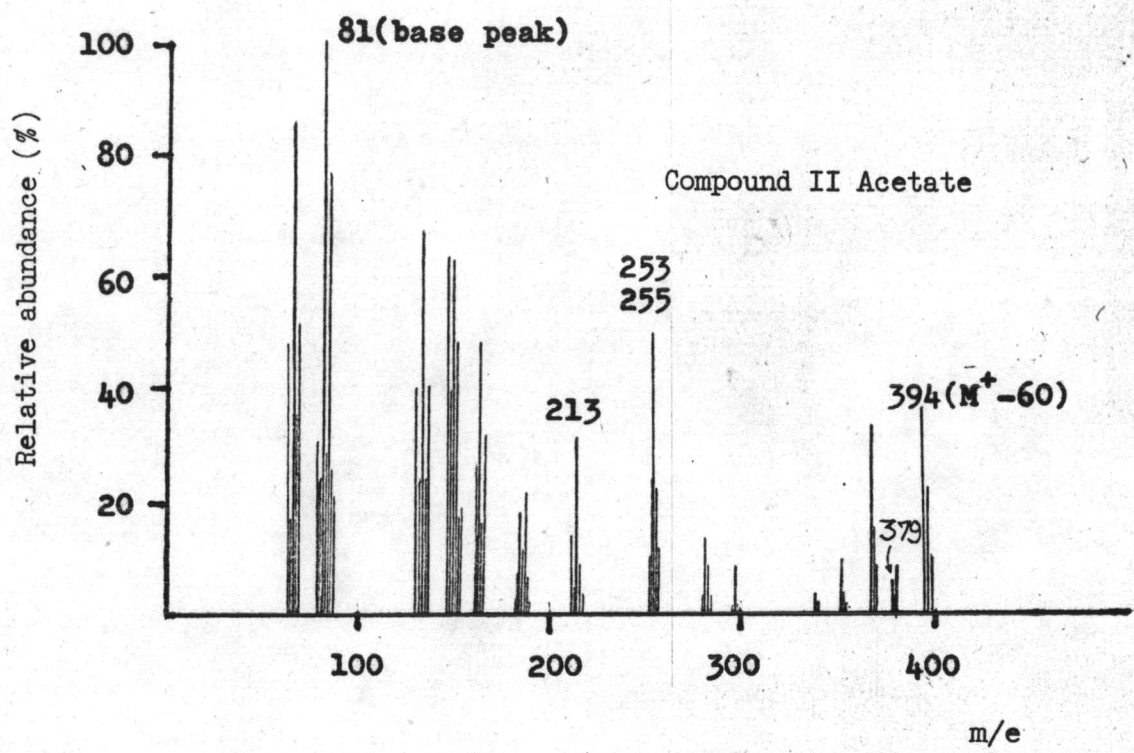












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