



DAFTAR PUSTAKA

- Abdullah, N., Mazlan, M., Baitee, N., 2012. Comparative Antioxidant and Anti-inflammatory Activity of Different Extracts of *Centella asiatica* (L.) Urban and Its Active Compounds, Asiaticoside and Madecassoside. *Med Health* 7, 62–72.
- Abubakar, A.R., Haque, M., 2020. Preparation of medicinal plants: Basic extraction and fractionation procedures for experimental purposes. *J. Pharm. Bioallied Sci.* 12, 1. https://doi.org/10.4103/jpbs.JPBS_175_19
- Adderley, U.J., 2013. Managing wound exudate and promoting healing. *British Journal of Community Nursing.* 15, 1. <https://doi.org/10.12968/bjcn.2010.15.Sup1.46907>
- Agarwal, P.K., Singh, A., Gaurav, K., Goel, S., Khanna, H.D., Goel, R.K., 2009. Evaluation of wound healing activity of extracts of plantain banana (*Musa sapientum* var. *paradisiaca*) in rats. *Indian J. Exp. Biol.* 47, 32–40.
- Ahmed, A.Sh., Mandal, U.K., Taher, M., Susanti, D., Jaffri, J.Md., 2018. PVA-PEG physically cross-linked hydrogel film as a wound dressing: experimental design and optimization. *Pharm. Dev. Technol.* 23, 751–760. <https://doi.org/10.1080/10837450.2017.1295067>
- Alam, Md.N., Bristi, N.J., Rafiquzzaman, Md., 2013. Review on in vivo and in vitro methods evaluation of antioxidant activity. *Saudi Pharm. J.* 21, 143–152. <https://doi.org/10.1016/j.jsps.2012.05.002>
- Allen, L., Ansel, H.C., 2013. *Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems*. Lippincott Williams & Wilkins.
- Artem Ataide, J., Caramori Cefali, L., Machado Croisfelt, F., Arruda Martins Shimojo, A., Oliveira-Nascimento, L., Gava Mazzola, P., 2018. Natural actives for wound healing: A review: Natural Actives for Wound Healing: A Review. *Phytother. Res.* 32, 1664–1674. <https://doi.org/10.1002/ptr.6102>
- Azis, H.A., Taher, M., Ahmed, A.S., Sulaiman, W.M.A.W., Susanti, D., Chowdhury, S.R., Zakaria, Z.A., 2017. In vitro and In vivo wound healing studies of methanolic fraction of *Centella asiatica* extract. *South Afr. J. Bot.* 108, 163–174. <https://doi.org/10.1016/j.sajb.2016.10.022>
- Azwanida, N., 2015. A Review on the Extraction Methods Use in Medicinal Plants, Principle, Strength and Limitation. *Med. Aromat. Plants* 04. <https://doi.org/10.4172/2167-0412.1000196>
- Babu, M.K., Prasad, O.S., 2011. Comparison of the dermal wound healing of *Centella asiatica* extract impregnated collagen and crosslinked collagen scaffolds. *J. Chem. Pharm. Res* 10.
- Balouiri, M., Sadiki, M., Ibnsouda, S.K., 2016. Methods for in vitro evaluating antimicrobial activity: A review. *J. Pharm. Anal.* 6, 71–79. <https://doi.org/10.1016/j.jpha.2015.11.005>
- Barnthip, N., Muakngam, A., 2014. Preparation of Cellulose Acetate Nanofibers Containing *Centella asiatica* Extract by Electrospinning Process as the



- Prototype of Wound-Healing Materials. *J. Bionanoscience* 8, 313–318. <https://doi.org/10.1166/jbns.2014.1240>
- Bouarab-Chibane, L., Forquet, V., Lantéri, P., Clément, Y., Léonard-Akkari, L., Oulahal, N., Degraeve, P., Bordes, C., 2019. Antibacterial Properties of Polyphenols: Characterization and QSAR (Quantitative Structure–Activity Relationship) Models. *Front. Microbiol.* 10. <https://doi.org/10.3389/fmicb.2019.00829>
- Bowler, P.G., Duerden, B.I., Armstrong, D.G., 2001. Wound Microbiology and Associated Approaches to Wound Management. *Clin. Microbiol. Rev.* 14, 244–269. <https://doi.org/10.1128/CMR.14.2.244-269.2001>
- Brinkhaus, B., Lindner, M., Schuppan, D., Hahn, E.G., 2000. Chemical, pharmacological and clinical profile of the East Asian medical plant *Centella asiatica*. *Phytomedicine* 7, 427–448. [https://doi.org/10.1016/S0944-7113\(00\)80065-3](https://doi.org/10.1016/S0944-7113(00)80065-3)
- Bylka, W., Znajdek-Awiżeń, P., Studzińska-Sroka, E., Dańczak-Pazdrowska, A., Brzezińska, M., 2014. *Centella asiatica* in Dermatology: An Overview: the experiments about use of *Centella asiatica* in dermatology. *Phytother. Res.* 28, 1117–1124. <https://doi.org/10.1002/ptr.5110>
- Chua, L.S., Lau, C.H., Chew, C.Y., Dawood, D.A.S., 2019. Solvent Fractionation and Acetone Precipitation for Crude Saponins from *Eurycoma longifolia* Extract. *Molecules* 24, 1416. <https://doi.org/10.3390/molecules24071416>
- Damkerngsuntorn, W., Rerknimitr, P., Panchaprateep, R., Tangkijngamvong, N., Kumtornrut, C., Kerr, S.J., Asawanonda, P., Tantisira, M.H., Khemawoot, P., 2020. The Effects of a Standardized Extract of *Centella asiatica* on Postlaser Resurfacing Wound Healing on the Face: A Split-Face, Double-Blind, Randomized, Placebo-Controlled Trial. *J. Altern. Complement. Med.* 26, 529–536. <https://doi.org/10.1089/acm.2019.0325>
- Fitzmaurice, S.D., Sivamani, R.K., Isseroff, R.R., 2011. Antioxidant Therapies for Wound Healing: A Clinical Guide to Currently Commercially Available Products. *Skin Pharmacol. Physiol.* 24, 113–126. <https://doi.org/10.1159/000322643>
- George, M., Joseph, L., Ramaswamy, 2009. Anti-Allergic, Anti-Pruritic, and Anti-Inflammatory Activities of *Centella asiatica* Extracts. *Afr. J. Tradit. Complement. Altern. Med.* 6, 554–559.
- Gray, N.E., Alcazar Magana, A., Lak, P., Wright, K.M., Quinn, J., Stevens, J.F., Maier, C.S., Soumyanath, A., 2018. *Centella asiatica* – Phytochemistry and mechanisms of neuroprotection and cognitive enhancement. *Phytochem. Rev. Proc. Phytochem. Soc. Eur.* 17, 161–194. <https://doi.org/10.1007/s11101-017-9528-y>
- Green Pharma. 2018. Organic *Centella asiatica* extract. Green Pharma, France.
- Gul Satar, N.Y., Topal, A., Yanik, K., Oktay, A., Batmaz, E., Inan, K., 2013. Comparison of the Effects of Bitter Melon (*Momordica charantia*) and Gotu



- Kola (*Centella asiatica*) Extracts on Healing of Open Wounds in Rabbits.
Kafkas Univ. Vet. Fak. Derg. <https://doi.org/10.9775/kvfd.2012.8458>
- Gurtner, G.C., Werner, S., Barrandon, Y., Longaker, M.T., 2008. Wound repair and regeneration. *Nature* 453, 314–321. <https://doi.org/10.1038/nature07039>
- Handa, S.S., Khanuja, S.P.S., Longo, G., Rakesh, D.D., 2008. *Extraction technologies for medicinal and aromatic plants*. International Centre for Science and High Technology, Italy.
- Hashim, P., 2014. The effect of *Centella asiatica*, vitamins, glycolic acid and their mixtures preparations in stimulating collagen and fibronectin synthesis in cultured human skin fibroblast. *Pak J Pharm Sci* 6.
- Hou, Q., Li, M., Lu, Y.-H., Liu, D.-H., Li, C.-C., 2016. Burn wound healing properties of asiaticoside and madecassoside. *Exp. Ther. Med.* 12, 1269–1274. <https://doi.org/10.3892/etm.2016.3459>
- Isoglu, I.A., Koc, N., 2020. *Centella asiatica* Extract Containing Bilayered Electrospun Wound Dressing. *Fibers Polym.* 21, 1453–1465. <https://doi.org/10.1007/s12221-020-9956-y>
- James, J., Dubery, I., 2009. Pentacyclic Triterpenoids from the Medicinal Herb, *Centella asiatica* (L.) Urban. *Molecules* 14, 3922–3941.
- James, J., Dubery, I., 2011. Identification and quantification of triterpenoid centelloids in *Centella asiatica* (L.) Urban by densitometric TLC. *J. Planar Chromatogr. - Mod. TLC* 24, 82–87. <https://doi.org/10.1556/JPC.24.2011.1.16>
- Jenwitheesuk, K., Rojsanga, P., Chowchuen, B., Surakunprapha, P., 2018. A Prospective Randomized, Controlled, Double-Blind Trial of the Efficacy Using Centella Cream for Scar Improvement. *Evid. Based Complement. Alternat. Med.* 2018, 1–9. <https://doi.org/10.1155/2018/9525624>
- Kadajji, V.G., Betageri, G.V., 2011. Water Soluble Polymers for Pharmaceutical Applications. *Polymers* 3, 1972–2009. <https://doi.org/10.3390/polym3041972>
- Kaur, I., Suthar, N., Kaur, J., Bansal, Y., Bansal, G., 2016. Accelerated Stability Studies on Dried Extracts of *Centella asiatica* Through Chemical, HPLC, HPTLC, and Biological Activity Analyses. *J. Evid.-Based Complement. Altern. Med.* 21, NP127–NP137. <https://doi.org/10.1177/2156587216661468>
- Kementerian Kesehatan Republik Indonesia, 2017. *Farmakope Herbal Indonesia*, Edisi II. Kementerian Republik Indonesia, Jakarta.
- Kim, J.Y., Dao, H., 2020. *Physiology, Integument*, in: StatPearls. StatPearls Publishing, Treasure Island (FL).
- Kumari, S., Deori, M., Elancheran, R., Kotoky, J., Devi, R., 2016. In vitro and In vivo Antioxidant, Anti-hyperlipidemic Properties and Chemical Characterization of *Centella asiatica* (L.) Extract. *Front. Pharmacol.* 7. <https://doi.org/10.3389/fphar.2016.00400>



- Lee, J.-H., Kim, H.-L., Lee, M.H., You, K.E., Kwon, B.-J., Seo, H.J., Park, J.-C., 2012. Asiaticoside enhances normal human skin cell migration, attachment and growth in vitro wound healing model. *Phytomedicine* 19, 1223–1227. <https://doi.org/10.1016/j.phymed.2012.08.002>
- Li, H., Peng, Q., Guo, Y., Wang, X., Zhang, L., 2020. Preparation and in vitro and in vivo Study of Asiaticoside-Loaded Nanoemulsions and Nanoemulsions-Based Gels for Transdermal Delivery. *Int. J. Nanomedicine* Volume 15, 3123–3136. <https://doi.org/10.2147/IJN.S241923>
- Loftsson, T., 2014. Drug Degradation in Semisolid Dosage Forms, in: Drug Stability for Pharmaceutical Scientists. Elsevier, pp. 105–107. <https://doi.org/10.1016/B978-0-12-411548-4.00004-0>
- Luca, S.V., Miron, A., Ignatova, S., Skalicka-Wozniak, K., 2019. An overview of the two-phase solvent systems used in the countercurrent separation of phenylethanoid glycosides and iridoids and their biological relevance. *Phytochem Rev.* 18, 377–403 <https://doi.org/10.1007/s11101-019-09599-y>
- Maquart, F.X., Chastang, F., Simeon, A., Birembaut, P., Gillery, P., Wegrowski, Y., 1999. Triterpenes from *Centella asiatica* stimulate extracellular matrix accumulation in rat experimental wounds. *Eur. J. Dermatol. EJD* 9, 289–296.
- Maulidiani, Abas, F., Khatib, A., Shaari, K., Lajis, N.H., 2014. Chemical characterization and antioxidant activity of three medicinal Apiaceae species. *Ind. Crops Prod.* 55, 238–247. <https://doi.org/10.1016/j.indcrop.2014.02.013>
- Maulidiani, Abas, F., Khatib, A., Shitan, M., Shaari, K., Lajis, N.H., 2013. Comparison of Partial Least Squares and Artificial Neural Network for the prediction of antioxidant activity in extract of Pegaga (*Centella*) varieties from 1H Nuclear Magnetic Resonance spectroscopy. *Food Res. Int.* 54, 852–860. <https://doi.org/10.1016/j.foodres.2013.08.029>
- Midwood, K.S., Williams, L.V., Schwarzbauer, J.E., 2004. Tissue repair and the dynamics of the extracellular matrix. *Int. J. Biochem.* 7.
- Molyneux, P., 2004. The use of the stable free radical diphenylpicryl-hydrazone (DPPH) for estimating antioxidant activity. *Songklanakarin J. Sci. Technol* 26, 9.
- Muztabadihardja, M., Puspita Dewi, S., 2014. Efektivitas sediaan salep ekstrak herba pegagan (*Centella asiatica* (L.) Urb) untuk penyembuhan luka pada mencit jantan (*Mus musculus albinus*). *Fitofarmaka J. Ilm. Farm.* 4, 27–33. <https://doi.org/10.33751/jf.v4i1.184>
- Nguyen, A.V., Soulka, A.M., 2019. The Dynamics of the Skin's Immune System. *Int. J. Mol. Sci.* 20, 1811. <https://doi.org/10.3390/ijms20081811>
- Nguyen, V.-L., Truong, C.-T., Nguyen, B.C.Q., Vo, T.-N.V., Dao, T.-T., Nguyen, V.-D., Trinh, D.-T.T., Huynh, H.K., Bui, C.-B., 2017. Anti-inflammatory and wound healing activities of calophyllolide isolated from *Calophyllum*



- inophyllum* Linn. *PLOS ONE* 12, e0185674.
<https://doi.org/10.1371/journal.pone.0185674>
- Panda, S., Mohanta, Y., Padhi, L., Park, Y.-H., Mohanta, T., Bae, H., 2016. Large Scale Screening of Ethnomedicinal Plants for Identification of Potential Antibacterial Compounds. *Molecules* 21, 293.
<https://doi.org/10.3390/molecules21030293>
- Prakash, V., Jaiswal, N., Srivastava, M., 2017. A Review on Medicinal Properties of *Centella asiatica*. *Asian. J. Pharm. Clin. Res* 10, 6.
- Prastika, D.D., Setiawan, B., Saputro, A.L., Yudaniayanti, I.S., Wibawati, P.A., Fikri, F., 2020. Pengaruh Kitosan Udang Secara Topikal Terhadap Kepadatan Kolagen dalam Penyembuhan Luka Eksisi pada Tikus Putih. *J. Med. Vet.* 3, 101–107.
- Puttarak, P., Panichayupakaranant, P., 2013. A new method for preparing pentacyclic triterpene rich *Centella asiatica* extracts. *Nat. Prod. Res.* 27, 684–686. <https://doi.org/10.1080/14786419.2012.686912>
- Puttarak, P., Brantner, A. and Panichayupakaranant, P., 2016. Biological activities and stability of a standardized pentacyclic triterpene enriched *Centella asiatica* extract. *Natural Product Sciences*, 22(1), pp.20-24
<http://dx.doi.org/10.20307/nps.2016.22.1.20>
- Raeder, K., Jachan, D.E., Muller-Werdan, U., Lahmann, N.A., 2020. Prevalence and risk factors of chronic wounds in nursing homes in Germany: A cross-sectional study. *International Wound Journal*. 17, 1128-1134.
<https://doi.org/10.1111/iwj.13486>
- Rafi, M., Handayani, F., Darusman, L.K., Rohaeti, E., Wahyu, Y., Sulistiyani, Honda, K., Putri, S.P., 2018. A combination of simultaneous quantification of four triterpenes and fingerprint analysis using HPLC for rapid identification of *Centella asiatica* from its related plants and classification based on cultivation ages. *Ind. Crops Prod.* 122, 93–97.
<https://doi.org/10.1016/j.indcrop.2018.05.062>
- Rao, K., Ramesh, B., Girish, T., Raghavendra, R., Naidu, K., Prasada Rao, U.J.S., 2014. Comparative study on anti-oxidant and anti-inflammatory activities of *Caesalpinia crista* and *Centella asiatica* leaf extracts. *J. Pharm. Bioallied Sci.* 6, 86. <https://doi.org/10.4103/0975-7406.129172>
- Ratz-Łyko, A., Arct, J., Pytkowska, K., 2016. Moisturizing and Antiinflammatory Properties of Cosmetic Formulations Containing *Centella asiatica* Extract. *Indian J. Pharm. Sci.* 78, 27–33.
- Rismana, E., Rosidah, I., 2013. Efektivitas Khasiat Pengobatan Luka Bakar Sediaan Gel Mengandung Fraksi Ekstrak Pegagan berdasarkan Analisis Hidroksiprolin dan Histopatologi pada Kulit Kelinci. *Bul. Penelit. Kesehat* 41, 16.
- Ruksiriwanich, W., Khantham, C., Sringsarm, K., Sommano, S., Jantrawut, P., 2020. Depigmented *Centella asiatica* Extraction by Pretreated with Supercritical



- Carbon Dioxide Fluid for Wound Healing Application. *Processes* 8, 277. <https://doi.org/10.3390/pr8030277>
- Saeidinia, A., Keihanian, F., Lashkari, A.P., Lahiji, H.G., Mobayyen, M., Heidarzade, A., Golchai, J., 2017. Partial-thickness burn wounds healing by topical treatment: A randomized controlled comparison between silver sulfadiazine and centiderm. *Medicine (Baltimore)* 96, e6168. <https://doi.org/10.1097/MD.00000000000006168>
- Sarabahi, S., 2012. Recent advances in topical wound care. *Indian J. Plast. Surg.* 45, 379–387. <https://doi.org/10.4103/0970-0358.101321>
- Saxena, M., Saxena, J., Nema, R., Singh, D., Gupta, A., 2013. Phytochemistry of Medicinal Plants. *Journal of Pharmacognosy and Phytochemistry* 1, 15.
- Schultz, G. S., Chin, G.A., Moldawer, L., Diegelmann, R.F., 2011. *Principles of wound healing*. In Fitridge, R. and Thompson, M. (Ed). Mechanisms of vascular disease: a reference book for vascular specialists. Barr Smith Press, South Australia.
- Seevaratnam, V., Banumathi, P., Premalatha, M.R., Sundaram, S., Arumugam, T., 2012. Functional Properties of *Centella asiatica* (L.): A Review. *Int. J. Pharm. Pharm. Sci* 4, 8.
- Sh. Ahmed, A., Taher, M., Mandal, U.K., Jaffri, J.M., Susanti, D., Mahmood, S., Zakaria, Z.A., 2019. Pharmacological properties of *Centella asiatica* hydrogel in accelerating wound healing in rabbits. *BMC Complement. Altern. Med.* 19, 213. <https://doi.org/10.1186/s12906-019-2625-2>
- Shaikh, J., Patil, M., 2020. Qualitative tests for preliminary phytochemical screening: An overview. *International Journal of Chemical Studies*. 8. 603-608. <https://doi.org/10.22271/chemi.2020.v8.i2i.8834>
- Sieberi, B.M., Omwenga, G.I., Wambua, R.K., Samoei, J.C., Ngugi, M.P., 2020. Screening of the Dichloromethane: Methanolic Extract of *Centella asiatica* for Antibacterial Activities against *Salmonella typhi*, *Escherichia coli*, *Shigella sonnei*, *Bacillus subtilis*, and *Staphylococcus aureus*. *Sci. World J.* 2020, 1–8. <https://doi.org/10.1155/2020/6378712>
- Singkhorn, S., Tantisira, M.H., Tanasawet, S., Hutamekalin, P., Wongtawatchai, T., Sukketsiri, W., 2018. Induction of keratinocyte migration by ECa 233 is mediated through FAK/Akt, ERK, and p38 MAPK signaling. *Phytother. Res.* 32, 1397–1403. <https://doi.org/10.1002/ptr.6075>
- Somboonwong, J., Kankaisre, M., Tantisira, B., Tantisira, M.H., 2012. Wound healing activities of different extracts of *Centella asiatica* in incision and burn wound models: an experimental animal study. *BMC Complement. Altern. Med.* 12, 1115. <https://doi.org/10.1186/1472-6882-12-103>
- Soyingbe, O.S., Mongalo, N.I., Makhafola, T.J., 2018. In vitro antibacterial and cytotoxic activity of leaf extracts of *Centella asiatica* (L.) Urb, *Warburgia salutaris* (Bertol. F.) Chiov and *Curtisia dentata* (Burm. F.) C.A.Sm - medicinal plants used in South Africa. *BMC Complement. Altern. Med.* 18, 315. <https://doi.org/10.1186/s12906-018-2378-3>



- Sroka, Z., Sowa, A., Dryś, A., 2017. Inhibition of Lipoxygenase and Peroxidase Reaction by Some Flavonols and Flavones: The Structure-Activity Relationship. *Nat. Prod. Commun.* 12, 1934578X1701201111. <https://doi.org/10.1177/1934578X1701201111>
- Strodtbeck, F., 2001. Physiology of wound healing. *Newborn Infant Nurs. Rev.* 1, 43–52. <https://doi.org/10.1053/nbin.2001.23176>
- Sukweenadhi, J., Yunita, O., Setiawan, F., Kartini, Siagian, M.T., Danduru, A.P., Avanti, C., 2020. Antioxidant activity screening of seven Indonesian herbal extract. *Biodiversitas* 21, 2062–2067. <https://doi.org/10.13057/biodiv/d210532>
- Sultan, R.A., Mahmood, Z.A., Azhar, I., Hasan, M.M.U., Ahmed, S., 2012. Pharmacognostic and Phytochemical Investigation of Aerial Parts of *Centella asiatica* Linn. *Int. J. Phytomedicine* 10.
- Wanasuntronwong, A., Tantisira, M.H., Tantisira, B., Watanabe, H., 2012. Anxiolytic effects of standardized extract of *Centella asiatica* (ECa 233) after chronic immobilization stress in mice. *J. Ethnopharmacol.* 143, 579–585. <https://doi.org/10.1016/j.jep.2012.07.010>
- Wang, X.J., Han, G., Owens, P., Siddiqui, Y., Li, A.G., 2006. Role of TGF β -mediated inflammation in cutaneous wound healing. *J. Investigate Dermatol Symposium Proceedings.* 11, 112-117. <https://doi.org/10.1038/sj.jidsymp.5650004>
- Willenborg, S., Lucas, T., van Loo, G., Knipper, J.A., Krieg, T., Haase, I., Brachvogel, B., Hammerschmidt, M., Nagy, A., Ferrara, N., Pasparakis, M., Eming, S.A., 2012. CCR2 recruits an inflammatory macrophage subpopulation critical for angiogenesis in tissue repair. *Blood* 120, 613–625. <https://doi.org/10.1182/blood-2012-01-403386>
- Won, J.-H., Shin, J.-S., Park, H.-J., Jung, H.-J., Koh, D.-J., Jo, B.-G., Lee, J.-Y., Yun, K., Lee, K.-T., 2010. Anti-inflammatory Effects of Madecassic Acid via the Suppression of NF- κ B Pathway in LPS-Induced RAW 264.7 Macrophage Cells. *Planta Med.* 76, 251–257. <https://doi.org/10.1055/s-0029-1186142>
- World Health Organization, 1999. *WHO monographs on selected medicinal plants volume 1*. World Health Organization, Geneva.
- World Health Organization, 2019. The international pharmacopoeia, Ninth edition. Available at: <https://apps.who.int/> (Accessed: 13 October 2020).
- Wu, F., Bian, D., Xia, Y., Gong, Z., Tan, Q., Chen, J., Dai, Y., 2012. Identification of Major Active Ingredients Responsible for Burn Wound Healing of *Centella asiatica* Herbs. *Evid. Based Complement. Alternat. Med.* 2012, 1–13. <https://doi.org/10.1155/2012/848093>
- Yingngam, B., Chiangsom, A., Brantner, A., 2020. Modeling and optimization of microwave-assisted extraction of pentacyclic triterpenes from *Centella asiatica* leaves using response surface methodology. *Ind. Crops Prod.* 147, 112231. <https://doi.org/10.1016/j.indcrop.2020.112231>



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Narrative Review: Aktivitas Ekstrak Pegagan (*Centella asiatica* (L.) Urban) dalam Sediaan Semipadat sebagai Penyembuh Luka Kulit

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Zheng, C., 2007. Chemical components of *Centella asiatica* and their bioactivities.

J. Chin. Integr. Med. 348–351. <https://doi.org/10.3736/jcim20070324>