

REFERENCES

- Abdulla, M. A., Ahmed, K. A. A., Abu-Luhoom, F. M., & Muhanid, M. (2010). Role of *Ficus deltoidea* extract in the enhancement of wound healing in experimental rats. *Biomedical Research*, 21(3), 241–245.
- Abdulla, M. A., Suzita, M. N., Vikineswary, S., Noorlidah, A., Wong, K. H., & Hapipah, M. A. (2008). Effect of culinary-medicinal lion's mane mushroom, *Hericium erinaceus* (Bull.: Fr.) Pers. (Aphyllophoromycetideae) on ethanol-induced gastric ulcers in rats. *International Journal of Medicinal Mushrooms*, 10, 325-330.
- Abdulla, M. A., Fard, A. A., Vikineswary, S., Noorlidah, A., Wong, K. H., Kuppusamy, U. R., et al., (2008). Potential activity of aqueous extract of culinary-medicinal lion's mane mushroom, *Hericium erinaceus* (Bull.: Fr.) Pers. (Aphyllophoromycetideae) in accelerating wound healing in rats. *International Journal of Medicinal Mushrooms*, 50, 33-39.
- Al-Bayaty, F., & Abdulla, M. A. (2012). A comparison of wound healing rate following treatment with aftamed and chlorine dioxide gels in streptozotocin-induced diabetic rats. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1-7.
<http://dx.doi.org/10.1155/2012/468764>
- Apak, R., Güclü, K., Ozyürek, M., & Karademir, S. E. (2004). Novel total antioxidant capacity index for dietary polyphenols and vitamins C and E, using their cupric ion reducing capability in the presence of neocuproine: CUPRAC method, *Journal of Agricultural and Food Chemistry*, 29(52), 7970–7981.
- American Diabetes Association: Standards of medical care in diabetes (2007). *Diabetes Care* 2007; 30: S4-S41.

American Public Health Association. (1984). Compendium of Methods for the Microbiological Examination of Foods (2nd ed.). APHA, Washington, DC: Association of Official Analytical Chemists. (1990). *Official Methods of Analysis* (15th ed.) AOAC, Arlington, VA.

Asano M, Nushida H, et al., (2009). Lipid hydroperoxides in human plasma after ethanol consumption. *Leg Med (Tokyo) 11 Suppl 1*: S223-225.

Bao, X., Liu, C., Fang, J., & Li, X. (2001). Structural and immunological studies of a major polysaccharide from spores of *Ganoderma lucidum* (Fr.) Karst. *Carbohydrate Research*, 332, 67–74.

Bao, X., Wang, X., Dong, Q., Fang, J., & Li, X. (2002). Structural features of immunologically active polysaccharides from *Ganoderma lucidum*. *Phytochemistry*, 59, 175–181.

Bae, J., Jang, K., & Jin, H. K. (2005a). Polysaccharides isolated from *Phellinus gilvus* enhances dermal wound healing in streptozotocin-induced diabetic rats. *Journal of Veterinary Science*, 6(2), 161–164.

Bae, J., Jang, K., Park, S., & Jin, H.K. (2005b). Promotion of dermal wound healing by polysaccharides isolated from *Phellinus gilvus* in rats. *Journal of Veterinary Medical Science*, 6(1), 111–114.

Baskar, R., Lavanya, R., Mayilvizhi, S., & Rajasekaran, P. (2008). Free radical scavenging activity of antitumour polysaccharide fractions isolated from *Ganoderma lucidum* (Fr.) P. Karst. *Natural Product Radiance*, 7(4), 320-325.

Biesalski HK, Frank J, (1995). Antioxidants in nutrition and their importance in the anti-oxidative balance in the immune system, *Immunität und Infektion*, 5, 166-167.

Breene, W. M. (1990). Nutritional and medicinal value of specialty mushrooms. *Journal of Food Protection*, 53(10), 883-894.

- Brem, H., & Tomic-Canic, M. (2007). Cellular and molecular basis of wound healing in diabetes. *The Journal of Clinical Investigation*, 117, 1219-1222.
- Black, E., Vibe-Petersen, J., Jorgensen, L. N., Madsen, S. M., Ågren, M. S., Holstein, P. E., et al., (2003). Decrease of collagen deposition in wound repair in Type 1 diabetes independent of glycemic control. *Archives of Surgery*, 13(1), 34-40.
- Borchers, A. T., Stern, J. S., Hackman, R. M., Keen, C. L., & Gershwin, M. E. (1999). Minireview: Mushrooms, tumors and immunity. *Proceedings Experimental Biology and Medicine*, 221, 281–293.
- Buffoni, F., Banchelli, G., Cambi, S., Ignesti, G., Pirisino, R., Raimondi, L., et al., (1993). Skin wound healing: some biological parameters in guinea pig. *Journal of Pharmacy and Pharmacology*, 45, 784-790.
- Campbell, J., (2009). Wound and Healing. *Campbell's Pathophysiology Notes*. 421-423.
- Carson & Freida, L. (1990). *Histology, A Self-Instructional Text* (pp. 142-144) and Plate 8-4 (pp. 267) (as cited by The American Ukrainian Medical Project at [http://aump/resources/documents/histo/en/Masson Trichrome.pdf](http://aump/resources/documents/histo/en/Masson%20Trichrome.pdf).
- Cazzi, R., Ricardy, R., Aglitti, T., Gatta, V., Petricone, P., & De Salvia, R. (1997). Ascorbic acid and β-carotene as modulators of oxidative damage. *Carcinogenesis*, 18, 223-228.
- Chang, S. T., & Buswell, J. A. (2008). Safety, quality control and regulational aspects relating to mushroom nutriceuticals. Proceeding 6th International Conference. *Mushroom Biology and Mushroom Products* (pp. 188–195). Krefeld, Germany: GAMU GmbH.
- Chang, S. T., & Buswell, J. A. (1999). *Ganoderma lucidum* (Curt.: Fr.) P. Karst. (Aphyllophoromycetideae): A mushrooming medicinal mushroom. *International Journal of Medicinal Mushrooms*, 1, 139–146.

- Chang, S. T., & Buswell, J. A. (2008). Development of the world mushroom biology and international mushroom organizations. *International Journal of Medicinal Mushroom*, 10(3), 195-208.
- Chang, H. Y., Peng, W. H., Sheu, M. J., Huang, G. J., Tseng, M. C., Lai, M. T., et al., (2007). Hepaprotective and antioxidant effects of ethanol extract from *Phellinus merrilli* on carbon tetrachloride-induced liver damage. *American Journal of Chinese Medicine*, 35(5), 793.
- Chaudhuri, P. S. (2002). Oxidant–antioxidant system: role and significance in human body. *Indian Journal Experimental Biology*, 40(11), 1233-1239.
- Chien, C. M., Cheng, J. L., Chang, W. T., et al., (2004). Polysaccharides of *Ganoderma lucidum* alter cell immunophenotypic expression and enhance CD56+ NK-cell cytotoxicity in cord blood. *Bioorganic and Medicinal Chemistry*, 12, 5603–5609.
- Ceriello, A. (2003). New insights on oxidative stress and diabetic complications may lead to a "causal" antioxidant therapy. *Diabetes Care*, 26(5), 1589-1596.
- Celebi, N, Turkyilmaz, A., Gonul, B., & Ozogul, C. (2002). Effects of epidermal growth factor microemulsion formulation on the healing of stress-induced gastric ulcers in rats. *Journal of Control Release*, 83, 197–210.
- Chen, T. Q., Li, K. B., He, X. J., Zhu, P. G., & Xu, J. (1998). Micro-morphology, chemical components and identification of log-cultivated *Ganoderma lucidum* spore. Proceedings 1998: *Nanjing International Symposium Science & Cultivation of Mushrooms* (pp 214). Nanjing, China: JSTC-ISMS.
- Chen, D. H., Shiou, W. Y., Wang, K. C., et al., (1999). Chemotaxonomy of triterpenoid pattern of HPLC of *Ganoderma lucidum* and *Ganoderma tsugae*. *Journal of China Chemistry Soceity*, 46, 47–51.
- Chiu, S. W., Wang, Z. M., Leung, T. M., & Moore, D. (2000). Nutritional value of

- Ganoderma extract and assessment of its genotoxicity and antigenotoxicity using comet assays of mouse lymphocytes. *Food Chemistry Toxicology*, 38, 173–178.
- Chin, S. K., Law, C. L., Supramaniam, C. V., Cheng, P. G., & Mujumdar, A. S. (2008). Convective drying of *Ganoderma tsugae* Murrill and effect of temperature on Basidiospores. *Drying Technology*, 26(12), 1524–1533.
- Chin, S.K., Law, C.L., Supramaniam, C.V., & Cheng, P.G. (2009). Thin-layer drying characteristics and quality evaluation of air-dried *Ganoderma tsugae* Murrill. *Drying Technology*, 27(9), 975–984.
- Chithra, P., Sajithlal, G. B., & Chandrasekaran, G. (1998). Influence of *Aloe vera* on the healing of dermal wounds in diabetic rats. *Journal of Ethno-Pharmacology*, 59, 195–201.
- Clark, R. A. F. (1993). Regulation of fibroplasia in cutaneous wound repair. *American Journal of the Medical Sciences*, 306(1), 42–48.
- Clark, R. A. F. (1988). Overview and general considerations of wound repair. In R. A. F. Clark & P. M. Henson (Eds), *The molecular and cellular biology of wound repair* (pp. 3-34). New York: Plenum.
- Coleman, D. M. (1982). Other potentially useful rodent model for the human diabetes mellitus. *Diabetes*, 31: 24-25.
- Commission of the People's Republic of China. Beijing, China: Chemical Industry Press.
- Dana, M. N., & David, L. D. (2005). Review: The role of oxidative stress in diabetic complications. *Cell Biochemistry and Biophysics*, 43, 289-330.
- Davies, K. J. A., Delsignore, M. E., Lin, S. W. (1987). Protein damage and degradation by oxygen radicals. II. Modification of amino acids. *J. Biol. Chem.* 262, 9902-9907.
- Dissemond, J., Goos, M., & Wagner, S. N. (2002). The role of oxidative stress in the

- pathogenesis and therapy of chronic wounds. *Hautarzt*, 53, 718–723.
- Deedwania P. C., & Fonseca V. A., (2005). Diabetes, prediabetes, & cardiovascular risk: Shifting the paradigm. *American Journal of Medicine*, 118, 939-947.
- DuBois, M., Gilles, K. A., Hamilton, J. K., Rebers, P. A., & Smith, F. (1956). Colorimetric method for determination of sugars and related substances. *Analytical Chemistry*, 28(3), 350–356.
- Domenica, A., Antonino, S., Domenico, C., Mariarosaria, G., Barbara, D., Michele, *et al.*, (2001). Inhibition of lipid peroxidation restores impaired vascular endothelial growth factor expression and stimulates wound healing and angiogenesis in the genetically diabetic mouse. *Diabetes*, 50, 667-674.
- Donk, M. A. (1964). A conspectus of the families of Aphyllorales. *Persoonia*, 3, 19-24.
- Diegelmann, R. F., & Evans, M. C. (2004). Wound Healing : An overview of acute, fibrotic and delayed healing. *Front Biosciences*, 9, 283-289.
- Ergul, A., Schultz, J. J., Stromhaug, C., Harris, A. K., Hutchinson, J., Tawfik, A., *et al.*, (2004). Vascular dysfunction of venous bypass conduits is mediated by reactive oxygen species in diabetes: Role of endothelin-1. *Journal of Pharmacology Experiment Therapeutics*, 313, 70-77.
- Ehrlich, H. P., & Krummel, T. M. (1996). Regulation of wound healing from a connective tissue perspective. *Wound Repair and Regeneration*, 4, 203–210.
- Elias, D., Prigozin, H., Polak, N., Rapoport, M., Lohse, A.W., & Cohen, I.R. (1994). shock Autoimmune diabetes induced by the beta-cell toxin STZ. Immunity to the 60-kDa heat protein and to insulin. *Diabetes*, 43, 992-999.
- Esterbauer, H. & Cheeseman, K. H. (1990). Determination of aldehydic lipid peroxidation products. *Methods in Enzymology*, 186, 407–421.

- Evans, J. L., Goldfine, I. D., Maddux, B. A., & Grodsky, G. M. (2002). Oxidative and stress activated signaling pathways: a unifying hypothesis of type 2 diabetes. *Stress. Endocrine Review*, 23(5), 599-622.
- Frykberg, R. G., Zgonis, T., Amstrong, D. G., Driver, V. R., Guirini, J. M., Kravitz, S. R., et al., (2006). Diabetic Foot Disorders: A clinical practice guideline. *The Journal of Foot and Ankle Surgery*, S2-66.
- Fu, X., Shen, Z., Chen, Y., Xie, J., Guo, Z., & Zhang, M. (1998). Randomised placebo-controlled trial of use of topical recombinant bovine basic fibroblast growth factor for second-degree burns. *Lancet*, 352, 1661–1664.
- Fukuzawa, M., Yamaguchi, R., Hide, I., et al., (2008). Possible involvement of long chain fatty acids in the spores of *Ganoderma lucidum* (Reishi Houshi) to its anti-tumor activity. *Biological Pharmaceutical Bull*, 31, 1933–1937.
- Gan, K. H., Kuo, S. S., & Lin, C. N. (1998b). Steroidal constituents of *Ganoderma applanatum* and *Ganoderma neo-japonicum*. *Journal of Natural Products*, 61, 1421-1422.
- Gao, Y. H., Tang, W. B., Gao, H., Chan, E., Lan, J., & Zhou, S. (2004). *Ganoderma lucidum* polysaccharide fractions accelerate healing of acetic acid-induced ulcers in rats. *Journal of Medicinal Food*, 7(4), 417–421.
- Gao, Y., Zhou, S., Wen, J., Huang, M., & Xu, A. (2002). Mechanism of the antiulcerogenic effect of *Ganoderma lucidum* polysaccharides on indomethacin-induced lesions in the rat. *Life Sciences*, 72(6), 731–745.
- Gao, Y., Gao, H., Chan, E., et al., (2005). Antitumor activity and underlying mechanisms of ganopoly, the refined polysaccharides extracted from *Ganoderma lucidum* in mice. *Immunology Investigation*, 34, 171–198.
- Gao, Y. & Lan, J., Dai, X., Ye, J., & Zhou, S. (2004). A phase I/II study of Lingzhi

- mushroom *Ganoderma lucidum* (W. Curt.: Fr.) Lloyd (Aphyllophoromycetideae) extract in patients with type II diabetes mellitus. *International Journal of Medicinal Mushrooms*, 6, 33–40.
- Gestational diabetes mellitus, American Diabetes Association. Diabetes care, volume 27, Supplement 1, 2004.
- Gradinaru, D., Borsa, C., Ionescu, C., & Margina, D. (2013). Advanced oxidative and glycoxidation protein damage markers in elderly with type-2 diabetes. *Journal of Proteomic*, S1874-3919(13), 181-184.
- Greenhalgh, D. G. (2003). Wound healing and diabetes mellitus. *Clinics in Plastic Surgery*, 30(1), 37–45.
- Gui, X. F., Wang, L., & Yang, Y. H. (1996). The study of protecting kidney cortical from radical with the use of *Ganoderma lucidum* injection. *China Journal of Biochemical Pharmacy*, 17, 188-190.
- Gupta, A., Singh, R. L., & Raghbir, R. (2002). Antioxidant status during cutaneous wound healing in immunocompromised rats. *Molecular Cell Biochemistry*, 241, 1-7.
- Halliwell, B., Gutteridge, J. M., & Grootveld, M. (1988). Methods for the measurements of hydroxyl radicals in biomedical systems; deoxyribose degradation and aromatic hydroxylation. *Methods of Biochemistry Analysis*, 33, 59–90.
- Halliwell, B., & Gutteridge J. M. (2000). Free radicals and antioxidants in the year 2000: A historical look to the future. *Annals of The New York Academy of Sciences*, 899, 136-147.
- Halliwell, B., & Gutteridge, J. M. C (1990). Role of free radicals and catalytic metal ions in human disease: *An overview Methods in Enzymology*, 186, 1-85.

Hehenberger, K., Hansson, G., & Brismar, A. (1998). Fibroblasts derived from human

chronic diabetic wounds have a decreased proliferation rate, which is recovered

by the addition of heparin. *Journal of Dermatological Sciences*, 16, 144- 151.

Herrlich P, Bohmer FD. Redox regulation of signal transduction in mammalian cells.

Biochem Pharmacol 2000;51(1):35.

Hikino, H., Ishiyama, M., Suzuki, Y., & Konno, C. (1989). Mechanisms of hypoglycemic

activity of ganoderan B: a glycan of *Ganoderma lucidum* fruit bodies. *Planta Medica*,

55(5), 423–428.

Hikino H, Kanno C, Mirin Y, Hayash T. Isolation and hypoglycemic activity of Ganoderma

A and B, glycans of *Ganoderma Iudium* fruit bodies. *Planta Med* 1985, 4:339-340.

Hoogwerf, B. J. (2001). Postoperative management of the diabetic patient. *Medical Clinic*

North America, 85, 1213.

Ho, Y. W., Yeung, J. S., Chiu, P. K., Tang, W. M., Lin, Z. B., Man, R. Y. *et al.*, (2007).

Ganoderma lucidum polysaccharide peptide reduced the production of

proinflammatory cytokines in activated rheumatoid synovial fibroblast. *Molecular*

Cell Biochemistry, 301, 173–179.

Jia, J., Zhang, X., Hu, Y. S., *et al.*, (2009). Evaluation of in vivo antioxidant

activities of *Ganoderma lucidum* polysaccharides in STZ-diabetic rats. *Food*

Chemistry, 115, 32–36.

International Diabetes Federation. (2013). Diabetes and impaired glucose tolerance. *IDF*

Diabetes Atlas (6th ed.). (ISBN: 2-930229-85-3).

Ishikawa, N. K., Kasuya, M. C. M., & Vanetti, M. C. D. (2001). Antibacterial activity

of *Lentinula edodes*. *Brazilian Journal of Microbiology*, 32(3), 206-210.

Irshad, M.

- Iwatsuki, K., Yamasaki, O., Morizane, S., & Oono, T. (2006). Staphylococcal cutaneous infections : Invasion, evasion and progression. *Journal of Dermatological Science*, 42, 203-214.
- James, T. J., Hughes, M. A., Cherry, G. W., & Taylor, R. P. (2003). Evidence of oxidative stress in chronic venous ulcers. *Wound Repair Regeneration*, 11, 172-176.
- Ji, Z., Tang, Q., Zhang, J., Yang, Y., Jia, W., & Pan, Y. (2007). Immunomodulation of RAW264.7 macrophages by GLIS, a proteopolysaccharide from *Ganoderma lucidum*. *Journal of Ethnopharmacology*, 112, 445–450.
- Johansen, J. S., Harris, A. K., Rychly, D. J., and Ergul, A. (2005). Review: Oxidative stress and antioxidants in diabetes: Linking basic science to clinical practice. *Cardiovascular Diabetology*, 4, 5.
- Kertes P. J., Johnson T. M., ed. (2007). Evidence Based Eye Care. Philadelphia, PA: Lippincott Williams & Wilkins. (ISBN 0-7817-6964-7).
- Khan, M. N. (2005). Diabetic foot, The Autumn. *The Diabetic Foot Journal*, 8(3), 144–153.
- Khamlue, R., Naksupan, N., Ounaroon, A., & Saelim, N. (2012). Skin wound healing promoting effect of polysaccharides extracts from *Tremella fuciformis* and *Auricularia auricula* on the ex-vivo porcine skin wound healing model. *International Conference on Chemical, Biological and Environmental Engineering*, 93–98.
- Khoda, H., Tokumoto, W., Sakamoto, K., Fujii, M., Hirai, Y., Tamasaki, K., Komoda, Y., Nakamure, H., Ishihara, S., & Uchida, M. (1985). *Chemical and pharmaceutical Bulletin* 33(4), 1367-1374.
- Kim, S. D., & Nho, H. J. (2004). Isolation and characterization of alpha-glucosidase inhibitor from the fungus *Ganoderma lucidum*. *Journal of Microbiology*, 42, 223–227.

- Komemushi, S., Yamamoto, Y., & Fujita, T. T. (1996). Purification and identification of antimicrobial substances produced by *Lentinus edodes*. *Journal of Antibacterial and Antifungal Agents*, 24(1), 21-25.
- Kolesnikova, O. P., Tuzova, M. N., & Kozlov, (1997). V. A. Screening of immunoactive properties of alkanecarbonic acid derivatives and germanium-organic compounds *in vivo*. *Immunologiya*, 10, 36–38.
- Kwon, A. H., Qui, Z. Y., Hashimoto, M., Yamamoto, K., & Kimura, T. (2009). Effects of medicinal mushroom (*Sparassis Crispa*) on wound healing in STZ-induced diabetic rats. *The American Journal of Surgery*, 197, 503-509.
- Lan, W., Zhaojun, Z., & Zesheng, Z. (2007). Characterization of Antioxidant Activity of Extracts from *Flos Lonicerae*. *Drug Development and Industrial Pharmacy*. 33(8), 841-847.
- Lee, J. M., Kwon, H., Jeong, H., et al., (2001). Inhibition of lipid peroxidation and oxidative DNA damage by *Ganoderma lucidum*. *Phytotherapeutics Research*, 15, 245–249.
- Lei, L. S., & Lin, Z. B. (1992). Effects of Ganoderma polysaccharides on T cell subpopulations and production of interleukin 2 in mice lymphocyte response. *Acta Pharmaceutica Sinica*, 27, 331–335.
- Lin, L. J., & Shiao, M. S. (1989). C-NMR correlation of stereochemistry in lanostanoids triterpenes. *Journal of Natural Products*, 52, 595-605.
- Lin, S. C. (2000). Medicinal Fungi of China: *Production and Products Development*. Beijing, China: Chinese Agricultural Press Lin, Z. B. (2001). *Modern Research of Ganoderma*. Beijing: Beijing Medical University Press.
- Liu, F., Ooi, V. E. C., & Fung, M. C. (1999). Analysis of immunomodulating cytokine mRNAs in the mouse induced by mushroom polysaccharides. *Life Sciences*, 64,

1005-1011.

- Liu, F., Ooi, V. E. C., & Chang, S. T. (1997). Free radical scavenging activities of mushroom polysaccharide extracts. *Life Sciences*, 60(10), 763–768.
- Li, Z., Liu, J., & Zhao, Y. (2005). Possible mechanism underlying the antiherpetic activity of a proteoglycan isolated from the mycelia of *Ganoderma lucidum* *in vitro*. *Journal of Biochemistry Molecular Biology*, 38(1), 34–40.
- Lobmann, R., Ambrosch, A., Schultz, G. S., Waldmann, K., Schiweck, S., & Lehnert, H. (2002). Expression of matrixmetalloproteinases and their inhibitors in the wounds of diabetic and non-diabetic patients. *Diabetologia*, 45, 1011–1016.
- Luo, S. H. & Yang, H. (2000). Study of *Ganoderma lucidum* on the regulation of blood glucose. *Academic Journal of Guangdong College of pharmacy*, 16(2), 119-120.
- McMeekin, D. (2005). The perception of *Ganoderma lucidum* in Chinese and Western culture. *Mycologist*, 18, 165–169.
- Mackay, D. J. & Miller, A. L. (2003). Review: Wound healing. *Alternative Medicine*, 8(4), 359-377.
- Manzi, P., Aguzzi, A., & Pizzoferrato, L. (2001). Nutritional value of mushrooms widely consumed in Italy. *Food Chemistry*. 73, 321-325.
- Maritim, A. C., Sanders, R. A., & Watkins, J. B. (2003). Diabetes, oxidative stress, and antioxidants: A review. *Journal of Biochemistry Molecular Toxicology*, 17(1), 24-38.
- Martin, P. (1997). Wound healing--aiming for perfect skin regeneration. *Science*, 276, 75–78.

- Maruyama, H., Yamazaki, K., Murofushi, S., Konda, C. & Ikekawa, T. (1989). Antitumor activity of *Sarcodon asperatus* (Berk.) S. Ito and *Ganoderma lucidum* (Fr.) Karst. *Journal of Pharmacobio-dynamic, 12*, 118–123.
- Mau, J. L., Lin, H. C., & Chen, C. C. (2001). Non-volatile components of several medicinal mushrooms. *Food Research International, 34*, 521–526.
- Mau, J. L., Lin, H. C., & Chen, C. C. (2002). Antioxidant properties of several medicinal mushrooms. *Journal of Agricultural and Food Chemistry, 50*(21), 6072-6077.
- Mayell, M. (2001). Maitake extracts and their therapeutic potential. *Alternative Medicine Review, 6*, 48–60.
- Mefzger, B. E., & Coustan D. R., (1998). Proceedings of the Fourth International Work-Shop-Conference on Gestational Diabetes Mellitus. *Diabetes care. 21*(2): B1-B167.
- Mekkawy, S., Meselhy M. R, Nakamura, N. Teguka, Y. Hattori, M., Kakiuchi, N., Shimotohno, K., Kawahata, T & Otake, T. (1998). Anti-HIV-1 and anti-HIV-1: protease substances from *Ganoderma Iudium*. *Phytochemistry, vol 49*(6), 1651-1657.
- Memisogullari, R., & Bakan, E. (2004). Levels of ceruloplasmin, transferring, and lipid peroxidation in the serum of patients with Type 2 diabetes mellitus. *Journal of Diabetes and its Complication, 18*(4), 193-197.
- Miyazaki, T., & Nishjima, M. (1981). Studies on fungal polysaccharides 17. Structure examination of a water-soluble, antitumor polysaccharide of *Ganoderma lucidum*. *Chemistry and Pharmacology Bulletin, 29*, 3611–3616.
- Mohamad Omar, N. A., Noorlidah, A., Kuppusamy, U. R., Abdulla, M. A., & Vikineswary, S. (2011). Nutritional composition, antioxidant activities, and anti-ulcer potential of *Lentinus squarrosulus* (Mont.) mycelia extract. *Evidence-Based Complimentary and Alternative Medicine, 1*-8. doi:10.1155/2011/539356
- Moncalvo, J. M. (2000). Systematics of Ganoderma. In *Ganoderma Diseases of*

- Perennial Crops* (pp. 23–45). Wallingford, UK: CAB International
- Morigiwa, A., Kitabatake, K., Fujimoto, Y., & Likekawa, N. (1986). *Chemical and Pharmaceutical Bulletin* 34(7), 3025-3028.
- Morton, J. J., & Malone, M. H. (1972). Evaluation of vulneray activity by an open wound procedure in rats. *Archives Internationales de Pharmacodynamie et de Thérapie*, 196(1), 117–126.
- Moseley, R., Hilton, J. R., Waddington, R. J., Harding, K. G., Stephens, P., & Thomas, D. W. (2004). Comparison of oxidative stress biomarker profiles between acute and chronic wound environments. *Wound Repair Regeneration*, 12, 419-429.
- Moss S. E., Klein R, Klein B. E., (1991). Cause-specific mortality in a population-based study of diabetes. *American Journal Public Health*, 81, 1158-1162.
- Nangia, A., & Hung, C. T. (1990). Laboratory evaluation of a new hydrogeltype skin substitute. *Burns*, 16(5), 368-372.
- Nayak, B. S., & Pereira, L. M. P. (2006). *Catharanthus roseus* flower extract has woundhealing activity in Sprague Dawley rats. *BMC Complementary and Alternative Medicine*, 6, 41. doi:10.1186/1472-6882-6-41
- Novak, B., Renar, I. P., Metelko, Z., (2004). Treatment of diabetes during pregnancy. Endocrinology and Metabolic Diseases, Dugi dol 4a, HR-10000 Zagreb, Croatia. (pp. 1-8)
- Omar, N. A., Abdullah, N., Kuppusamy, U. R., Abdulla, M. A. G, Vikineswary, S. (2011). Nutritional composition, antioxidant activities, and antiulcer potential of *Lentiurus squarrosulus* (Mont.) mycelia extract. *Evidence – Based complimentary and Alternative medicine*. Vol. 2011, article 539356. doi:10.1155/2011/539356
- Ooi, V. E., & Liu, F. (2000). Immunomodulation and anti-cancer activity of polysaccharide-protein complexes. *Current Medical Chemistry*, 7, 715–729.

- Paterson, R. R. (2006). Ganoderma-a therapeutic fungal biofactory. *Phytochemistry*, 67(18), 1985-2001.
- Peppa, M., Stavroulakis, P., & Raptis, S. A. (2009). Advanced glycation products and impaired wound healing. *Wound Repair and Regeneration*, 17(4), 461-472.
- Peppa, M., & Raptis, S. A. (2011). Glycoxidation and wound healing in diabetes: an interesting relationship. *Current Diabetes Review*, 7(6), 416-425.
- Ponrasu, T., & Suguna, L. (2012). Efficacy of *Annona squamosa* on wound healing in streptozotocin-induced diabetic rats. *International Wound Journal*, 9, 613–623.
- Portera, C. A., Love, E. J., Memore, L., Zhang, L., Muller, A., Browder, W., et al., (1997). Effect of macrophage stimulation on col- lagen biosynthesis in the healing wound. *The American Surgery*, 63(2), 125–131.
- Rasik, A. M., & Shukla, A. (2001). Antioxidant status in delayed healing type of wounds. *International Journal of Experimental Pathology*, 81, 257–263.
- Ramarathnam N, Osawa T, Ochi H & Kawakishi S. (1995). The contribution of plant food antioxidants to human health. *Trends Food Sc Tech* 6, 75-82.
- Rees, D. A., & Alcolado, J. C. (2005). Animal models of diabetes mellitus. *Diabetic Medicine*, 22, 359–370.
- Robson, M. C., Mustoe, T. A., & Hunt, T. K. (1998). The future of recombinant growth factors in wound healing. *American Journal of Surgery*, 176, 80S–2S.
- Rudolph, R. (1980). Contraction and the control of contraction. *World Journal of Surgery*, 4, 279-287.
- Rudolph, R., Vande Berg, J., & Ehrlich, H. P. (1992). Wound contraction and scar contracture. In Cohen, I. K., Diegelmann, R. F. & Lindblad W. J. *Wound Healing: Biochemical and Clinical Aspects* (pp. 96-114). Philadelphia: Saunders.

Harshman, R. M., Aldoori, W. (2005). The relevance of selenium to immunity, cancer, and infectious/inflammatory diseases. *Can J Diet Pract Res* 66, 98–102.
doi:10.3148/66.2.2005.98

Schultz, G. S., Ladwig, G., & Wysocki, A. (2005). Extracellular matrix: review of its roles in acute and chronic wounds. *Wound Wide Wounds*. Retrieved from <http://www.worldwidewounds.com/2005/august/Schultz/Extrace-Matric-Acute-Chronic-Wounds.html>.

Schultz, J. J., Harris, A. K., Rychly, D. J., Ergul, A. (2005). Oxidative stress and the use of antioxidants in diabetes: Linking basic science to clinical practice. *Cardiovasc Diabetol.* 4(5). doi:10.1186/1475-2840-4-5

Senel, S., Capan, Y., Sargon, M. F., Ikinci, G., Solpan, D., Guven, O., et al., (1997) .Enhancement of transmucosal permeation of morphine sulfate by sodium glycodeoxycholate in vitro. *Journal of Controlled Release*, 45, 153–162.

Sherman, R. A., & Pechter E. A. (1988). Maggot therapy: a review of the therapeutic application of larvae in human medicine, especially for treating osteomyelitis. *Medical Veterinary Entomology*, 2, 225-230.

Shah, M., Foreman, D. M., & Ferguson, M. W. J. (1992). *Control of scarring in adult wounds by neutralising antibody to transforming growth factor β* . *Lancet*, 339, 213-214.

Shetty, B. S., Udupa, S. L., & Udupa, A. L. (2008). Biochemical analysis of granulation tissue in steroid and centella asiatica (Linn) treated rats. *Pharmacologyonline*, 2, 624-632.

Shetty, B. S., Udupa, S. L., & Udupa, A. L. (2007). Evaluation of antioxidant and wound healing effects of alcoholic and aqueous extract of *Ocimum Sanctum Linn* in rats. eCAM. doi: 10.1093/ecam/nem004

Sheena, M., Ajith, A., & Janardhanan, K. (2003). Prevention of nephrotoxicity induced by the anticancer drug Cisplatin, using *Ganoderma lucidum*, a medicinal mushroom occurring in South India. *Current Science*, 85, 478–482.

Shiao, M. S., Lee, K. R., Lin, L. J., & Wang, C. T. (1994). Natural products and biological activities of the Chinese medicinal fungus *Ganoderma lucidum*. In C.-T. Ho, T., Osawa, M. T. Huang, R. T., & Rosen (Ed.). ACS Symposium Series: 547. *Food phytochemicals for cancer prevention II: Teas, Spices, and Herbs* (pp. 342–354).

Shimoi, K., Masuda, S., Shen, B., Furugori, M., & Kinae, N. (1996). Radioprotective effects of antioxidative plant flavonoids in mice. *Mutation Research*, 350, 153–61.

Silhi, N. (1988). Diabetes and wound healing. *Journal of Wound Care*, 47-51.

Singer, A. J., & Clark, R. A. (1999). Cutaneous wound healing. *New England Journal of Medicine*, 341(10), 738-746.

Smith, J. E., Rowan, N. J., & Sullivan, R. (2004). *Medicinal Mushroom: Their therapeutic properties and current medical usage with special emphasis on cancer treatment*. London: Cancer Research UK.

Seto, S. W., Lam, T. Y., Tam, H. L., Au, A. L., Chan S. W., Wu, J. H., et al., (2009). Novel hypoglycemic effects of Ganoderma lucidum water-extract in obese/diabetic (+db/+db) mice. *Phytomedicine*, 16(5), 426–436.

- Shi, Y., Sun, J., He, H., Guo, H., & Zhang, S. (2008). Hepatoprotective effects of Ganoderma lucidum peptides against D-galactosamine-induced liver injury in mice. *Journal of Ethnopharmacology*, 117, 415–419.
- Shi, Y. L., James, A. E., Benzie, I. F., & Buswell, J. A. (2002). Mushroom-derived preparations in the prevention of H₂O₂-induced oxidative damage to cellular DNA. *Teratogenesis Carcinogenesis Mutagenesis*, 22, 103–111.
- Skvarilová M, Bulava A, *et al.*, (2005). Increased level of advanced oxidation products (AOPP) as a marker of oxidative stress in patients with acute coronary syndrome. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub* 149(1), 83-87.
- Stadelmann, W. K., Digenis, A. G., & Tobin, G. R. (1998). Physiology and healing dynamics of chronic cutaneous wound. *American Journal of Surgery*, 176(2A), 26S-38S.
- Stadelmann WK, Digenis AG, Tobin GR (1998). Impediments to wound healing. *American Journal of Surgery*, 176(2A), 39S-47S.
- Su, C. H., Sun, C. S., Juan, S. W., Hu, C. H., Ke, W. T., & Sheu, M. T. (1997). Fungal mycelia as the source of chitin and polysaccharides and their applications as skin substitutes. *Biomaterials*, 18, 1169-1174.
- Su, C. H., Sun, C. S., Juan, S. W., Ho, H. O., Hu, C. H., & Sheu, M. T. (1999). Development of fungal mycelia as a skin substitute: Effect on wound healing and fibroblast. *Biomaterial*, 20, 61-68.
- Su, C. H., Yang, Y. Z., Ho, H., Hu, C. H., & Sheu, M. T. (2001). High-performance liquid chromatographic analysis for the characterization of triterpenoids from Ganoderma. *Journal of Chromatography Science*, 39, 93–100.
- Su, C. H., Liu, S. H., Yu, S. Y., Hsieh, H. O., Ho, H. O., Hu, C. H., *et al.*, (2004). Development of fungal mycelia as a skin substitute: characterization of keratinocyte

proliferation and matrix metalloproteinase expression during improvement in the wound healing process. *Willey Interscience*, doi:10.1002/jbm.a.30235

Sun, L. X., Chen, L. H., Lin, Z. B., Qin, Y., Zhang, J. Q., Yang, J., et al., (2011). Effects of *Ganoderma lucidum* polysaccharides on IEC-6 cell proliferation, migration and morphology of differentiation benefiting intestinal epithelium healing *in vitro*. *Journal of Pharmacy and Pharmacology*, 63, 1595–1603.

Takayama F, Egashira T, et al., (1992). Chemiluminescence-HPLC assay of phosphatidylcholine hydroperoxide generates by ischemia-reperfusion in the liver of rats. *Biochem Pharmacol*. 44(12): 2412-2414.

Thakur, A., Rana, M., Lakhanpal, T. N., Ahmad, A., & Khan, M. I. (2007). Purification and characterization of lectin from fruiting body of *Ganoderma lucidum*: Lectin from Ganoderma lucidum. *Biochimica Biophysica Acta*, 1770, 1404–1412.

Thollon C, Iliou JP, Cambarrat C et al., (1995). Nature of the cardiomyocyte injury induced by lipid hydroperoxideshydroperoxides. *Cardiovasc Res*, 30, 648.

Trengove, N. J., Stacey, M. C., MacAuley, S., Bennett ,N., Gibson, J., Burslem, F., et al., (1999). Analysis of the acute and chronic wound environments: the role of proteases and their inhibitors. *Wound Repair Regeneration*, 7, 442–452.

Upton, R. (2000). American Herbal Pharmacopeia and Therapeutic Compendium: *Reishi mushroom, Ganoderma lucidum standards of analysis, quality control and therapeutics*. U.S.A. Canada: Santa Cruz.

Van Der Hem, L., Van Der Vliet, A., Bocken, C. F. M., Kino, K., Hoitsma, A. J., & Tax, W. J. M. (1995). Lingzhi-8: Studies of a new immunomodulating agent. *Transplantation*, 60, 438–443.

- Wasser, S. P., & Weis, A. L. (1999). Medicinal properties of substances occurring in higher basidiomycetes mushrooms. *International Journal of Medicinal Mushrooms*. 1, 31-62.
- Wasser, S. P., Coates, P., Blackman, M., Cragg, G., Levine, M., Moss, J., et al., (2005). Encyclopedia of Dietary Supplements: Reishi or Lingzhi (*Ganoderma lucidum*) (pp. 680–90). New York: Marcel Dekker.
- Wachtel-Galor, S., Buswell, J. A., Tomlinson, B., & Benzie, I. F. F. (2004). Lingzhi polyphorous fungus. In Herbal and traditional medicine: *Molecular aspects of health* (pp. 179-228). New York: Marcel Dekker Inc.
- Wachtel-Galor, S., Choi, S. W., & Benzie, I. F. F. (2005). Effect of *Ganoderma lucidum* on human DNA is dose dependent and mediated by hydrogen peroxide. *Redox Report*, 10(3), 145–149.
- Wachtel-Galor S., Yuen J., Buswell J. A., et al., (2011). *Ganoderma lucidum* (Lingzhi or Reishi): A Medicinal Mushroom. In: Benzie IFF, Wachtel-Galor S, editors. *Herbal Medicine: Biomolecular and Clinical Aspects*. (2nd ed.). Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK92757/>
- Watkins, P. J. (2003). *ABC of Diabetes*. London: BMJ Books.
- Wang, H., & Ng, T. B. (2006). Ganodermin, an antifungal protein from fruiting bodies of the medical mushroom. *Ganodermin Iudium. Peptides*. 27(1), 27-30.
- Wang, Y. Y., Khoo, K. H., Chen, S. T, Lin C. C., Wong, C. H., & Lin C. H. (2002). Studies on the immunomodulating and antitumor activities of *Ganoderma lucidum* (Reishi) polysaccharides: Functional and proteomic analyses of a fucose-containing glycoprotein fraction responsible for the activities. *Bioorganic Medical Chemistry*, 10, 1057–1062.

- Wei, D., Williams, D., & Browder. W. (2002a). Activation of AP-1 and SP1correlates with wound growth factor gene expression in glucan-treated human fibroblasts. *International Immunopharmacology*, 2, 1163–1172.
- Wei, D., Zhang, L., Williams, D.L., & Browder, I.W. (2002b). Glucan stimulates human dermal fibroblast collagen biosynthesis through a nuclear factor-1 dependent mechanism. *Wound Repair and Regeneration*, 10, 161–168.
- Werner, S., & Grose, R. (2003). Regulation of wound healing by growth factors and cytokines. *Physiological Reviews*, 83, 835-870.
- Wijeratne, S. S., & Cuppett, S. L. (2006). Lipid hydroperoxide induced oxidative stress damage and antioxidant enzyme response in Caco-2 human colon cells. *Journal of Agriculture Food Chemistry*, 54(12), 4476-4481.
- Willcox, A., Richardson, S.J., Bone, A. J., Foulis, A. K., Morgan, N. G. (2009). Analysis of islet inflammation in human type 1 diabetes. *Chemical and experimental immunology*. 155(2), 173-181.
- Whitney, J. D., & Heitkemper, M. M. (1999). Modifying perfusion, nutrition, and stress to promote wound healing in patients with acute wounds. *Heart Lung*, 28, 123-133.
- Whitting, D. R., Guariguata, L., Well, C., Shaw, J. (2011). IDF Diabetes Atlas: Global estimates of the prevalence of diabetes for 2011 and 2030. *Diabetes Research and Clinical Practice*. (Vol. 94, Issue 3, pp. 311-321).
- Witko-Sarsat, V., Friedlander, M., Capeillère-Blandin, C., Nguyen-Khoa, T., Nguyen, A.T., Zingraff, J., *et al.*, (1996). Advanced oxidation protein products as a novel marker of oxidative stress in uremia. *Kidney International*, 49(5), 1304–1313.
- Wild, S., Roglic, G., Green, A., Sicree, R., & King, H. (2004). Global prevalence of Diabetes. *Diabetes Care*, 27, 1047-1053.

World Health Organization. World Health Statistics. Department of Measurement and Health Information Systems of the Information, Evidence and Research Cluster. Geneva WHO Press; 2008. 29-31.

Wu, Y., & Wang, D. (2009). A new class of natural glycopeptides with sugar moiety-dependent antioxidant activities derived from *Ganoderma lucidum* fruiting bodies. *Journal of Proteomic Research*, 8, 436–442.

Wysocki, A. B., & Grinnell, F. (1990). Fibronectin profiles in normal and chronic wound fluid. *Laboratory Investigation*, 63(6), 825-831.

Xia, D., & Lin, Z B. (1989). Effects of Ganoderma polysaccharides on immune function in mice. *Journal Beijing Medical Univesity*, 21, 533–536.

Yu, Z. H., Yin, L. H, Yang, Q. & Liu, Y., (2009). Effects of *Leutinus edodes* polysaccharide on oxidative stress, immunity activity and oral ulceration of rats stimulated by phenol. *Carbohydrate polymers*, Vol. 75(1) pp. 115-118.

Yue, Q. X., Xie, F. B., Guan, S. H., Ma, C., Yang, M., Jiang, B. H., et al., (2008). Interaction of Ganoderma triterpenes with doxorubicin and proteomic characterization of the possible molecular targets of Ganoderma triterpenes. *Cancer Science*, 99, 1461–1470.

Yuen, J. W., & Gohel, M. D. (2005). Anticancer effects of *Ganoderma lucidum*: A review of scientific evidence. *Nutritional Cancer*, 53, 11–17.

Zhang, H. N., Hea, J. H., Yuan, B. L., & Lin Z. B. (2003). In vitro and in vivo protective effect of Ganoderma lucidum polysaccharides on alloxan-induced pancreatic islets damage. *Life Sciences*, 73: 2307–2319.

Zhang, Q. H., & Lin, Z. B. (1999). The antitumor activity of *Ganoderma lucidum* (*Curt. Fr.*) *P.Karst.* (Ling Zhi) (Aphyllophoromycetideae) polysaccharides is related to Tumor

- Necrosis Factor-a and Interferon-g. *International Journal of Medicinal Mushrooms*, 1, 207–215.
- Zhang, L., Zhang, M., & Chen, J. (2001). Solution properties of antitumor carboxymethylated derivatives of α -(1→3)-D-Glucan from *Ganoderma lucidum*. *China Journal of Polymer Science*, 19, 283–289.
- Zhao, L., Dong, Y., Chen, G., & Hu, H. (2010). Extraction, purification, characterization and antitumor activity of polysaccharides from *Ganoderma lucidum*. *Carbohydrate Polymer*, 80(3), 783–789.
- Zhou, X., Lin, J., Yin, Y., Zhao, J., Sun, X., & Tang, K. (2007). Ganodermataceae: Natural products and their related pharmacological functions. *The American Journal of Chinese Medicine*, 35, 559-574.
- Zhu, Y. P. (1998). *Chinese Materia Medica*. Singapore: Harwood Academic Publishers.