

DAFTAR PUSTAKA

- Akdeniz, B., Sumnu, G., dan Sahin, S. 2017. The effects of maltodextrin and gum arabic on encapsulation of onion skin phenolic compounds. *Chem. Eng. Trans.* 57(1): 1891-1896.
- Akyla, C. 2014. Effect of spray drying encapsulation method on flavor quality of andaliman (*Zanthoxylum acanthopodium* DC.) powder. Skripsi, Universitas Pelita Harapan, Tangerang.
- Akyol, H., Riciputi, Y., Capanoglu, E., Caboni, M. F., dan Verardo, V. 2016. Phenolic compounds in the potato and its byproducts: An overview. *Int. J. Mol. Sci.* 17(6): 835.
- Ali, D. Y., Darmadji, P., dan Pranoto, Y. 2014. Optimasi nanoenkapsulasi asap cair tempurung kelapa dengan response surface methodology dan karakterisasi nanokapsul. *J. Teknol. dan Industri Pangan* 25(1): 23-30.
- Amin, I. dan Lee, W. Y. 2005. Effect of different blanching times on antioxidant properties in selected cruciferous vegetables. *J. Sci. Food Agric.* 85(13): 2314-2320.
- Amna, O. F., Nooraain, H., Noriham, A., Azizah, A. H., dan Husna R. N. 2013. Acute and oral subacute toxicity study of ethanolic extract of *Cosmos caudatus* leaf in sprague dawley rats. *Int. J. Biosci. Biochem. Bioinformatics* 3(4): 301-305.
- Anandharamakrishnan, C. dan Ishwarya, P. 2015. "Spray Drying Techniques for Food Ingredient Encapsulation." John Wiley & Sons, New Jersey.
- Anesini, C., Ferraro, G. E., dan Filip, R. 2008. Total polyphenol content and antioxidant capacity of commercially available tea (*Camellia sinensis*) in Argentina. *J. Agric. Food Chem.* 56(19): 9225-9229.
- AOAC. 2005. "Official Methods of Analysis." Association of Official Analytical Chemists International, Washington.
- Chan, E. W. C., Wong, S. K., dan Chan, H. T. 2016. Ulam herbs of *Oenanthe javanica* and *Cosmos caudatus*: An overview on their medicinal properties. *J. Nat. Remedies* 16(4): 137-147.
- Chen, X., Wu, X., Chai, W., Feng, H., Shi, Y., Zhou, H., dan Chen, Q. 2013. Optimization of extraction of phenolics from leaves of *Ficus virens*. *J. Zhejiang Univ. Sci.* 14(10): 903-915.
- Cheng, S. H., Barakatun-Nisak, M. Y., Anthony, J., dan Ismail, A. 2015. Potential medicinal benefits of *Cosmos caudatus* (ulam raja): A scoping review. *J. Res. Med. Sci.* 20(10): 1000-1006.

- Cilek, B. 2012. Microencapsulation of phenolic compounds extracted from sour cherry (*Prunus cerasus* L.) pomace. Thesis, Middle East Technical University, Ankara.
- Cilek, B., Luca, A., Hasirci, V., Sahin, S., dan Sumnu, G. 2012. Microencapsulation of phenolic compounds extracted from sour cherry pomace: Effect of formulation, ultrasonication time and core to coating ratio. *Eur. Food Res. Technol.* 235: 587-596.
- Dian-Nashiela, F., Noriham, A., Nooraain, H., dan Azizah, A. H. 2015. Antioxidant activity of herbal tea prepared from *Cosmos caudatus* leaves at different maturity stages. *Int. Food Res. J.* 22(3): 1189-1194.
- El-Hamzy, E. M. A. dan El-Kholany, E. A. 2014. Effects of spray drying conditions on the physicochemical and antioxidant properties of the licorice (*Glycyrrhizaglabra*) powder and evaluation of their antimicrobial activity. *J. Appl. Sci. Res.* 10(13): 72-86.
- Fazaeli, M., Emam-Djomeh, Z., Ashtari, A. K., dan Omid, M. 2012. Effect of spray drying conditions and feed composition on the physical properties of black mulberry juice powder. *Food Bioprod. Process.* 90(4): 667-675.
- Frascareli, E. C., Silva, V. M., Tonon, R. V., dan Hubinger, M. 2011. Physicochemical properties of coffee oil microcapsules produced by spray drying. *III Jornadas Internacionais.*
- Giada, M. L. R. 2013. Food phenolic compounds: Main classes, sources and their antioxidant power. Chpt. 4 in "Oxidative Stress and Chronic Degenerative Diseases - A Role for Antioxidants," ed. J. A. Morales-Gonzalez, pp. 87-112. InTech, Rijeka.
- Gordon, L. dan Pilosof, A. M. R. 2010. Application of high-intensity ultrasounds to control the size of whey proteins particles. *Food Biophys.* 5(3): 203-210.
- Ho, L. P., Pham, A. H., dan Le, V. V. M. 2015. Effects of core/wall ratio and inlet temperature on the retention of antioxidant compounds during the spray drying of sim (*Rhodomyrtus tomentosa*) juice. *J. Food Process. Preserv.* 39(6): 2088-2095.
- Huang, W. Y., Cai, Y. Z., dan Zhang, Y. 2010. Natural phenolic compounds from medicinal herbs and dietary plants: Potential use for cancer prevention. *Nutr. Cancer* 62(1): 1-20.
- Isailovic, B., Kalusevic, A., Zurzul, N., Coelho, M. T., Dordevic, V., Alves, V. D., Sousa, I., Moldao-Martins, M., Bugarski, B., dan Nedovic, V. A. 2012. Microencapsulation of natural antioxidants from *Pterospartum tridentatum* in different alginate and inulin systems. *Central European Congress on Food 6*: 1075-1081.

- Jatupornwipat, K., Limwikrant, W., Anantachoke, N., dan Lomarat, P. 2017. Effect of spray drying condition on physical and antioxidant properties of acerola fruit juice powder. *J. Pharm. Sci.* 41(5): 89-92.
- Javadi, N., Abas, F., Hamid, A. A., Simoh, S., Shaari, K., Ismail, I. S., Mediani, A., dan Khatib, A. 2014. GC-MS-based metabolite profiling of *Cosmos caudatus* leaves possessing alpha-glucosidase inhibitory activity. *J. Food Sci.* 79(6): 1130-1136.
- Jia, Z., Dumont, M., dan Orsat, V. 2016. Encapsulation of phenolic compounds present in plants using protein matrices. *Food Bioscience* 15: 87-104.
- Jun, M., Fu, H. Y., Hong, J., Wan, X., Yang, C. S., dan Ho, C. T. 2003. Comparison of antioxidant activities of isoflavones from kudzu root (*Pueraria lobata* Ohwi). *J. Food Sci.* 68(6): 2117-2122.
- Kailasapathy, K. 2015. Encapsulation and controlled release techniques for administration and delivery of bioactive components in the health food sector. Chpt. 11 in "Nutraceutical and Functional Food Processing Technology," ed. J. I. Boye, pp. 307-346. John Wiley & Sons, New Jersey.
- Kan, T., Gundogdu, M., Ercisli, S., Muradoglu, F., Celik, F., Gecer, M. K., Kodad, O., dan Zia-Ul-Haq, M. 2014. Phenolic compounds and vitamins in wild and cultivated apricot (*Prunus armeniaca* L.) fruits grown in irrigated and dry farming conditions. *Biol. Res.* 47(1): 46.
- Kha, T. C., Nguyen, M. H., dan Roach, P. D. 2010. Effects of spray drying conditions on the physicochemical and antioxidant properties of the gac (*Momordica cochinchinensis*) fruit aril powder. *J. Food Eng.* 98(3): 385-392.
- Lee, B. H. 2015. "Fundamentals of Food Biotechnology" 2nd ed. John Wiley & Sons, New Jersey.
- Leon-Martinez, F. M., Mendez-Lagunas, L. L., dan Rodriguez-Ramirez, J. 2010. Spray drying of nopal mucilage (*Opuntia ficus-indica*): Effects on powder properties and characterization. *Carbohydr. Polym.* 81(4): 864-870.
- Lestari, W. A. 2016. Aktivitas antioksidan ekstrak etanol daun murbei (*Morus alba* L.) dengan metode *Thiobarbituric Acid* (TBA). Skripsi, Institut Pertanian Bogor, Bogor.
- Lobo, V., Patil, A., Phatak, A., dan Chandra, N. 2010. Free radicals, antioxidants and functional foods: Impact on human health. *Pharmacogn. Rev.* 4(8): 118-126.
- Mahdavi, S. A., Jafari, S. M., Ghorbani, M., dan Assadpoor, E. 2014. Spray-drying microencapsulation of anthocyanins by natural biopolymers: A review. *Drying Technol.* 32(5): 509-518.

- Mediani, A., Abas, F., Khatib, A., dan Tan, C. P. 2013. *Cosmos caudatus* as a potential source of polyphenolic compounds: optimisation of oven drying conditions and characterisation of its functional properties. *Molecules* 18(9): 10452-10464.
- Mediani, A., Abas, F., Tan, C. P., dan Khatib, A. 2014. Effects of different drying methods and storage time on free radical scavenging activity and total phenolic content of *Cosmos caudatus*. *Antioxidants* 3(1): 358-370.
- Mishra, M. 2016. "Handbook of Encapsulation and Controlled Release." CRC Press, Florida.
- Mishra, P., Mishra, S., dan Mahanta, C. L. 2014. Effect of maltodextrin concentration and inlet temperature during spray drying on physicochemical and antioxidant properties of amla (*Emblica officinalis*) juice powder. *Food Bioprod. Process.* 92(3): 252-258.
- Moshawih, S., Cheema, M. S., Ahmad, Z., Zakaria, Z. A., dan Hakim, M. N. 2017. A comprehensive review on *Cosmos caudatus* (ulam raja): pharmacology, ethnopharmacology, and phytochemistry. *IRJES* 1(1): 14-31.
- Munin, A. dan Edwards-Levy, F. 2011. Encapsulation of natural polyphenolic compounds: A review. *Pharmaceutics* 3(4): 793-829.
- Nesterenko, A., Alric, I., Silvestre, F., dan Durrieu, V. 2013. Vegetable proteins in microencapsulation: A review of recent interventions and their effectiveness. *Ind. Crops Prod.* 42: 469-479.
- Noriham, A., Dian-Nashiela, F., Hafifi, B. K., Nooraain, H., dan Azizah, A. H. 2015. Influences of maturity stages and extraction solvents on antioxidant activity of *Cosmos caudatus* leaves. *Int. J. Res. Stud. Biosci.* 3(12): 1-10.
- Nugraheni, A., Yunarto, N., dan Sulistyningrum, N. 2015. Optimasi formula mikroenkapsulasi ekstrak rimpang temulawak (*Curcuma xanthorrhiza* Roxb.) dengan penyalut berbasis air. *Jurnal Kefarmasian Indonesia* 5(2): 98-105.
- Nurulkharomah, F. 2016. Stabilitas antioksidan ekstrak ampas kopi terenkapsulasi selama penyimpanan. Skripsi, Universitas Jember, Jawa Timur.
- Paini, M., Aliakbarian, B., Casazza, A. A., Lagazzo, A., Botter, R., dan Perego, P. 2015. Microencapsulation of phenolic compounds from olive pomace using spray drying: A study of operative parameters. *Food Sci. Technol.* 62(1): 177-186.
- Putra, A. A. B., Bogoriani, N. W., Diantariani, N. P., dan Sumadewi, N. L. U. 2014. Ekstraksi zat warna alam dari bonggol tanaman pisang (*Musa paradisiaca* L.) dengan metode maserasi, refluks, dan sokletasi. *Jurnal Kimia* 8(1): 113-119.

- Quek, S. Y., Chok, N. K., dan Swedlund, P. 2007. The physicochemical properties of spray dried watermelon powders. *Chem. Eng. Process.* 46(5): 386-392.
- Rahman, H. A., Saari, N., Abas, F., Ismail, A., Mumtaz, M. W., dan Hamid, A. A. 2016. Anti-obesity and antioxidant activities of selected medicinal plants and phytochemical profiling of bioactive compounds. *Int. J. Food Prop.* 20(11): 2616-2629.
- Rahman, H. A., Sahib, N. G., Saari, N., Abas, F., Ismail, A., Mumtaz, M. W., dan Hamid, A. A. 2017. Anti-obesity effect of ethanolic extract from *Cosmos caudatus* Kunth leaf in lean rats fed a high fat diet. *BMC Complement. Altern. Med.* 17(1): 1-17.
- Rahmi, H. 2017. Review: Aktivitas antioksidan dari berbagai sumber buah-buahan di Indonesia. *Jurnal Agrotek Indonesia* 2(1): 34-38.
- Ratnavathi, C. V., Patil, J. V., dan Chavan, U. D. 2016. "Sorghum Biochemistry: An Industrial Perspective." Elsevier, Amsterdam.
- Reineccius, G. A. 2004. The spray drying of food flavors. *Drying Technol.* 22(6): 1289-1324.
- Rufino, M. S. M., Alves, R. E., Brito, E. S., Perez-Jimenez, J., Saura-Calixto, F., dan Mancini-Filho, J. 2010. Bioactive compounds and antioxidant capacities of 18 non-traditional tropical fruits from Brazil. *Food Chem.* 121(4): 996-1002.
- Saikia, S., Mahnot, N. K., dan Mahanta, C. L. 2015. Optimisation of phenolic extraction from *Averrhoa carambola* pomace by response surface methodology and its microencapsulation by spray and freeze drying. *Food Chem.* 171(1): 144-152.
- Sam, S., Malik, A., dan Handayani, S. 2016. Penetapan kadar fenolik total dari ekstrak etanol bunga rosella berwarna merah (*Hibiscus sabdariffa* L.) dengan menggunakan spektrofotometri UV-Vis. *Jurnal Fitofarmaka Indonesia* 3(2): 182-187.
- Sari, D. K., Wardhani, D. H., dan Prasetyaningrum, A. 2012. Pengujian kandungan total fenol *Kappahycus alvarezzi* dengan metode ekstraksi ultrasonik dengan variasi suhu dan waktu. Prosiding SNST ke-3 Tahun 2012 Fakultas Teknik Universitas Wahid Hasyim Semarang.
- Setiawan, M. 2015. Effects of different carrier agents and core to coating ratio towards the encapsulation of soursop leaves (*Annona muricata* Linn.) tea extract. Skripsi, Universitas Pelita Harapan, Tangerang.
- Shahidi, F. 2015. Antioxidants: Principles and applications. Chpt. 1 in "Handbook of Antioxidants for Food Preservation," ed. F. Shahidi, pp. 1-14. Woodhead Publishing, Cambridge.

- Shui, G., Leong, L. P., Wong, S. P. 2005. Rapid screening and characterisation of antioxidants of *Cosmos caudatus* using liquid chromatography coupled with mass spectrometry. *J. Chromatogr.* 827: 127-138.
- Sobel, R., Versic, R., dan Gaonkar, A. G. 2014. Introduction to microencapsulation and controlled delivery in foods. Chpt. 1 in "Microencapsulation in the Food Industry," ed. A. Gaonkar, N. Vasisht, A. Khare, dan R. Sobel, pp. 1-12. Academic Press, California.
- Sulaiman, C. T. dan Balachandran, I. 2012. Total phenolics and total flavonoids in selected Indian medicinal plants. *Indian J. Pharm. Sci.* 74(3): 258-260.
- Sutiono, E. 2015. The utilization of *Aloe vera* mucilage as carrier agent for the encapsulation of soursop leaves tea extract by spray drying. Skripsi, Universitas Pelita Harapan, Tangerang.
- Tiwari, P., Kumar, B., Kaur, M., Kaur, G., dan Kaur, H. 2011. Phytochemical screening and extraction: A review. *Internationale Pharmaceutica Scientia* 1(1): 98-106.
- Tohir, D., Wiyono, B., dan Sadono, A. 2011. Aktivitas antioksidan dan analisis komposisi senyawa fenolik dari pohon bidara laut (*Strychnos ligustrina*). Skripsi, Institut Pertanian Bogor, Bogor.
- United States Department of Agriculture. 2016. Classification for Kingdom Plantae Down to Species *Cosmos caudatus* Kunth. Available from: <https://plants.usda.gov/java/ClassificationServlet?source=display&classid=COCA21>. Accessed 2017 June 11.
- Zhao, H., Zhang, H., dan Yang, S. 2014. Phenolic compounds and its antioxidant activities in ethanolic extracts from seven cultivars of Chinese jujube. *Food Sci. Hum. Wellness* 3 (3): 183-190.
- Zheng, X., Liu, B., Li, L., dan Zhu, X. 2011. Microwave-assisted extraction and antioxidant activity of total phenolic compounds from pomegranate peel. *J. Med. Plant. Res.* 5(6): 1004-1011.
- Zuidam, N. J. dan Shimoni, E. 2010. Overview of microencapsulates for use in food products or processes and methods to make them. Chpt. 2 in "Encapsulation Technologies for Active Food Ingredients and Food Processing," ed. N. J. Zuidam dan V. A. Nedovic, pp. 3-30. Springer Science and Business Media, New York.