

DAFTAR PUSTAKA

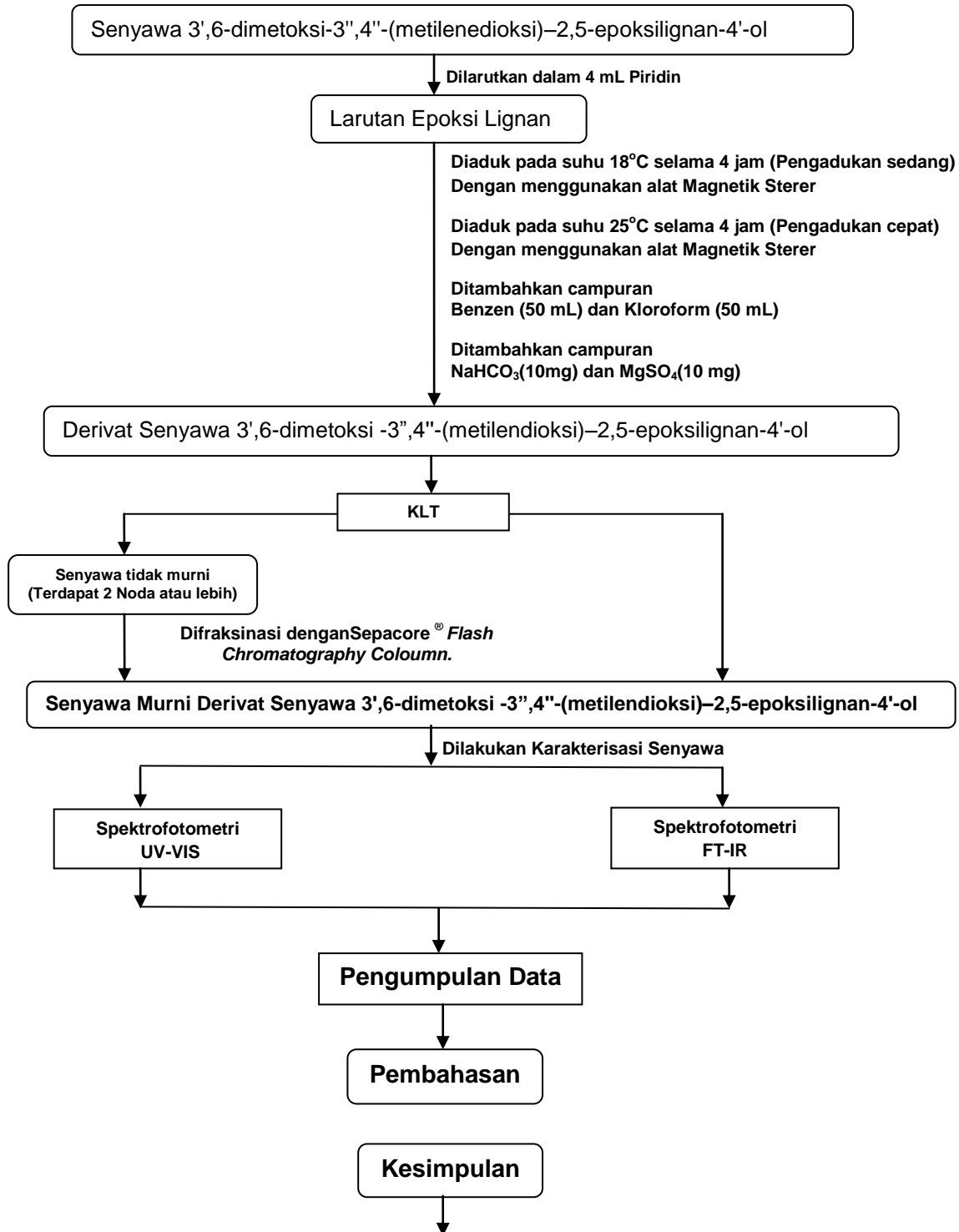
1. Matsjeh, S., Sintesis Flavonoid : Potensi Metabolit Sekunder Aromatik dari Sumber Daya Alam Nabati Indonesia, Universitas Gadjah Mada, Yogyakarta, 2004, Hal. 2-5.
2. Sharmina, A.; Sarma.Y.R. Secondary metabolites in black pepper (*Piper Nigrum*) and their effect on the foot-rot pathogen *Phytophthora capsici*, Indian Institute of spices Research (ICAR), Calcut 673 012. Kerala , 2001, Hal. 22.
3. Reshmi, S.K; Sathya, E; Devi, P.Suganya, Isolation of piperidine from *Piper Nigrum* and its antiproliverative activity, Departement of Biotechnology, India, 2010,Hal.1535
4. Rifai, Y.; Aswad, M.; Subehan. *International Journal of Chemical and Analytical Science*, 2012, 3, 10, Hal.1585-1586
5. Xu, Fu-Guo; Ma, Qing-Yong; Wang, Zheng, Blokade of hedgehog signaling pathway as a therapeutics strategy for pancreatic cancer, Departement of surgery, China, 2009,Hal. 119-120
6. Ruiz, A. A.; Sanchez, P,; Dahmane, N. *Nat. Rev. Cancer* 2002, 2, Hal.361-372.
7. Rubin, L. L.; de Sauvage, F. J. *Nat. Rev. Drug Disc.* 2006, 5, Hal.1026-1033.
8. Thayer, S. P.; di Magliano, M. P.; Heiser, P. W.; Nielsen, C. M.; Roberts, D. J.; Lauwers, G. Y.; Qi, Y. P.; Gysin, S.; Fernández-del Castillo, C.; Yajnik, V.; Antoniu, B.; McMahon, M.; Warshaw, A. L.; Hebrok, M. *Nature* 2003, 425, 851-856.
9. Sanchez, P.; Hernandez, A. M.; Stecca, B.; Kahler, A. J.; De Gueme, A. M.; Barrett, A.; Beyna, M.; Datta, M. W.; Datta, S.; Ruiz i Altaba, A. *Proc. Natl. Acad. Sci. U.S.A.* 2004, 101, 12561-12566.
10. Karsha, pavithra vani ; Lakshmi, O Bhagya, Antibacterial activity of black pepper (*Piper nigrum* Linn.) with special reference to its mode of actions on bacteria, Departement of Microbiology and Departement of Botany, India, 2009, Hal. 213

11. Plantamore, <http://www.plantamor.com/index.php?plant=1011>, Diakses pada tanggal : 26 April 2013
12. Sastrohamidjojo, Hardjono ; Pranowo, H.D ; Sintesis Senyawa Organik, Penerbit Erlangga, PT Gelora Aksara Pratama, 2009, Hal. 1,8,15,24,25
13. Amalina, N.L ; Uji Sitotoksik Ekstrak Etanol 70% Buah Merica Hitam (*Piper nigrum* L.) Terhadap sel HeLa ; Universitas Muhammadiyah Surakarta; 2008; Hal.3-5
14. Talamona, A. Laboratory Chromatography Guide. Penerbit Buchi. Labortechnik AG. Switzerland. 2005. Hal 12
15. Gritter RJ, Bobbitt J dan Schwarting AE, Pengantar Kromatografi. Penerjemah: Padmawinata K. Ed 2, Penerbit ITB, Bandung,1991, Hal.146, 64
16. Harborne J.B, Metode Fitokimia Penuntun Cara Modern Menganalisis Tumbuhan Edisi II, Penerbit ITB, Bandung, 198, Hal 123
17. Deinstrop, Elke-Hahn. 2007. *Applied Thin Layer Chromatography*. Wiley-VCH: Jerman. Hal: 1-7
18. Cooke M dan Poole CF. 2000. *Encyclopedia of Separation Science*. USA: Academic Press. Hal: 2809
19. Hajnos MW, Sherma J, Kowalska T. 2008. *Thin Layer Chromatography in Phytochemistry*. CRC Press: Boca Raton. Hal: 5-6.
20. Adnan M. 1997. *Teknik Kromatografi untuk Analisis Bahan Makanan*. Penerbit ANDI. Yogyakarta. Hal. 36, 38
21. Houghtin, P.J., Raman, A. Laboratory Handbook for the Fractination of Natural Extract. Chapman & Hall.1998.
22. Noerdin D. 1986. *Elusidasi Struktur Senyawa Organik dengan Spektroskopi Ultralembayung dan Infamerah*. Penerbit Angkasa. Bandung. Hal. 91-98.
23. Benny, R. F. 2011. *Kimia Material Spektroskopi Infra Merah (FT-IR) dan Sinar Tampak (UV-Vis)*. Pascasarjana Universitas Andalas. Padang. Hal. 4, 13

24. Basset J., Denney R.C., Jeffery G.H., Mendham J, Buku Ajar Vogel Kimia Analisis Kuantitatif Anorganik, EGC, Jakarta, 1994, Hal.3, 809-810, 818
25. Underwood, AL., Analisa Kimia Kuantitatif, Ed.IV, Erlangga, Jakarta, Hal.383.
26. Elusidasi Struktur Molekul Organik, Graha Ilmu, Yogyakarta, 2009, Hal : 7,8, 15,16, 29.35,36
27. Soleh kosela, Cara Mudah dan sederhana Penentuan Struktur Molekul Berdasarkan spektra Data (NMR, MASS, IR,UV), Lembaga Penerbit Fakultas ekonomi Universitas Indonesia, Jakarta, 2010, Hal: 180

LAMPIRAN I

SKEMA KERJA



LAMPIRAN II

PERHITUNGAN RENDAMEN SENYAWA TURUNAN EPOKSILIGNAN

$$\text{Bobot Epoksilignan-4'-ol} = 0,0319 \text{ gram} = 31,9 \text{ mg}$$

$$\text{Massa Molekul Relatif (Mr) Epoksilignan-4'-ol} = 372 \text{ gram / mol}$$

$$\begin{aligned} \text{Mol Epoksilignan 4'-ol} &= \frac{\text{Bobot Epoksilignan 4'-ol}}{\text{Mr Epoksilignan-4'-ol}} \\ &= \frac{0,0031 \text{ gram}}{372 \text{ gram/mol}} \\ &= 8,5753 \times 10^{-5} \text{ mol} \end{aligned}$$

1 mol Epoksilignan 4'-ol setara dengan 1 mol Epoksilignan-4'-ol-6-on.

$$\text{Massa Molekul Relatif (Mr) Epoksilignan-4'-ol-6-on} = 348 \text{ gram / mol}$$

$$\begin{aligned} \text{Bobot Teori Epoksilignan-4'-ol-6-on} &= \text{Mr Epoksilignan-4'-ol-6-on} \times \\ &\quad \text{Mol Epoksilignan-4'-ol-6-on} \\ &= 348 \text{ gram/mol} \times 8,333 \times \\ &\quad 10^{-5} \text{ mol} \\ &= 0,0298 \text{ gram} = 29,8 \text{ mg} \end{aligned}$$

$$\text{Bobot Praktek Epoksilignan-4'-ol-6-on} = 0,0256 \text{ gram} = 25.6 \text{ mg}$$

$$\begin{aligned} \text{Rendamen Epoksilignan-4'ol-6on} &= \frac{\text{Bobot Praktek}}{\text{Bobot Teori}} \times 100\% \\ &= \frac{25.6 \text{ mg}}{29,8 \text{ mg}} \times 100\% \\ &= 85,906 \% \end{aligned}$$