

DAFTAR PUSTAKA

1. Mawadah, R. 2009. Kajian Hasil Riset Potensi Antimikroba Alami dan Aplikasinya Dalam Bahan Pangan di Pusat Informasi Teknologi Pertanian Fateta IPB. Fakultas Teknologi Pertanian. Institut Pertanian Bogor. Bogor.
2. Suryanto, E., Sastrohamidjojo, H., Raharjo, S., dan Tranggono. 2004. Antiradical Activity of Andaliman (*Zanthoxylum acanthopodium* DC.) Fruit Extract. 11(1): 15-19.
3. Katzer, S. 2004. Sichuan Pepper (*Zanthoxylum piperatum/simulans/bungeanum/rhetsa/acanthopodium* and other).
4. Tjitrosoepmp G. 1991. *Taksonomi Tumbuhan*. Yogyakarta: Gajah Mada Univ.
5. Sebayang, L. *Tanaman Andaliman dan Manfaatnya*. (2016).
6. J.H. Chen, T Zhang, Q.B. Zhang, Y. Liu, L.Y. Li, J.G. Si, , Z.M. Zou, H.M. Hua, J. Agric. Food Chem. 66 (2018) 3408-3416.
7. Y.S. Jo, D.T.L. huong, K. Bae, M.K. Lee, Y.H. Kim, Planta Med. 68 (2002) 84-85.
8. Yue Jie, Shiming Li, Chi-Tang Ho. Chemical composition, sensory properties and application of Sichuan pepper (*Zanthoxylum* genus). Food Science and Human Wellness. Letter 115-125. <https://doi.org/10.1016/j.fshw.2019.03.008>
9. Asbur, Y., K. Pemanfatan andaliman (*Zanthoxylum acanthopodium* DC) sebagai tanaman penghasil minyak atsiri. *Kultivasi* **17**, 537–543 (2018).

10. Parhusip, A. 2006. Kajian Mekanisme Antibakteri Ekstrak Andaliman (*Zanthoxylum acanthopodium* DC.) terhadap Bakteri Patogen Pangan. *Tesis*. Bogor: Fakultas Pertanian Institut Pertanian Bogor.
11. Sirait M., Penuntun Fitokimia Dalam Farmasi. ITB Press : Bandung. ISBN 979-3507-99-3. Flavonoid. Hal. 191.
12. V, Bhatt, S. Sharma, N. Kumar, U. Sharma, B. Singh, Simultaneous quantification and identification of flavonoids, lignans, coumarin and amides in leaves of *Zanthoxylum armatum* using UPLC-DAD-ESI-QTOF-MS/MS. *Pharm. Biomed. Anal.* 132 (2017) 46-55.
13. Harborne, J.B. 1984. *Metode Fitokimia Penentuan Cara Metode Menganalisa Tumbuhan*. Penerjemah: Kokasih Padmawinata dan Iwang Soediro. Terbitan Kedua. Bandung: Penerbit ITB. Halaman 47-102, 152-153.
14. Del Poeta, M., Chen, SF, Von Hoff, D., Dykstra, CC, Wani, MC, Manikumar, G., Heitman, J., Wall, ME, Perfect, JR, 1999. *Antimicrob. Agen Chemoter.* 43, 2862.
15. Lingsong Li, Hongxian Wu, Siyuan Liu, Goulin Wang, Feng Yan, Jie Feng. (2020). Chemical constituents from the leaves of *Zanthoxylum nitidum* (Roxb.) DC. *biochemical Systematics and Ecology.* 91 (104080). <https://doi.org/10.1016/j.bse.2020.104080>
16. Harborne, J.b, 1987, *Metode Fitokimia*, Penerjemah: Kokasih Padmawinata dan Iwang Soediro, Penerbit ITB, Bandung. Hal 58-60.

17. V. Kumar, S. Kumar, B. Singh, N. Kumar, Quantitative and structural analysis of amides and lignans in *Zanthoxylum armatum* by UPLC-ESI-QTOF-MS/MS. *J. Pharm. Biomed. Anal.* 94 (2014) 23-29
18. Murray, R.D.H., J. Mendes, and S.A. Brow, 1982, *The Natural Coumarin*, John Willey and Son Ltd, New York.
19. Su, G. Y., Wang, K. W., Wang, X. Y. & Wu, B. Bioactive lignans from *Zanthoxylum planispinum* with cytotoxic potential. *Phytochem. Lett.* 11, 120–126 (2015).
20. Silverstein, R.M., Webster, F.X., dan Kiemle, D.J., (2005). *Spectrometric Identification of Organic Compounds, Seventh Edition*. United State of America: John Wiley & Sons, Ltd.
21. Murray, R.D.H., J. Mendes, and S.A. Brow, 1982, *The Natural Coumarin*, John Willey and Son Ltd, New York.
22. Gritter, R. J., M. B. James, E. S. Arthur. 1985. *Pengantar Kromatografi*. Terjemahan. K. Padmawinata. 1991. ITB, Bandung
23. Roy J. Gritter, James. M. Bobbit, Arthur E. Schwarting. *Pengantar Kromatografi. Kromatografi Kertas*. Ed. 2. Penerbit ITB. ISBN 979-8001-45-1. Hal. 157.
24. Roy J. Gritter, James. M. Bobbit, Arthur E. Schwarting. *Pengantar Kromatografi. Kromatografi Gas*. Ed. 2. Penerbit ITB. ISBN 979-8001-45-1. Hal. 34.
25. K. Hosttemann *et al.* *Cara Kromatografi Preparatif*. Penggunaan pada Isolasi Senyawa Alam. Hal. 2 & 9. Penerbit ITB Bandung. ISBN 979-8591-09-7.

26. Yinusa I, Ilogbulem N, Ayo RG, Yakubu R (2015). *Vacuum Liquid Chromatographic Isolation and Characterization of Beta-Sitosterol from the Bark of Sarcocephalus Latifolius* (Smith Bruce). *Journal of Chemistry and Chemical Sciences* 5(9): 480-488. *Organic and Medicinal Chemistry*. ISSN 2474-7610.
27. Roy J. Gritter, James. M. Bobbit, Arthur E. Schwarting. Pengantar Kromatografi. *Kromatografi Cair Kinerja Tinggi*. Ed. 2. Penerbit ITB. ISBN 979-8001-45-1. Hal. 186.
28. Departemen Kesehatan RI., Parameter Standar Umum Ekstrak Tumbuhan Obat. Edisi 1. Departemen Kesehatan RI; 2000.
29. Huseyin Degirmenci, and Hatice Erkurt. (2019). Relationship between volatile components, antimicrobial and antioxidant properties of the essential oil, hydrosol and extracts of *Citrus aurantium* L. flowers. *Journal of Infection and Public Health* xxx (2019) xxx-xxx.
<https://doi.org/10.1016/j.jiph.2019.06.017>

LAMPIRAN 1

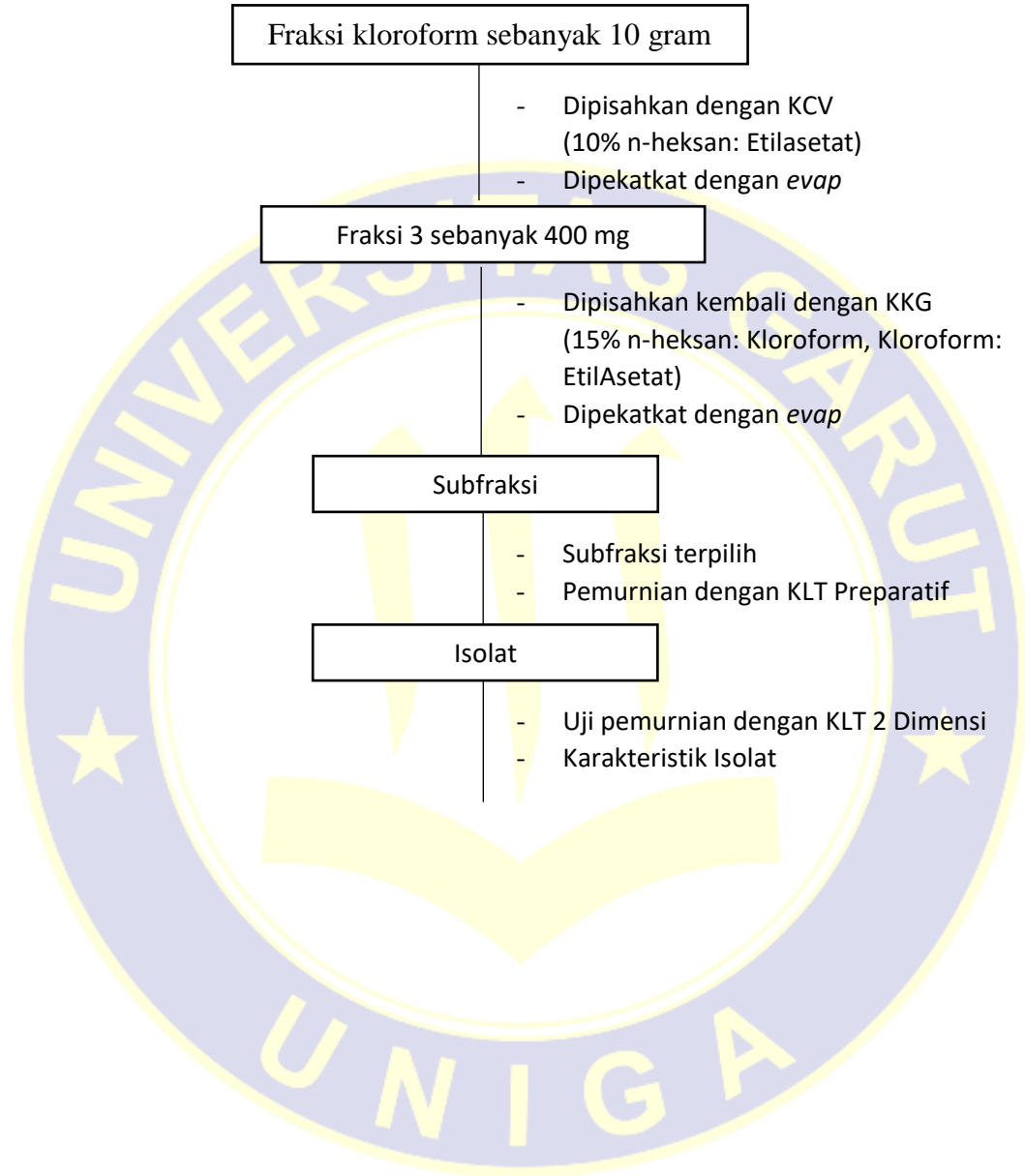
FRAKSI KLOROFORM BUAH ANDALIMAN



Gambar VI.1 Fraksi Kloroform buah Andaliman

LAMPIRAN 2

PROSES ISOLASI SENYAWA METABOLIT SEKUNDER



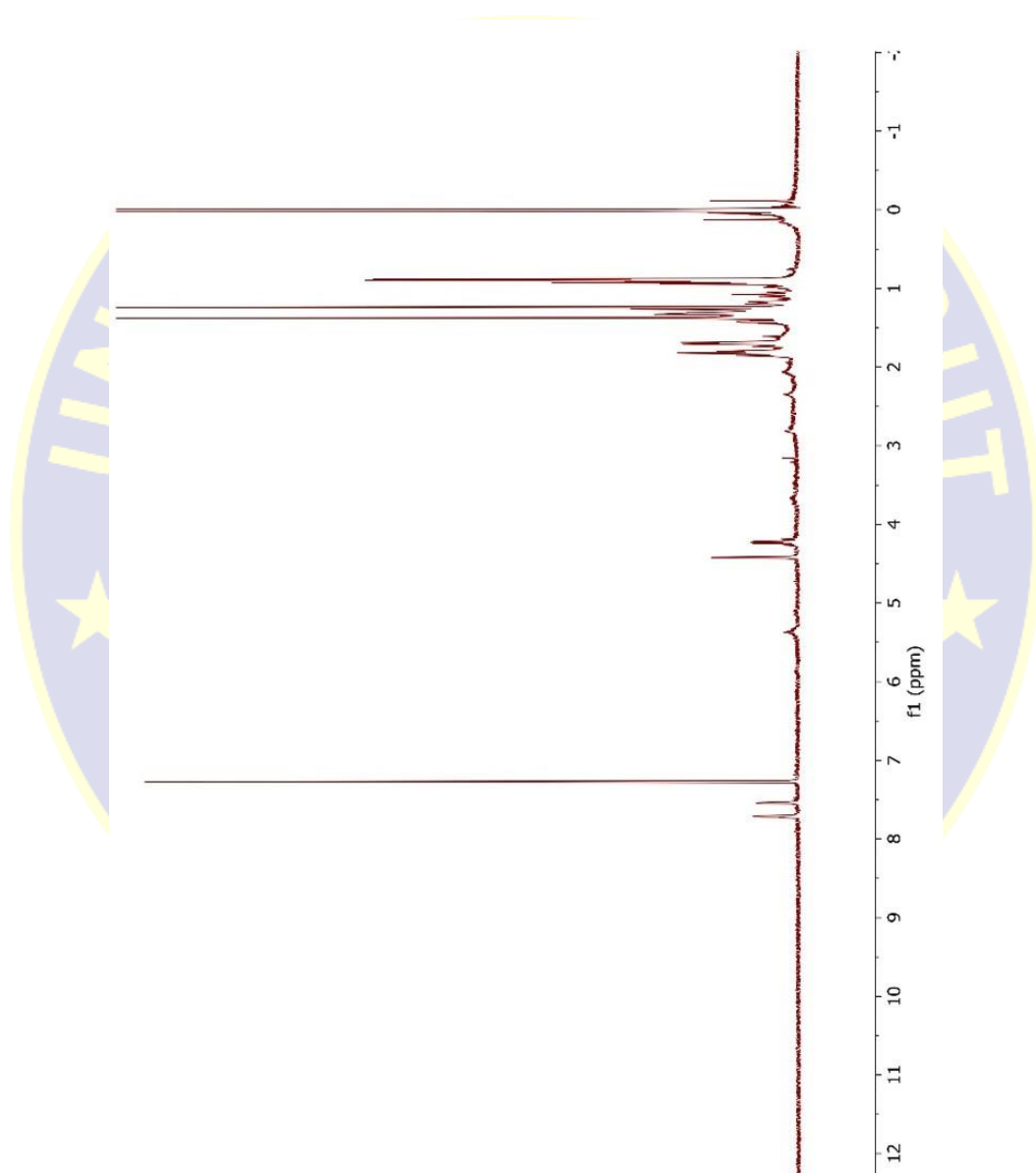
LAMPIRAN 3

TABEL PERBANDINGAN PELARUT

Tabel V.1
Perbandingan Eluen Bergradien 10%

No.	n-Heksan	EtilAsetat	Aseton	Metanol
1.	9%	1%	-	-
2.	9%	1%	-	-
3.	9%	1%	-	-
4.	8%	2%	-	-
5.	8%	2%	-	-
6.	8%	2%	-	-
7.	8%	2%	-	-
8.	7%	3%	-	-
9.	7%	3%	-	-
10.	7%	3%	-	-
11.	5%	5%	-	-
12.	5%	5%	-	-
13.	5%	5%	-	-
14.	3%	7%	-	-
15.	3%	7%	-	-
16.	0%	1%	-	-
17.	0%	1%	-	-
18.	-	0%	1%	-
19.	-	0%	1%	-
20.	-	-	-	1%
21.	-	-	-	1%

LAMPIRAN 4
HASIL SPEKTRA ^1H -NMR



Gambar V.8 Spektrum ^1H -NMR isolat F3.f.4 yang diukur dalam pelarut kloroform pada 500 MHz.