

DAFTAR PUSTAKA

- Actender, S. 1960. *Perfume and flavour materials of natural origin*. Elizabeth. New York.
- Anggrahini, S. 2012. *Pengolahan lada (*Piper nigrum* Linn)*. Kanisius. Yogyakarta.
- Anonim. 1980. *Bercocok tanam lada*. Aksi Agraris Kanisius. Kanisius. Yogyakarta.
- Anonim. 2007. *Teknologi Proses Pengolahan Lada*. Direktorat Jenderal Bina Produksi Perkebunan Departemen Pertanian. Jakarta.
- Anonim. 2008. ISO 3061 : 2008 Oil of black pepper (*Piper nigrum* L.). International Organization of Standardization. Swiss.
- Anonim. 2012. *Pedoman Pengolahan Lada Putih*. Lampiran Peraturan Menteri Pertanian Nomor 55/Permentan/OT.140/9.2012. Jakarta.
- Anonim^a. 2013. Langkah umum principal component analysis. <http://tyangluhtu.wordpress.com/2013/04/19/langkah-umum-principal-component-analysis/>. Diakses tanggal 10 Juli 2018.
- Anonim^b. 2013. SNI 0004 : 2013 Lada Putih. Badan Standardisasi Nasional. Jakarta.
- Anonim. 2015. *Outlook lada 2015*. Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal Kementerian Pertanian. Jakarta.
- Anonim. 2016. *Statistik Pertanian 2016*. Pusat Data dan Sistem Informasi Pertanian Kementerian Pertanian Republik Indonesia. Jakarta.
- Anonim^a. 2018. White pepper oil. <http://indiaaromaols.com/white-pepper-oil.html/>. Diakses tanggal 13 Agustus 2018.
- Anonim^b. 2018. Pure Essential Oil Sarawak White Pepper. <http://shop.bf-1.com/product info/>. Diakses tanggal 13 Agustus 2018.
- Armstrong, S.D. 1999. Microwave assisted extraction for the isolation of trace systemic fungicides from woody plant material. Doctor of philosophy of Chemistry Virginia Polytechnic Institute and State University. Virginia
- Bhattacharjee, P. dan Dutta, S. 2015. Enzyme-assisted supercritical carbon dioxide extraction of black pepper oleoresin for enhanced yield of piperine-rich extract. *Journal of Bioscience and Bioengineering* 120 : 17-23.
- Buckle, K.A., Rathnawathie, M., dan Brophy, J.J. 1985. Compositional differences of black, green, and white pepper (*Piper nigrum* L.) oil from three cultivars. *Journal of Food Technology* 20 : 599-613.
- Chaves-reyes, Y., Alvarez, L.D., Baez, D.A., dan Esquivel, O.O. 2013. Polyphenol oxidase inactivation by microwave oven and its effect on phenolic profile of loquat (*Eriobotrya japonica*) fruit. *Food and Nutrition Sciences* 4 : 87-94.

- Chen, W., Dou, H., Ge, C., dan Li, C. 2011. Comparison of volatile compounds in pepper (*Piper nigrum* L.) by simultaneous distillation extraction (SDE) and GC-MS. *Advanced Materials Research* 236 : 2643-2646.
- Chin, S.T., Nazimah, S.A.H, Quek, S.Y., Man, Y.B.C., Rahman, R.A., dan Hashim, D.M. 2007. Analysis of volatile compounds from Malaysian durians (*Durio zibethinus*) using headspace SPME coupled to fast GC-MS. *Journal of Food Composition and Analysis* 20 : 31-44.
- Feriadi. 2016. Mengenal tanaman lada. <http://babel.litbang.pertanian.go.id/index.php/15-infotek/info-teknologi/442-mengenal-varietas-lada>. Diakses tanggal 18 Agustus 2017.
- Guenther, E.1987. *Minyak Atsiri I*, diterjemahkan S. Ketaren, Jilid 1. UI Press. Jakarta.
- Gulcin, I. 2005. The antioxidant and radical scavenging activities of black pepper (*Piper nigrum*) seeds. *International Journal of Food Sciences and Nutrition* 56 : 491-499.
- Hanani, E., Mun'im, A., dan Sekarini, R. 2005. Identifikasi senyawa antioksidan dalam spons *Callispongia sp* dari Kepulauan Seribu. *Majalah Ilmu Kefarmasian II* : 127-133.
- Hanief, M.M.A., Mushawwir, H.A.W., dan Mahfud. 2013. Ekstraksi minyak atsiri dari akar wangi menggunakan metode steam-hydro distillation dan hydro distillation dengan pemanas microwave. *Jurnal Teknik Vomits* 2 : 219-223.
- Hena, M. 2016. Export marketing of pepper : Opportunities and constrains. *Asia Pacific Journal of Reseasch* 1 : 199-124.
- Hernani dan Rahardjo. 2005. *Tanaman berkhasiat antioksidan*. Penebar Swadaya. Jakarta
- Hines, E.L., Boilot, P., Gardner, J.W., dan Gongora, M.A. 2003. *Pattern analysis for electronic noses*. Handbook of machine olfaction : electronic nose technology. Wiley-Vch. Weinheim.
- Jeevitha, G.C., Sowbhagya, H.B., dan Hebbar, H.U. 2016. Application of microwaves for microbial load reduction in black pepper (*Piper nigrum* L.). *Journal of The Science of Food and Agriculture* 96 : 4243-4249.
- Jin, R. Fan L, dan Xiaoning, A. 2011. Microwave Assisted Ionic Liquid Pretreatment of Medical Plants for Fast Solvent Extraction of Active Ingredients. *Separation and Purification Technology* 83 : 45-49.
- Jirovetz, L., Buchbauer, G., Ngassoum, M.B., dan Geissler, M. 2002. Aroma compound analysis of *Piper nigrum* and *Piper guineense* essential oils from Cameroon using solid phase microextraction gas chromatography, solid phase microextraction gas chromatography mass spectrometry and olfactometry. *Journal of Chromatography A* 976 : 265-275.

- Joni, H. 2009 Penjagaan Kadar dan Mutu Minyak Atsiri Sereh (*Cymbopogon nardus* L.) Menggunakan Pengeringan Mikrowave. Skripsi. Fakultas Teknologi Pertanian Universitas Gadjah Mada. Yogyakarta.
- Ketaren, S. 1985. *Pengantar teknologi minyak atsiri*. Balai Pustaka. Jakarta.
- Kumalaningsih, S. 2006. *Antioksidan alami*. Trubus Agrisarana. Surabaya.
- Korkmaz, A., Hayaloglu, A.A., dan Atasoy, A.F. 2017. Evaluation of the volatile compounds of fresh ripened *Capsicum annum* and its spice pepper(dried red pepper flakes and isot). *Food Science and Technology* 84 : 842-850.
- Liu, H., Zeng, F., Wang, Q., Ou, S., Tan, L., dan Gu, F. 2013. The Effect of cryogenic grinding and hammer milling on the flavor quality of ground pepper (*Piper nigrum* L.). *Food Chemistry* 141 : 3402-3408.
- Lumbessy, A.S. 2016. Perlakuan pendahuluan hancuran biji pala (*Myristica fragrans* Houtt) menggunakan gelombang mikro untuk meningkatkan rendemen dan mutu minyak atsiri dan oleoresin ampas biji pala. Tesis. Program studi S2 Teknologi Hasil Pertanian Fakultas Teknologi Pertanian, Universitas Gadjah Mada. Yogyakarta.
- Magda, A.A., Mansour, A.F., El Massry, K.F., Ramadan, M.M., dan Shaheen, M.S. 2011. The Effect of Microwaves on Essential oils of White and Black Pepper (*Piper nigrum* L.) and their Antioxidant Activities. *Journal of Essential Oil Bearing Plants* 14 : 214-223.
- Mamatha, B.S., Prakash, M., Nagarajan, S., dan Bhat, K.K. 2008. Evaluation of the flavour quality of pepper (*Piper nigrum* L.) cultivars by GC-MS, Electronic nose and sensory analysis techniques. *Journal of Sensory Studies* 23 : 498-513.
- Mandal, V. 2007. Microwave assisted extraction-an innovative and promising extraction tool for medical plant research. *Pharmacognosy Review* 1 : 7-18.
- Marlinda, B. 2008. Analisis daya saing lada Indonesia di pasar internasional. Program Studi Ekonomi Pertanian dan Sumberdaya Fakultas Pertanian Institut Pertanian Bogor. Bogor.
- McCarron, M., Mills, A., dan Whittaker, D. 1995. Comparison between green and blackpepper oils from *Piper nigrum* L. berries of Indian and Srilankan origin. *Flavour and Fragrance Journal* 10 : 47-50.
- Menon, A.N, Padmakumari, K.P., dan Jayalekshmy, A. 2003. Essentials oil composition of four major cultivars of black pepper (*Piper nigrum* L.) III. *Journal of Essential Oil Research* 15 : 155-157.
- Menon, A.N dan Padmakumari, K.P. 2005. Essential oil composition of four major cultivars of black pepper (*Piper nigrum* L.)-IV. *Journal of Essential Oil Research* 17 : 206-208.

- Mihaela, N.S. 2007. Microwave-assisted extraction (MAE) of secoisolariciresinol digulcoside (SDG) from flaxseed. Master of Science of Bioresourch Engineering Development McGill University. Montreal.
- Mussa, Y.V. 2014. Pengaruh Preparasi Bunga Cengkeh (*Eugenia aromaticum*) menggunakan microwave dan sonifikasi terhadap karakteristik hasil destilasi bunga cengkeh. Tesis. Fakultas Teknologi Pertanian Universitas Gadjah Mada. Yogyakarta.
- Niswaturrohmah. 2000. Kajian proses ekstraksi minyak lada (pepper oil) dan pengaruh penambahan minyak lada terhadap peningkatan mutu aroma lada bubuk. Skripsi. Fakultas Teknologi Pertanian Institut Pertanian Bogor. Bogor.
- Nitz, S. 1996. Quality and stability of high pressure extracts from spices. *In Forschungskreis der Ernahrungsindustrie. Bonn, Germany* : 85-111.
- Nurdjannah, N. dan Risfaheri. 1992. Pengolahan lada hijau dan penyulingan minyak lada. Prosiding Temu Usaha Hasil Penelitian Tanaman Rempah dan Obat : 136-144. Balitro. Bogor.
- Orav, A., Stulova, I., Kailas, T., dan Muurisepp, M. 2004. Effect of storage on the essential oil composition of *Piper nigrum* L. fruits of different ripening states. *Journal of Agricultural and Food Chemistry* 52 : 2582-2586.
- Pangborn, R.M., Jennings, W., dan Noelting, C.E. 1970. Preliminary examination of odour quality of black pepper oil. *The Flavour Industry* 1 : 763-767.
- Patel, K., Ruiz, C., Calderon, R., Marcelo, M., dan Rojas, R. 2016. Characterisation of volatile profiles in 50 native Peruvian chilli pepper using solid phase microextraction-gas chromatography mass spectrometry (SPME-GCMS). *Food Research International* 89 : 471-475.
- Pavia, D.L., Gary, M., Lampman, G.S., dan Krutz, R.G.E. 2006. *Introduction to organic laboratory techniques* (4th Ed.). Thomson Brooks/Cole : 797-817.
- Piggott, J.R. dan Othman, Z. 1993. Effect of irradiation on volatile oils of black pepper. *Food Chemistry* 46 : 115-119.
- Pratama, W. 2010. Terpenoid I-pendahuluan dan sintesis. <http://willi-pharmacist.blogspot.com/2010/09/terpenoid-i-pendahuluan-dan-sintesis>. Diakses tanggal 10 Juli 2018.
- Prakash, A. 2001. Antioxidant activity. *Medallion Laboratories Analytical Progres* 19 : 1-4.
- Pruthi, J.S. 1980. Spices and condiments chemistry, microbiology, technology. Academic Press. New York.
- Purseglove, J.W., Brown, A.G., Green, C.L., dan Robbins, S.R.J. 1981. *Spices*. Longman Inc. Vol.1. New York.

- Radonic, A. dan Milos, M. 2003. Chemical composition and in vitro evaluation of antioxidant effect of free volatile compounds from *Satureja montana* L. *Free Radical Research* 37 : 673-679.
- Rai, N., Yadav, S., Verma, A.L., Tiwari, L., dan Sharma, R.K. 2012. Quality specifications on *Piper nigrum* L. - A spice and herbal drug of Indian Commerce. *International Journal of Advanced Food Science and Technology* 1 : 1-11.
- Raman, G dan Gaikar, V.G. 2002. Microwave-Assisted Extraction of Piperine from *Piper nigrum*. *Industrial and Engineering Chemistry Research* 41 : 2521-2528.
- Risfaheri. 2012. Diversifikasi produk lada (*Piper nigrum*) untuk peningkatan nilai tambah. Buletin Teknologi Pascapanen Pertanian 8. Balai Pengkajian Teknologi Pertanian Kepulauan Bangka Belitung.
- Rismunandar. 2000. *Lada, budidaya, dan tata niaganya*. Penebar Swadaya. Jakarta.
- Rmili, R., Ramdani, M., Ghazi, Z., Saidi, N., dan El Mahi, B. Composition comparison of essential oils extracted by hydrodistillation and microwave-assisted hydrodistillation from *Piper nigrum* L. *Journal Mater. Environ.Sci* 5 : 1560-1567.
- Steinhaus, M. dan Schieberle, P. 2005. Role of fermentation process in off odorant formation in white pepper : on site trial in Thailand. *Journal of Agricultural and Food Chemistry* 53 : 6056-6060.
- Sunardi, I. 2007. Uji aktivitas antioksidan ekstrak belimbing wuluh (*Averrhoa bilimbi*, L.) terhadap *1,1-diphenyl-2-picrylhidrazyl* (DPPH). Seminar Nasional Teknologi Yogyakarta: D-III Teknologi Farmasi Fakultas Teknik Universitas Setia Budi.
- Sutarno dan Andoko, A. 2005. Morfologi Tanaman Lada. <https://matematikacerdas.wordpress.com/2010/01/25/klasifikasi-dan-morfologi-tanaman-lada>. Diakses tanggal 20 Maret 2017.
- Syafrudin, M. 2016. Pengaruh perlakuan pendahuluan menggunakan gelombang mikro terhadap yield dan kadar piperine oleoresin lada putih. Tesis. Fakultas Teknologi Pertanian Universitas Gadjah Mada. Yogyakarta.
- Uquiche, E., Jerez, M., dan Ortiz, J. 2008. Effect of pretreatment with microwaves on mechanical extraction yield and quality of vegetable oil from chilean hazelnuts (*Gevuina avellana* Mol). *Innovative Food Science and Emerging Technologies* 9 : 495-500.
- Usmiati, S. dan Nurdjannah, N. 2006. Pengupasan kulit buah lada dengan enzim pektinase. *Jurnal Badan Penelitian tanaman Rempah dan Minyak Atsiri*. Balai Penelitian Tanaman Rempah dan Minyak Atsiri. Bogor.



- Wikanta, T, Yanuar, H.D., dan Nursed, M. 2005. Uji aktivitas antioksidan, toksisitas, dan sitotoksitas alga merah *Rhodomenia palmate*. *Jurnal Penelitian Perikanan Indonesia* 11 : 12-25.
- Winarti, C. dan Nurdjannah, N. 2007. Teknologi pengolahan lada hitam dan putih. Balai Besar Penelitian dan Pengembangan Pasca Panen Pertanian. Badan Penelitian dan Pengembangan Pertanian. Bogor.
- Yogesh, M.S. dan Mokshapathy, S. 2014. India export scenario of pepper oil and pepper oleoresin. *The International Journal of Business and Management* 2 : 36-41