

حسینی، س.، و قراچورلو، م.، و غیاثی طرزی، ب.، و قوامی، م. (۱۳۹۳). مروری بر روش های تعیین ظرفیت آنتی اکسیدانی (اساس واکنش، روش کار، نقاط قوت و ضعف). علوم غذایی و تغذیه، ۱۱(۴) (پیاپی ۴۴)، ۸۹-۱۱۱.

- Abraham, Michael, H., Priscilla, L., Grellier, David, V., Prior, Jeffrey, J., Morris, and Peter, J., Taylor. 1990. 'Hydrogen bonding. Part 10. A scale of solute hydrogen-bond basicity using log K values for complexation in tetrachloromethane', *Journal of the Chemical Society, Perkin Transactions 2*: 521-29.
- Ahmadi, Farhoosh, M.r., Sharif, A., and Rezaie, M. 2020. 'Structure- Antioxidant Activity Relationships of Luteolin and Catechin', *Journal of food science*, 85: 298-305.
- Apak, R., Özyürek, M., Güçlü, K., and Çapanoğlu, E. 2016a. 'Antioxidant activity/capacity measurement. 1. Classification, physicochemical principles, mechanisms, and electron transfer (ET)-based assays', *Journal of Agricultural and Food Chemistry*, 64: 997-1027.
- Apak, R., Özyürek, M., Güçlü, K., and Çapanoğlu, E. 2016b. Antioxidant Activity/Capacity Measurement. 2. Hydrogen Atom Transfer (HAT)-Based, Mixed-Mode (Electron Transfer (ET)/HAT), and Lipid Peroxidation Assays. *Journal of agricultural and food chemistry*, 64(5), 1028-1045.
- Arora, A., Sairam, RK., and Srivastava, GC. 2002. 'Oxidative stress and antioxidative system in plants', *Current science*: 1227-38.
- Aruoma, OI. 1994. 'Nutrition and health aspects of free radicals and antioxidants', *Food and Chemical Toxicology*, 32: 671-83.
- Asnaashari, M., Farhoosh, R., and Sharif, A. 2014. 'Antioxidant activity of gallic acid and methyl gallate in triacylglycerols of Kilka fish oil and its oil-in-water emulsion', *Food Chemistry*, 159: 439-44.
- Badhani, B., Sharma, N., and Kakkar, R. 2015. 'Gallic acid: a versatile antioxidant with promising therapeutic and industrial applications', *Rsc Advances*, 5: 27540-57.
- Barclay, L., Ross, C., Edwards, CE., and Vinqvist, M.R. 1999. 'Media effects on antioxidant activities of phenols and catechols', *Journal of the American Chemical Society*, 121: 6226-31.
- Benzie, Iris FF., and John, J., Strain. 1996. 'The ferric reducing ability of plasma (FRAP) as a measure of "antioxidant power": the FRAP assay', *Analytical biochemistry*, 239: 70-76.
- Betteridge, D., John. 2000. 'What is oxidative stress?', *Metabolism-Clinical and Experimental*, 49: 3-8.
- Blois, Marsden, S. 1958. 'Antioxidant determinations by the use of a stable free radical', *Nature*, 181: 1199-200.
- Brand-Williams, W., Cuvelier, M., and Berset, CLWT. 1995. 'Use of a free radical method to evaluate antioxidant activity', *LWT-Food science and Technology*, 28: 25-30.
- Brieger, K., Schiavone, S., Francis, J., Miller, Jr., and Krause, K. 2012. 'Reactive oxygen species: from health to disease', *Swiss medical weekly*, 142: w13659.
- Buonocore, G., Perrone, S., and Tataranno, M. 2010. "Oxygen toxicity: chemistry and biology of reactive oxygen species." In *Seminars in Fetal and Neonatal Medicine*, 186-90. Elsevier.
- Carocho, M., Morales, P., and Ferreira, I. 2018. 'Antioxidants: Reviewing the chemistry, food applications, legislation and role as preservatives', *Trends in food science & technology*, 71: 107-20.
- Castro, Bardo, Matteo Citterico, Sachie Kimura, Danielle M. Stevens, Michael Wrzaczek, and Gitta Coaker. 2021. 'Stress-induced reactive oxygen species compartmentalization, perception and signalling', *Nature Plants*, 7: 403-12.

- Chaiyasit, Wilailuk, Ryan J Elias, D Julian McClements, and Eric A Decker. 2007. 'Role of physical structures in bulk oils on lipid oxidation', *Critical reviews in food science and nutrition*, 47: 299-317.
- Choe, E., and Min., D. 2006. 'Chemistry and reactions of reactive oxygen species in foods', *Critical reviews in food science and nutrition*, 46: 1-22.
- Dawidowicz, Andrzej L., and Olszowy, M. 2012. 'Mechanism change in estimating of antioxidant activity of phenolic compounds', *Talanta*, 97: 312-17.
- de la Rosa, Laura A., Jesús Omar Moreno-Escamilla, Joaquín Rodrigo-García, and Emilio Alvarez-Parrilla. 2019. 'Chapter 12 - Phenolic Compounds.' in Elhadi M. Yahia (ed.), *Postharvest Physiology and Biochemistry of Fruits and Vegetables* (Woodhead Publishing).
- Donnelly, Judith K, and David S Robinson. 1995. 'Invited review free radicals in foods', *Free Radical Research*, 22: 147-76.
- Espín, Juan Carlos, Cristina Soler-Rivas, Harry J Wichers, and García-Viguera, C. 2000. 'Anthocyanin-based natural colorants: a new source of antiradical activity for foodstuff', *Journal of Agricultural and Food Chemistry*, 48: 1588-92.
- Foti, Mario C. 2015. 'Use and Abuse of the DPPH• Radical', *Journal of Agricultural and Food Chemistry*, 63: 8765-76.
- Foti, Mario C, Carmelo Daquino, and Corrada Geraci. 2004. 'Electron-transfer reaction of cinnamic acids and their methyl esters with the DPPH• radical in alcoholic solutions', *The Journal of organic chemistry*, 69: 2309-14.
- Frankel, Edwin N, and Anne S Meyer. 2000. 'The problems of using one- dimensional methods to evaluate multifunctional food and biological antioxidants', *Journal of the Science of Food and Agriculture*, 80: 1925-41.
- Gaikwad, Parimal, A Barik, KI Priyadarsini, and BSM Rao. 2010. 'Antioxidant activities of phenols in different solvents using DPPH assay', *Research on chemical intermediates*, 36: 1065-72.
- Goldschmidt, S., and Renn, K. 1922. 'Zweiwertiger Stickstoff: Über das α , α - Diphenyl- β - trinitrophenyl hydrazyl.(IV. Mitteilung über Amin- Oxydation)', *Berichte der deutschen chemischen Gesellschaft (A and B Series)*, 55: 628-43.
- Görlach, Agnes, Elitsa Y Dimova, Andreas Petry, Antonio Martínez-Ruiz, Pablo Hernansanz-Agustín, Anabela P Rolo, Carlos M Palmeira, and Thomas Kietzmann. 2015. 'Reactive oxygen species, nutrition, hypoxia and diseases: problems solved?', *Redox biology*, 6: 372-85.
- Gulcin, İ. 2020. 'Antioxidants and antioxidant methods: An updated overview', *Archives of toxicology*, 94: 651-715.
- Gülcin, I. 2012. 'Antioxidant activity of food constituents: an overview', *Archives of toxicology*, 86: 345-91.
- Gülcin, İ. 2006. 'Antioxidant and antiradical activities of L-carnitine', *Life sciences*, 78: 803-11.
- Halliwell, B. 1996. 'Antioxidants in human health and disease', *Annual review of nutrition*, 16: 33-50.
- Halliwell, B., M Antonia Murcia, Susanna Chirico, and Okezie I Aruoma. 1995. 'Free radicals and antioxidants in food and in vivo: what they do and how they work', *Critical reviews in food science & nutrition*, 35: 7-20.
- Huang, Dejian, Boxin Ou, and Ronald L Prior. 2005. 'The chemistry behind antioxidant capacity assays', *Journal of Agricultural and Food Chemistry*, 53: 1841-56.
- Jenkins, Robert R. 1988. 'Free radical chemistry', *Sports medicine*, 5: 156-70.
- Jiménez-Escrig, Antonio, Isabel Jiménez Jiménez, Concepción Sánchez Moreno, and Fulgencio Saura-Calixto. 2000. 'Evaluation of free radical scavenging of dietary carotenoids by the stable radical 2, 2- diphenyl- 1- picrylhydrazyl', *Journal of the Science of Food and Agriculture*, 80: 1686-90.

- Jodko-Piorecka, Katarzyna, Jakub Cedrowski, and Grzegorz Litwinienko. 2018. 'Physico-chemical principles of antioxidant action, including solvent and matrix dependence and interfacial phenomena', *Measurement of Antioxidant Activity & Capacity: Recent Trends and Applications*; Apak, R., Capanoglu, E., Shahidi, F., Eds: 225-72.
- Jovanovic, Slobodan, V., Yukihiro Hara, Steen Steenken, and Michael G Simic. 1995. 'Antioxidant potential of gallic catechins. A pulse radiolysis and laser photolysis study', *Journal of the American Chemical Society*, 117: 9881-88.
- Kalita, D., Kar, R., and Jyotirekha, G., Handique. 2012. 'A theoretical study on the antioxidant property of gallic acid and its derivatives', *Journal of Theoretical and Computational Chemistry*, 11: 391-402.
- Kasture, Veena S., Suvarna, A., Katti, Dhiraj Mahajan, Rupali Wagh, Mahalaxmi Mohan, and Sanjay B Kasture. 2009. 'Antioxidant and antiparkinson activity of gallic acid derivatives', *Pharmacologyonline*, 1: 385-95.
- Kawabata, J., Okamoto, Y., Kodama, A., Makimoto, T., and Kasai, T. 2002. 'Oxidative dimers produced from protocatechuic and gallic esters in the DPPH radical scavenging reaction', *Journal of Agricultural and Food Chemistry*, 50: 5468-71.
- Kiokias, S., Varzakas, Th., and Oreopoulou, V. 2008. 'In vitro activity of vitamins, flavonoids, and natural phenolic antioxidants against the oxidative deterioration of oil-based systems', *Critical reviews in food science and nutrition*, 48: 78-93.
- Leopoldini, M., Russo, N., and Toscano, M. 2011. 'The molecular basis of working mechanism of natural polyphenolic antioxidants', *Food Chemistry*, 125: 288-306.
- Letelier, M., Molina-Berrios, A., Juan Cortés-Troncoso, José Jara-Sandoval, Marianne Holst, Karina Palma, Margarita Montoya, Dante Miranda, and Víctor González-Lira. 2008. 'DPPH and oxygen free radicals as pro-oxidant of biomolecules', *Toxicology in vitro*, 22: 279-86.
- Liguori, I., Gennaro Russo, Francesco Curcio, Giulia Bulli, Luisa Aran, David Della-Morte, Gaetano Gargiulo, Gianluca Testa, Francesco Cacciatore, and Domenico Bonaduce. 2018. 'Oxidative stress, aging, and diseases', *Clinical interventions in aging*, 13: 757.
- Litwinienko, G., and Ingold, K. U. 2003. 'Abnormal solvent effects on hydrogen atom abstractions. 1. The reactions of phenols with 2, 2-diphenyl-1-picrylhydrazyl (dpph•) in alcohols', *The Journal of organic chemistry*, 68: 3433-38.
- Litwinienko, G., and Ingold, K. U. 2004. Abnormal solvent effects on hydrogen atom abstraction. 2. Resolution of the curcumin antioxidant controversy. The role of sequential proton loss electron transfer. *The Journal of organic chemistry*, 69(18), 5888–5896.
- Litwinienko, G., and Ingold, K. U. 2007. Solvent effects on the rates and mechanisms of reaction of phenols with free radicals. *Accounts of chemical research*, 40(3), 222–230.
- Lobo, V., Patil, P., Phatak, A., and Chandra, N. 2010. 'Free radicals, antioxidants and functional foods: Impact on human health', *Pharmacognosy reviews*, 4: 118.
- Lu, Zhongbing, Nie, G., Peter Belton, S., Tang, H., and Zhao, B. 2006. 'Structure–activity relationship analysis of antioxidant ability and neuroprotective effect of gallic acid derivatives', *Neurochemistry international*, 48: 263-74.
- Lushchak, Volodymyr I. 2014. 'Free radicals, reactive oxygen species, oxidative stress and its classification', *Chemico-biological interactions*, 224: 164-75.
- MacFaul, Philip, A., Ingold, K. U., and Luszyk, J. 1996. 'Kinetic Solvent Effects on Hydrogen Atom Abstraction from Phenol, Aniline, and Diphenylamine. The Importance of Hydrogen Bonding on Their Radical-Trapping (Antioxidant) Activities¹', *The Journal of organic chemistry*, 61: 1316-21.

- Marino, T., Galano, A., and Russo, N. 2014. 'Radical Scavenging Ability of Gallic Acid toward OH and OOH Radicals. Reaction Mechanism and Rate Constants from the Density Functional Theory', *The Journal of Physical Chemistry B*, 118: 10380-89.
- Martinez, M Carmen, and Ramarosan Andriantsitohaina. 2009. 'Reactive nitrogen species: molecular mechanisms and potential significance in health and disease', *Antioxidants & redox signaling*, 11: 669-702.
- Mata, AT., Proença, C., Ferreira, AR., Serralheiro, MLM., Nogueira, JMF., and Araújo, MEM ME. 2007. 'Antioxidant and antiacetylcholinesterase activities of five plants used as Portuguese food spices', *Food Chemistry*, 103: 778-86.
- Mishra, K., Ojha, H., and Chaudhury, N.K. 2012. 'Estimation of antiradical properties of antioxidants using DPPH assay: A critical review and results', *Food Chemistry*, 130: 1036-43.
- Musialik, M., and Litwinienko, G. 2005. 'Scavenging of dpph• radicals by vitamin E is accelerated by its partial ionization: the role of sequential proton loss electron transfer', *Organic Letters*, 7: 4951-54.
- Nenadis, N., Boyle, S., Evangelos, G., and Tsimidou, M. 2003. 'An experimental approach to structure activity relationships of caffeic and dihydrocaffeic acids and related monophenols', *Journal of the American Oil Chemists' Society*, 80: 451-58.
- Nenadis, N., and Tsimidou, M. 2002. 'Observations on the estimation of scavenging activity of phenolic compounds using rapid 1, 1-diphenyl-2-picrylhydrazyl (DPPH•) tests', *Journal of the American Oil Chemists' Society*, 79: 1191-95.
- Nenadis, N., and Maria Z Tsimidou. 2017. 'DPPH (2, 2-di (4-tert-octylphenyl)-1-picrylhydrazyl) radical scavenging mixed-mode colorimetric assay (s)', *Measurement of Antioxidant Activity and Capacity: Recent Trends and Applications*: 141-64.
- Nenadis, N., and Tsimidou, MZ. 2010. 'Assessing the activity of natural food antioxidants.' in, *Oxidation in foods and beverages and antioxidant applications* (Elsevier).
- Papariello, GJ, and MAM Janish. 1966. 'Diphenylpicrylhydrazyl as an Organic Analytical Reagent in the Spectrophotometric Analysis of Phenols', *Analytical Chemistry*, 38: 211-14.
- Pérez-Jiménez, J., and Saura-Calixto, F. 2006. 'Effect of solvent and certain food constituents on different antioxidant capacity assays', *Food research international*, 39: 791-800.
- Pizzino, Gabriele, Natasha Irrera, Mariapaola Cucinotta, Giovanni Pallio, Federica Mannino, Vincenzo Arcoraci, Francesco Squadrito, Domenica Altavilla, and Alessandra Bitto. 2017. 'Oxidative stress: harms and benefits for human health', *Oxidative medicine and cellular longevity*, 2017.
- Pokorný, J. 2007. 'Are natural antioxidants better—and safer—than synthetic antioxidants?', *European Journal of Lipid Science and Technology*, 109: 629-42.
- Prior, Ronald L., Wu, X., and Schaich., K. 2005. 'Standardized methods for the determination of antioxidant capacity and phenolics in foods and dietary supplements', *Journal of Agricultural and Food Chemistry*, 53: 4290-302.
- Rahman, N, and Jeon., M. 2016. 'Original Article Methyl Gallate, a Potent Antioxidant Inhibits Mouse and Human Adipocyte Differentiation and Oxidative Stress in Adipocytes through Impairment of Mitotic Clonal Expansion 1–11'.
- Rahman, Taibur, Ismail Hosen, MM Towhidul Islam, and Uddin Shekhar, H. 2012. 'Oxidative stress and human health'.
- Rice-evans, Catherine, A., Nicholas, J., Miller, Paul, G., Bolwell, Peter M Bramley, and John B Pridham. 1995. 'The relative antioxidant activities of plant-derived polyphenolic flavonoids', *Free Radical Research*, 22: 375-83.

- Saito, Sh., and Kawabata, J. 2006. 'DPPH (= 2, 2- diphenyl- 1- picrylhydrazyl) radical- scavenging reaction of protocatechuic acid (= 3, 4- dihydroxybenzoic acid): Difference in reactivity between acids and their esters', *Helvetica chimica acta*, 89: 1395-407.
- Saito, Sh., Okamoto, Y., and Kawabata, J. 2004. 'Effects of alcoholic solvents on antiradical abilities of protocatechuic acid and its alkyl esters', *Bioscience, biotechnology, and biochemistry*, 68: 1221-27.
- Saura-Calixto, F., and Pérez-Jiménez, J. 2018. *Non-extractable Polyphenols and Carotenoids* (Royal Society of Chemistry).
- Shahidi, F., and Ambigaipalan, P. 2015. 'Phenolics and polyphenolics in foods, beverages and spices: Antioxidant activity and health effects—A review', *Journal of functional foods*, 18: 820-97.
- Shahidi, F., Janitha, PK., and Wanasundara, PD. 1992. 'Phenolic antioxidants', *Critical reviews in food science & nutrition*, 32: 67-103.
- Shahidi, F., and Zhong, Y. 2015. 'Measurement of antioxidant activity', *Journal of functional foods*, 18: 757-81.
- Shanty, Angamaly Antony, and Puzhavorparambil Velayudhan Mohanan. 2018. 'Heterocyclic Schiff bases as non toxic antioxidants: Solvent effect, structure activity relationship and mechanism of action', *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 192: 181-87.
- Sies, H., and Sies, H. 1985. 'Oxidative stress: introductory remarks Oxidative Stress', *New York Academic Journal*, 5: 1-8.
- Sies, H. 1999. 'Glutathione and its role in cellular functions', *Free Radical Biology and Medicine*, 27: 916-21.
- Sindhi, Vinita, Vartika Gupta, Kameshwar Sharma, Sonal Bhatnagar, Reeta Kumari, and Neeti Dhaka. 2013. 'Potential applications of antioxidants – A review', *Journal of Pharmacy Research*, 7: 828-35.
- Slakman, Belinda L, and Richard H West. 2019. 'Kinetic solvent effects in organic reactions', *Journal of Physical Organic Chemistry*, 32: e3904.
- Sun, Yong, Cheng Yang, and Rong Tsao. 2017. 'Nomenclature and general classification of antioxidant activity/capacity assays', *Measurement of Antioxidant Activity & Capacity: Recent Trends and Applications*; Apak, R., Capanoglu, E., Shahidi, F., Eds: 1-19.
- Swain, C., Gardner, Marguerite S Swain, Arnet L Powell, and Sergio Alunni. 1983. 'Solvent effects on chemical reactivity. Evaluation of anion-and cation-solvation components', *Journal of the American Chemical Society*, 105: 502-13.
- Taub, Irwin, A. 1984. "Free radical reactions in food." In.: ACS Publications.
- Thavasi, Velmurugan, Ryan Phillip Anthony Bettens, and Lai Peng Leong. 2009. 'Temperature and solvent effects on radical scavenging ability of phenols', *The Journal of Physical Chemistry A*, 113: 3068-77.
- Tsao, R. 2015. '13 - Synergistic interactions between antioxidants used in food preservation.' in Fereidoon Shahidi (ed.), *Handbook of Antioxidants for Food Preservation* (Woodhead Publishing).
- Tsimogiannis, DI., and Oreopoulou, V. 2004. 'Free radical scavenging and antioxidant activity of 5, 7, 3', 4'-hydroxy-substituted flavonoids', *Innovative Food Science & Emerging Technologies*, 5: 523-28.
- Valgimigli, L., Banks, JT., Ingold, KU., and Luszytk, J. 1995. 'Kinetic solvent effects on hydroxylic hydrogen atom abstractions are independent of the nature of the abstracting radical. Two extreme tests using vitamin E and phenol', *Journal of the American Chemical Society*, 117: 9966-71.
- Vilas Bôas, Sérgio Antonio Mendes. 2017. 'Studies on the solubility of phenolic compounds', Universidade Tecnológica Federal do Paraná.

-
- Villaño, Debora, MS Fernández-Pachón, Maria Luisa Moyá, AM Troncoso, and MC García-Parrilla. 2007. 'Radical scavenging ability of polyphenolic compounds towards DPPH free radical', *Talanta*, 71: 230-35.
- Vuolo, Milena Morandi, Verena Silva Lima, and Mário Roberto Maróstica Junior. 2019. 'Phenolic compounds: Structure, classification, and antioxidant power.' in, *Bioactive compounds* (Elsevier).
- Wettasinghe, M., and Shahidi, F. 2000. 'Scavenging of reactive-oxygen species and DPPH free radicals by extracts of borage and evening primrose meals', *Food Chemistry*, 70: 17-26.
- Xie, J, and Schaich, Km. 2014. 'Re-evaluation of the 2, 2-diphenyl-1-picrylhydrazyl free radical (DPPH) assay for antioxidant activity', *Journal of Agricultural and Food Chemistry*, 62: 4251-60.
- Xue, Y., Liu, Y., Luo, Q., Wang, H., Chen, R., Liu, Y., and Li, Y. 2018. 'Antiradical activity and mechanism of coumarin–chalcone hybrids: Theoretical insights', *The Journal of Physical Chemistry A*, 122: 8520-29.
- Young, IS., and Woodside, JV. 2001. 'Antioxidants in health and disease', *Journal of clinical pathology*, 54: 176-86.
- Zhang, H., and Tsao, R. 2016. 'Dietary polyphenols, oxidative stress and antioxidant and anti-inflammatory effects', *Current Opinion in Food Science*, 8: 33-42.