

DAFTAR PUSTAKA

- Adamovics, J.A. (1997). *Chromatographic Analysis of Pharmaceuticals 2nd edition*. Marcel Dekker. New York.
- Advani SV, Singh BN. (1995). *Pharmacodynamic, Pharmacokinetic and Antiarrhythmic Properties of D-Sotalol, the Dextro-Isomer of Sotalol*. *Drugs*;49:664–679
- Anonim. (1995). *Farmakope Indonesia edisi IV*. Departemen Kesehatan RI, Jakarta. Hal 1040-1042
- Brown, H., William, et al. (2018). *Organic Chemistry 8th edition*. Cengage Learning. Boston, USA. p 129-130. Available as PDF file.
- Bruice, Paula Y. (2016). *Organic Chemistry 8th edition*. Pearson Education. USA. p. 39. Available as PDF File.
- Carey A. F. and Sundberg, R. J. (2007). *Advanced Organic Chemistry Part A: Structures and Mechanisms (5th edition)*. Springer. New York, USA p. 127. Available as PDF File.
- Chhabra, N., Aseri, M., & Padmanabhan, D. (2013). *A review of drug isomerism and its significance. International Journal of Applied and Basic Medical Research*, 3(1), 16.
- Dewick, Paul A. (2006). *Essentials of Organic Chemistry for Students of Pharmacy, Medicinal Chemistry and Biological Chemistry*. John Wiley and Sons, England. p.77-80. Available as PDF File.
- Flockhart DA, Nelson HS. (2002). *Single Isomer Versus Racemate: is there a difference? Clinical Comparisons in Allergy and Gastroenterology*. *CNS Spectrums*;7:23–27
- Gandjar, Ibnu Gholib. (2007). *Kimia Farmasi Analisis*. Pustaka Pelajar, Yogyakarta. Hal 234-235, 240, 353-356, 359-362.
- Gauglitz, Gunter & Moore, D. S. (2014). *Handbook of Spectroscopy*. Wiley-VCH. Germany. p. 41-42, 1037. Available as PDF File.
- Gunther, Harald. (2013). *NMR Spectroscopy: Basic, Principles, Concepts and Applications in Chemistry*. Wiley-VCH. Germany. p. 37, 216-217. Available as PDF File.

- Kato R, Ikeda N, Yabek S.(1986). *Electrophysiologic Effects of the Levo- and Dextrorotatory Isomers of Sotalol in Isolated Cardiac Muscle and Their In Vivo Pharmacokinetics*. J Am Coll Cardiol;7:116–125
- Kealey, D and Haines, P.J. (2002). *Instant Notes: Analytical Chemistry*. BIOS Scientific Publishers Limited. New York
- Khopkar, S.M. (1990). *Konsep Dasar Kimia Analitik*. UI Press, Jakarta. Hal 225-228, 242-243, 310-311, 314-316, dan 403-404
- Mcconathy, J., Ph, D., Owens, M. J., & Ph, D. (2003). *Stereochemistry in Drug Action*. Primary Care Companion J Clin Psychiatry 2003;5(2).
- Nhiem, N. X., Kim, N., Park, S., & Kim, E. S. (2012). *Stereochemical assignment of five new lignan glycosides from *Viscum album* by NMR study combined with CD spectroscopy*. (October 2018). Available as PDF File.
- Rifai, Y., et al. (2016). *Synthesis, Molecular Mechanism and Pharmacokinetic Studies of New Epoxy Lignan-Based Derivatives*. Arch. Pharm. Chem. Life Sci. 349,1–5
- Rifai, Y., et al. (2018). *Characterization and stability evaluation of nanoencapsulated epoxy lignans*. F1000 Research 7: 253. p 3.
- Riswiyanto. (2009). *Kimia Organik*. Penerbit Erlangga. Jakarta. Hal. 67
- Silverstein, R. M., Webster, F. X., Kiemle, D., and Bryce, D. L. (2007). *Spectrometric Identification of Organic Compounds*, 7th ed., Chap. 2, Wiley, New York. p. 88, 90-91, Available as PDF File.
- Skoog, Douglas A., Holler, James F., and Crouch, Stanley R. (2018). *Principles of Instrumental Analysis Seventh Edition*. Cengage Learning, Boston. p. 416, 418, 469, and 484. Available as PDF File.
- Suhartati, Tati. (2017). *Dasar-Dasar Spektrofotometri UV-Vis dan Spektrometri Massa untuk Penentuan Struktur Senyawa Organik*. AURA, Bandar Lampung. Hal 11-12. Available as PDF File.
- Vollhardt, P and Schore, N. (2014). *Organic Chemistry: Structure and Function 7th edition*. W. H. Freeman & Company, USA. p. 174-175. Available as PDF File.
- Wansi, J. D., Lallemand, M.-C., Chiozem, D. D., Toze, F. A. A., Mbaze, L. M., Naharkhan, S., Fomum, Z. T. (2007). *α -Glucosidase inhibitory*

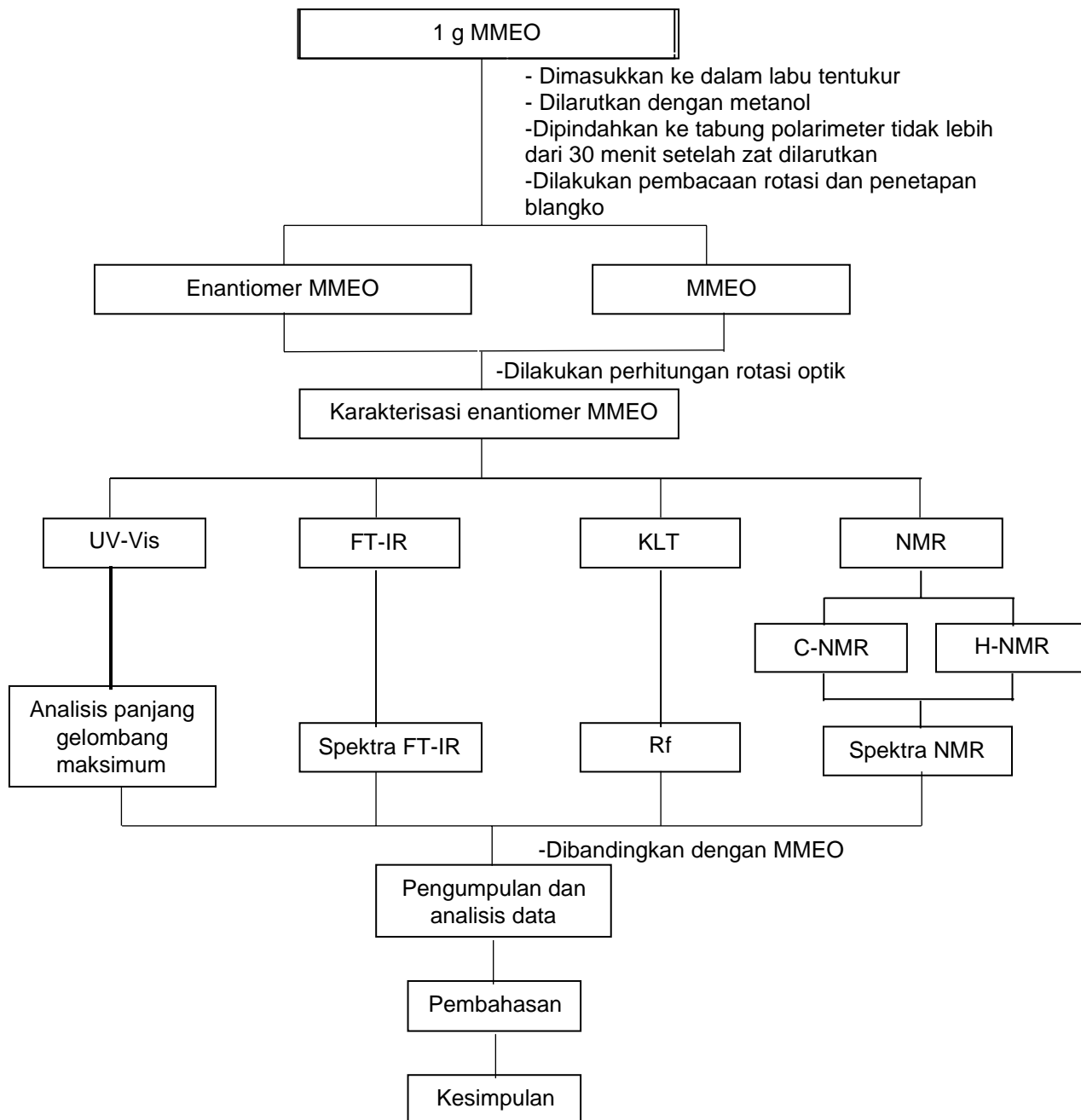
*constituents from stem bark of Terminalia superba (Combretaceae).
Phytochemistry, 68(15), 2096–2100.*

Wermuth, C. G., Aldous, D., Raboisson, Pierre and Ragnan, Didier (editors).
(2015). *The Practice of Medicinal Chemistry*. Elsevier, USA. p. 430,
435-436, 439-440. Available as PDF File.

LAMPIRAN

Lampiran 1. Skema Kerja

Enantiomerisasi MMEO



Lampiran 2. Perhitungan Konsentrasi Larutan untuk Spektrofotometri**UV-VIS****1. Larutan Stok (500 ppm) dalam labu tentukur 5 mL**

1 ppm: 0,001 mg/mL

500 ppm: 0,5 mg/mL: 2,5 mg dalam labu tentukur 5 mL

2. Perhitungan Larutan Standar Internal**25 ppm dalam labu tentukur 10 mL**

$$V1 \times N1 = V2 \times N2$$

$$10 \text{ mL} \times 25 \text{ ppm} = V2 \times 500 \text{ ppm}$$

$$V2 = 0,5 \text{ mL} = 500 \mu\text{L}$$

50 ppm dalam labu tentukur 10 mL

$$V1 \times N1 = V2 \times N2$$

$$10 \text{ mL} \times 50 \text{ ppm} = V2 \times 500 \text{ ppm}$$

$$V2 = 1 \text{ mL} = 1.000 \mu\text{L}$$

75 ppm dalam labu tentukur 10 mL

$$V1 \times N1 = V2 \times N2$$

$$10 \text{ mL} \times 75 \text{ ppm} = V2 \times 500 \text{ ppm}$$

$$V2 = 1,5 \text{ mL} = 1.500 \mu\text{L}$$

3. Perhitungan larutan sampel (50 ppm) dalam labu tentukur 5 mL

50 ppm = 0,05 mg/mL

= 0,25 mg pada labu tentukur 5 mL

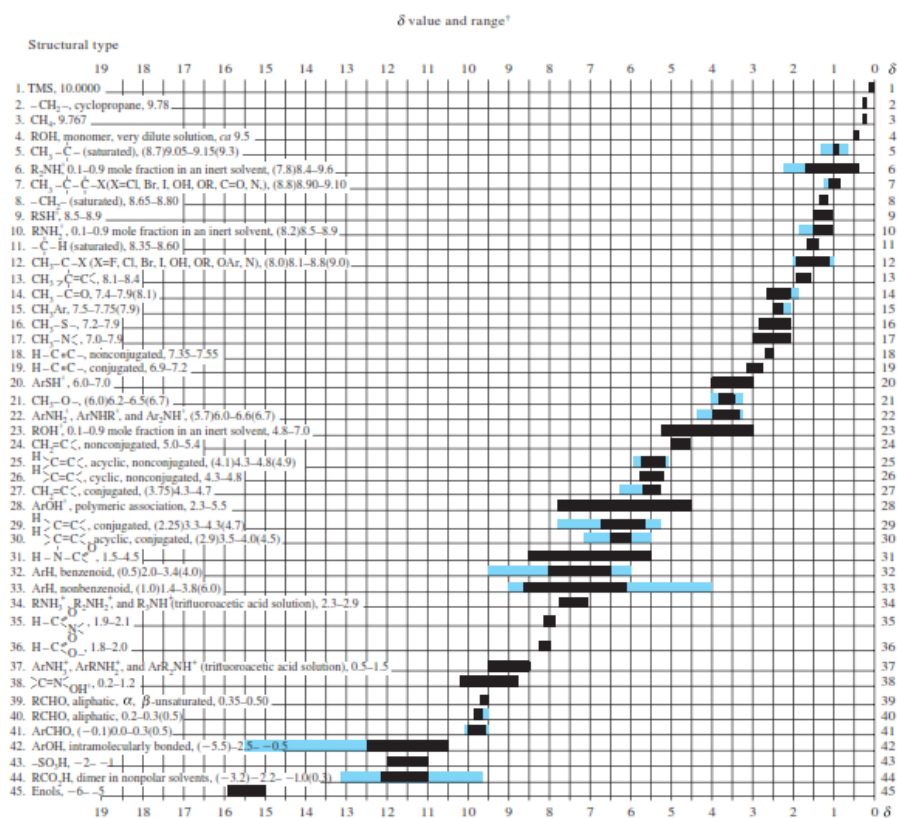
Lampiran 3. Perhitungan Konstanta Dielektrik KLT**Heksan:Etil asetat = 4:1**

$$K_d = \frac{(4 \times 2) + (1 \times 6)}{4+1} = 14:5 = 2,8$$

Heksan:Etil asetat 3:5

$$K_d = \frac{(3 \times 2) + (5 \times 6)}{4+1} = 36 :5 = 7,2$$

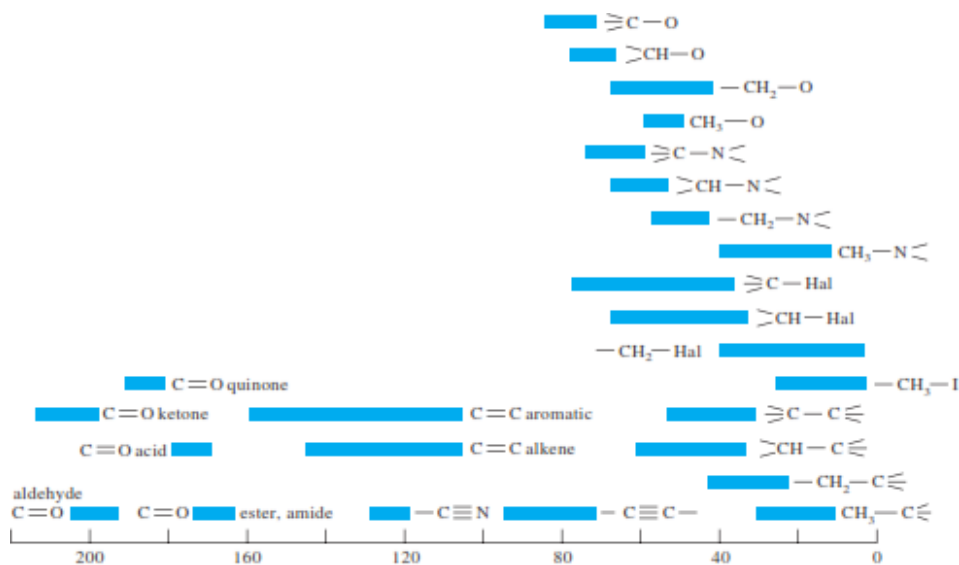
Lampiran 4. Tabel Absorpsi H-NMR dan C-NMR



[†]Normally, absorptions for the functional groups indicated will be found within the range shown. Occasionally, a functional group will absorb outside this range. Approximate limits for this are indicated by absorption values in parentheses and by blue shading in the figure.

[‡]The absorption positions of these groups are concentration-dependent and are shifted to higher δ values in more dilute solutions.

Gambar 16. Tabel pergeseran kimia pada H-NMR (Skoog *et al.*, 2018)



Gambar 17. Skema pergeseran kimia pada C-NMR (Skoog *et al.*, 2018)

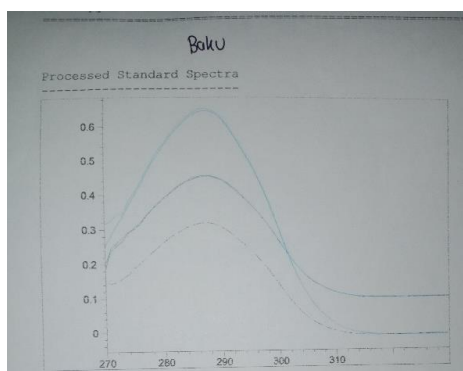
Lampiran 6. Dokumentasi Penelitian



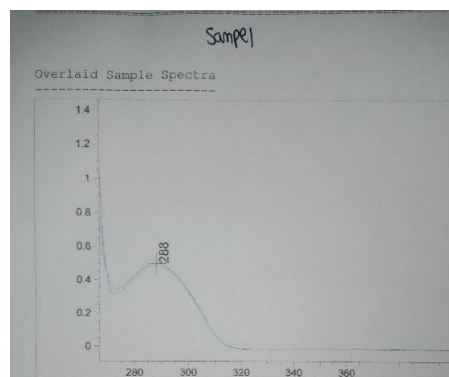
Gambar 18. Larutan stok MMEO sebanyak 500 ppm



Gambar 19. Penimbangan enantiomer MMEO



Gambar 20. Kurva baku MMEO pada spektrofotometri UV-Vis



Gambar 21. Kurva spektrofotometri UV-Vis enantiomer MMEO



Gambar 22. Hasil pengamatan MMEO dan enantiomer MMEO pada KLT dengan perbandingan heksan:etil asetat sebanyak 4:1. (A) MMEO, (B) Enantiomer MMEO



Gambar 23. Hasil pengamatan MMEO dan enantiomer MMEO pada KLT dengan perbandingan heksan:etil asetat sebanyak 3:5. (A) MMEO, (B) Enantiomer MMEO