

## References

- Acharya K, Pradhan P (2017) Common Wild Mushrooms of West Bengal: (1-121, i-vi)  
(Published by West Bengal Biodiversity Board, Kolkata)
- Adhikari MK (2000) Mushroom of Nepal, Edited by G. Durrieu, PU Printers, Battisputali,  
Kathmandu, Nepal:236.
- Agrahar-Murugkar D, Subbulakshmi G (2005) Nutritional value of edible wild mushrooms  
collected from the Khasi hills Meghalaya. Food Chem 89(4):599-603.
- Ajith TA, Janardhanan KK (2001) Antioxidant and antiinflammatory activities of methanol  
extract of *Phellinus rimosus*. Indian J Exp Biol 39:1166-1169.
- Akyuz M, Kirbag S (2009) Antimicrobial activity of *Pleurotus eryngii* var. *ferulae* grown on  
various agro-wastes. Eur Asia J Bio Sci 3(8):58-63.
- Aletor VA, Aladetimi OO (1989) Compositional evaluation of some cowpea varieties and  
some underutilized edible legumes in Nigeria. Die Nahrung 33:999-1007.
- Alves MJ, Ferreira ICFR, Froufe HJC, Abreu RMV, Martins A, Pintado M (2013)  
Antimicrobial activity of phenolic compounds identified in wild mushrooms, SAR  
analysis and docking studies. J Appl Microbiol 115:346-357.
- Alves MJ, Froufe HJ, Costa AF, Santos AF, Oliveira LG, Osório SR (2014) Docking studies  
in target proteins involved in antibacterial action mechanisms: Extending the  
knowledge on standard antibiotics to antimicrobial mushroom compounds. Molecules  
19:1672-84.
- Antioxidants Market—Global Industry Analysis, Size, Share, Growth, Trends and Forecast,  
2014-2020. Available online: <http://www.prnewswire.com/news-releases/antioxidants-market-globalindustry-analysis-size-share-growth-trends-and-forecast-2014-2020-300098101.html> (accessed on 26 June 2015).

- Arthur JC, Perez-Chanona E, Muhlbauer M, Tomkovich S, Uronis JM, Ting-Jia Fan, Bampbell BJ, Abujamel T, Dogan B, Rogers AB (2012) Intestinal inflammation targets cancer-inducing activity of the microbiota. *Science* 338:120-123.
- Aung OM, Soyong K, Hyde KD (2008) Diversity of entomopathogenic fungi in rainforests of Chiang Mai province, Thailand. *Fungal Divers* 30:15-22.
- Awadasseid A, Hou J, Gamallat Y (2017) Purification, characterization, and antitumor activity of a novel glucan from the fruiting bodies of *Coriolus versicolor*. *PLoS One* 12:1-15.
- Babu DR, Rao GN (2011) Antioxidant properties and electrochemical behavior of cultivated commercial Indian edible mushrooms. *J Food Sci Technol* 50(2):301-308.
- Bagchi B (2018) Diversity of endophytic fungi in lianas *Combretum roxburghii* from West Medinipur district and its seasonal and regional variation. *Environ Ecol* 36(1):144-150.
- Bagchi B, Banerjee D (2013) Diversity of fungal endophytes in *Bauhinia vahlii* (a lianas) from different regions of Paschim Medinipur district of West Bengal. *Int J Sci Environ Technol* 2(4):748-756.
- Bahadoran Z, Mirmiran P, Azizi F (2013) Dietary polyphenols as potential nutraceuticals in management of diabetes: a review. *J Diabetes Metab Disord* 12:1-9.
- Balouiri M, Sadiki M, Ibsouda SK (2016) Methods for *in vitro* evaluating antimicrobial activity: a review. *J of Pharma Analysis* 6(2):71-79.
- Bano Z (1976) Nutritive value of Indian mushrooms and medicinal practices. *Eco Bot* 31:367-371.
- Bano Z, Rajarathanam S (1982) *Pleurotus* mushrooms as a nutritious food. In: Tropical mushrooms- Biological nature and cultivation methods. Chang ST, Quimio TH (eds). The Chinese University press, Hongkong 363-382.

- Bar H, Bhui D, Sahoo PG, Sarkar P, De PS, Misra A (2009) Green synthesis of silver nanoparticles using latex of *Jatropha curcas*. *Colloids and surfaces A* 339:134-139.
- Barapatre A, Aadil KR, Jha H (2016) Synergistic antibacterial and antibiofilm activity of silver nanoparticles biosynthesized by lignin-degrading fungus. *Bioresour Bioprocess* 3:8.
- Barros L, Baptista P, Correa MD, Mitchell JS, Ferreira ICFR (2007a) Antioxidant activity of Portuguese wild edible mushrooms. *J Agri Food Chem* 55:4781-88.
- Barros L, Calhella RC, Vaz JA, Ferreira ICFR, Baptista P, Estevinho LM (2007b) Antimicrobial activity and bioactive compounds of Portuguese wild edible mushrooms ethanolic extracts. *Euro Food Res Technol* 225:151-156.
- Barros L, Venturini BA, Baptista P, Estevinho LM, Ferreira ICFR (2008) Chemical Composition and Biological Properties of Portuguese Wild Mushrooms: A Comprehensive Study. *J Agric Food Chem* 56:3856-3862.
- Barros L, Dueñas M, Ferreira ICFR, Baptista P, Santos Buelga C (2009) Phenolic acids determination by HPLC-DAD-ESI/MS in sixteen different Portuguese wild mushrooms species. *Food Chem Toxicol* 47:1076-1079.
- Baruah HK, Sing DK, Islam M (1971) On the distribution of higher Basidiomycetes in the Sibsagar district, Assam, *Bull. Bot Surv India* 13(3-4): 285-289.
- Bender S, Dumitrache CN, Backhaus J, Christie G, Cross RF, Lonergan GT, Baker WL (2003) A case for caution in assessing the antibiotic activity of extracts of culinary-medicinal Shiitake mushroom [*Lentinus edodes* (Berk.) Singer] (Agaricomycetidae). *Int J Med Mushrooms* 5:31-35.
- Bernaś E, Jaworska G (2010) Comparison of amino acid content in frozen *P. ostreatus* and *A. bisporus* mushrooms. *Acta Sci Pol Technol Aliment* 9:295-303.

- Bernardshaw S, Johnson E, Hetland G (2005) An extract of the mushroom *Agaricus blazei* Murill administered orally protects against systemic *Streptococcus pneumoniae* infection in mice. *Scand J Immunol* 62:393-398.
- Beattie KD, Rouf R, Gander L, May TW, Ratkowsky D, Donner CD, Gill M, Grice ID, Tiralongo E (2010) Antibacterial metabolites from Australian macrofungi from the genus *Cortinarius*. *Phytochemistry* 71:948-955.
- Bhanja K, Nandan SK, Mandal C, Bhunia S et al. (2012) Isolation and characterization of the immunostimulating beta-glucans of an edible mushroom *Termitomyces robustus* var. *Carbohydr Res* 357:83-89.
- Blois MS (1958) Antioxidant determinations by the use of a stable free radical. *Nature* 181: 1149-1150.
- Blokhina O, Virolainen E, Fagerstedt VK (2003) Antioxidants, oxidative damage and oxygen deprivation stress: A review. *Annals of Botany* 91:179-194.
- Boa E (2004) Wild Edible Fungi. Italy; A Global Overview of Their Use and Importance to people. Rome Food and Agriculture Organization of the United Nations.
- Borkar P, Doshi A, Navathe S (2015) Mushroom diversity of Konkan region of Maharashtra, India. *J of Threatened Taxa* 7(10):7625-7640.
- Bose SR (1921) Possibilities of mushrooms industry in India by cultivation. *Agr J India* 16:643-45.
- Bose SR, Bose AB (1940) An account of edible mushrooms of India. *Sci Cult* 6:141-149.
- Bulakh EM (2001) Medicinal Mushrooms of the Russian far east in nature. *Int J Med Mushr* 3:125.
- Buswell JA, Chang ST (1993) Edible Mushrooms. Attributes and Applications. In: Chang ST, Buswell JA, Miles, PG (eds). *Genetics and Breeding of Edible Mushrooms*. Gordon and Breach, Philadelphia 297-394.

- Butkhup L, Samappito W, Jorjong S (2017) Evaluation of bioactivities and phenolic contents of wild edible mushrooms from northeastern Thailand. *Food Sci Biotechnol* 27:193-202.
- Butler EJ, Bisby GR (1931) *The Fungi of India*. Calcutta, India: Imperial Council of Agriculture Research, India. Scientific Monograph 1:237.
- Caglarirmak N (2011) Edible Mushrooms: An Alternative Food Item. In *Economical and Societal Features*, Proceedings of the 7th International Conference on Mushroom Biology and Mushroom Products (ICMBMP7), Convention Centre, Arcachon, France 548.
- Cassileth BR, Deng G (2004) Complementary and alternative therapies for cancer. *Oncologist* 9:80-90.
- Chan GC, Chan WK, Sze DM (2009) The effects of  $\beta$ -glucan on human immune and cancer cells. *J Hematol Oncol* 2:25.
- Chakraborty N, Dutta A, Pradhan P, Acharya K (2013) *Tulostoma chudaei* Pat An addition to macrofungal flora of India. *J Mycopathol Res* 51:185-187.
- Chandra K, Ghosh K, Roy SK, Mondal S, Maiti D, Ojha AK (2007) A water-soluble glucan isolated from an edible mushroom *Termitomyces microcarpus*. *Carbohydr Res* 342:2484-2489.
- Chang ST, Miles PG (1992) Mushroom biology- A new discipline. *Mycologist* 6:64-65.
- Chang ST, Miles PG (2004) *Mushrooms cultivation, nutritional value, medicinal effect, and environmental impact*. United States, CRC Press.
- Chang YS, Lee SS (2004) Utilization of macrofungi species in Malaysia. *Fungal Divers* 15:15-22.
- Chen H, Ju Y, Li J, Yu M (2012) Antioxidant activities of polysaccharides from *Lentinus edodes* and their significance for disease prevention. *Int J Biol Macromol* 50: 214-218.

- Cheung LM, Cheung PC, Ooi VE (2003) Antioxidant activity and total phenolics of edible mushroom extracts. *Food Chem* 81: 249-255.
- Cheung PCK (1998) Plasma and hepatic cholesterol levels and fecal neutral sterol excretion are altered in hamsters fed straw mushroom diet. *J Nutri* 128:1512-1516.
- Chung MJ, Chung CK, Jeong Y, Ham SS (2010) Anticancer activity of subfractions containing pure compounds of Chaga mushroom (*Inonotus obliquus*) extract in human cancer cells and in Balbc/c mice bearing Sarcoma-180 cells. *Nutr Res Pract* 4:177-182.
- Chihara G, Hamuro J, Maeda Y, Arai Y, Fukuoka F (1970) Fractionation and purification of the polysaccharides with marked antitumor activity, especially lentinan, from *Lentinus edodes*. *Cancer Res* 30:2776-2782.
- Colorectal Cancer Incidence and Mortality Worldwide in 2012 (2013) Globocan Cancer Fact Sheet. Globocan. IARC.
- Cosgrove SE, Carmeli Y (2003) The impact of antimicrobial resistance on health and economic outcomes. *Clin Infect Dis* 36:1433-1437.
- Cragg GM, Newman D (2001) Natural product drug discovery in the next millennium. 8-17.
- Crisan EW, Sands (1978) A nutritional value. In: Chang ST, Hayes WA (eds). *The biology and cultivation of edible mushrooms*. Academic press, New York 172-189.
- Cui J, Chisti Y (2003) Polysaccharopeptides of *Coriolus versicolor*: physiological activity, uses, and production. *Biotechnol Adv* 21:109-122.
- Da Silva EJ (2005) Mushroom in medicine and culture. *Int. J. Med. Mushrooms* 7:75-78.
- Das K (2010) Diversity and conservation of wild mushrooms in Sikkim with special reference to Barsey rhododendron sanctuary of central India. *NeBIO An Int J Environ Biodiver* 1(2):69-76.

- De Barros MP, Lemos M, Maistro ML, Leite MF, Sousa JPB, Bastos JK *et al.* (2008) Evaluation of antiulcer activity of the main phenolic acids found in Brazilian Green Propolis. *J Ethnopharmacol* 120:372-377.
- Deb D, Malhotra KC (1993) People's participation, Evolution of joint forest management in South West Bengal. In, *People of India, Biocultural dimensions* 329-342.
- Decker EA (1997) Phenolics: prooxidants or antioxidants? *Nutr Rev* 55:396-407.
- Deka AC, Sarma I, Dey S, Sarma TC (2007) Antimicrobial Properties and Phytochemical Screening of Some Wild Macrofungi of Rani-Garbhangra Reserve Forest Area of Assam, India. *Adv Appl Sci Res* 8(3):17-22.
- Delena T (1999) *Edible and useful plants of Texas and South west –A practical guide* university of Texas press 542.
- Deshmukh SK (2004) Biodiversity of Tropical Basidiomycetes as Sources of Novel Secondary Metabolites. In P. C. Jain (Ed.), *Microbiology and Biotechnology for Sustainable Development* (121-140). New Delhi: CBS Publishers and Distributors.
- Deshmukh SK, Natarajan K, Verekar SA (2006) Poisonous and hallucinogenic mushrooms of India. *Int J Med Mushrooms* 8: 251-262.
- Diaz JH (2005) Syndromic diagnosis and management of confirmed mushroom poisonings. *Crit Care Med* 33:427-436.
- Dimitrijevic MV, Mitic VD, Jovanovic OP, Stankov Jovanovic VP, Nikolic JS, Petrovic GM, Stojanovic GS (2018) Comparative Study of Fatty Acids Profile in Eleven Wild Mushrooms of Boletaceae and Russulaceae Families. *Chem Biodivers* 15(1)1-9.
- Doğan HH, Akbaş G (2013) Biological activity and fatty acid composition of Caesar's mushroom. *Pharm Biol* 51(7):863-871.
- Dowhan W (1992) Phosphatidyl glycerophosphate synthase from *Escherichia coli*. *Methods Enzymol* 209:313-321.

- Dulger B, Ergul CC, Guçin F (2002) Antimicrobial activity of the macrofungus *Lepista nuda*. *Fitoterapia* 73: 695–697.
- Duncan C, Pugh J, Pasco G, David N, Ross S, Samir A (2002) Isolation of a galactomannan that enhances macrophage activation from the edible fungus *Morchella esculenta*. *J Agric Food Chem* 50:5683-5685.
- Durán N, Marcato PD, De Souza DIH, Alves OL, Esposito E (2007) Antibacterial Effect of Silver Nanoparticles Produced by Fungal Process on Textile Fabrics and Their Effluent Treatment. *J Biomed Nanotechnol* 3:203-208.
- Dutta AK, Acharya K (2014) Traditional and ethno-medicinal knowledge of mushrooms in West Bengal, India. *Asian J Pharm Clin Res* 7(4):36-41.
- Dutta AK, Pradhan P, Basu SK, Acharya K (2013) Macrofungus diversity and ecology of the mangrove ecosystem in the Indian part of Sundarbans. *Biodiversity* 14(4):196-206.
- Dutta AK, Paloi S, Pradhan P, Acharya K (2015) A new species of *Russula* (Russulaceae) from India based on morphological and molecular (ITS sequence) data. *Turk J Bot* 39: 850-856.
- Dwivedi S, Tiwari MK, Chauhan UK, Pandey AK (2012) Bio Diversity of mushrooms of Amarkantak Biosphere Reserve forest. *Int J Pharm Life Sci* 3:1363-1367.
- Elmastas M, Isildak O, Turkekul I, Temur N (2007) Determination of antioxidant activity and antioxidant compounds in wild edible mushrooms. *J Food Comp Anal* 20:337-345.
- Etim VA, Abubakar S, Asemota UK, Okereke OE, Ogbadu GH (2014) Evaluation of pharmacological potentials of the ethanolic extract of a mushroom (*Ganoderma lucidum*) grown in FCT. *Indian J Pharma Biol Res.* 2.
- FAO (2004) Wild Edible Fungi, a Global Overview of Their Use and Importance to People. Non-Wood Forest Products 17. Food and Agriculture Organization of the United Nations, Rome, Italy.



- Fakas S, Papapostolou I, Papanikolaou S, Georgiou C (2008) Susceptibility to peroxidation of the major mycelial lipid of *Cunninghamella echinulata*. *Eur J Lipid Sci Tech* 110(11):1062-1067.
- Fang N, Li Q, Yu S, Zhang J, He L, Ronis MJ (2006) Inhibition of growth and induction of apoptosis in human cancer cell lines by an ethyl acetate fraction from shiitake mushrooms. *J Altern Complement Med* 12:125–132.
- Fasidi IA, Olorunmaiye KS (1994) Studies on the requirements for vegetative growth of *Pleurotus tuber-regium* (Fr) Singer. *Mushroom Food Chem* 50:397-401.
- Ferguson LR, Lima IF, Pearson AE, Ralph J, Harris PJ (2003) Bacterial antimutagenesis by hydroxycinnamic acids from plant cell walls. *Mutat Res* 2542:49-58.
- Ferreira IC, Baptista P, Vilas-Boas M, Barros L (2007) Free-radical scavenging capacity and reducing power of wild edible mushrooms from northeast Portugal: individual cap and stipe activity. *Food Chem* 100:1511-1516.
- Ferreira ICFR, Barros L, Abreu RMV (2009) Antioxidants in wild mushrooms. *Curr Med Chem* 16:1543-1560.
- Ferreira IC, Vaz JA, Vasconcelos MH, Martins A (2010) Compounds from wild mushrooms with antitumor potential. *Anticancer Agents Med Chem* 10(5):424-36.
- Ferreira IC, Heleno SA, Reis FS, Stojkovic D, Queiroz MJ, Vasconcelos MH, Sokovic M (2015) Chemical features of Ganoderma polysaccharides with antioxidant, antitumor and antimicrobial activities. *Photochemistry* 114:38-55.
- Folch J, Lees M, Sloane Stanely GH (1957) A simple method for the isolation and purification of total lipids from animal tissues. *J Biol Chem* 226:497-509.
- Fowler VG, Miro JM, Hoen B, Cabell CH, Abrutyn E, Rubinstein E, Corey GR, Spelman D, Bradley SF, Barsic B, Pappas PA, Anstrom KJ, Wray D, Fortes CQ, Anguera I, Athan

- E, Jones P, van der Meer JT, Elliott TS, Levine DP, Bayer AS (2005) *Staphylococcus aureus* endocarditis: a consequence of medical progress. JAMA 293:3012-3021.
- Freire Moran L, Aronsson B, Manz C et al. (2011) “Critical shortage of new antibiotics in development against multidrug-resistant bacteria - Time to react is now,” Drug Resistance Updates 14(2):118-124.
- Fuchs FD (2004) Princípios Gerais do Uso de Antimicrobianos. In: Fuchs F, Wannamacher L, Ferreira M, editors. Farmacologia Clínica – Fundamentos da terapêutica Racional, 3rd edition. Rio de Janeiro: Guanabara Koogan 342.
- Futatsuyama H, Toshifumi YUI, Ogawa K (1999) Viscometry of Curdlan, a Linear (1→3)-β-D-Glucan, in DMSO or Alkaline Solutions. Biosci Biotechnol Biochem 63:1481-1483.
- Gareth JEB (1990) Edible Mushrooms in Singapore and other South-East Asian countries. The Mycologist 4:119-124.
- Gebreyohannes G, Nyerere A, Bii C, Sbhatu DB (2019) Determination of Antimicrobial Activity of Extracts of Indigenous Wild Mushrooms against Pathogenic Organisms, Evidence-Based Complementary and Alternative Medicine 1-7.
- Gezer K, Duru ME, Kivrak I, Turkoglu A, Mercan N, Turkoglu H, Gulcan S (2006) Free-radical scavenging capacity and antimicrobial activity of wild edible mushroom from Turkey. Afr J Biotechnol 5:1924-1928.
- Ghosh SK, Mitra S, Mukherjee S (2016) Study of Jelly Mushroom - *Tremella fuciformis* In 24- Parganas (N), West Bengal, India. Aust J Basic Appl Sci 10(12):457-461.
- Giri S, Biswas G, Pradhan P, Mandal SC, Acharya K (2012) Antimicrobial activities of basidiocarps of wild edible mushrooms of west Bengal, India. Int J Pharm Tech Res 4(4):1554-1560.

- Griffin PM, Tauxe RV (1991) The epidemiology of infections caused by *Escherichia coli* O157:H7, other enterohemorrhagic *E. coli*, and the associated hemolytic uremic syndrome. *Epidemiologic Review* 13:60-98.
- Griffin PM, Ostroff SM, Tauxe RV, Greene KD, Wells JG, Lewis JH, Blake PA. 1988. Illnesses associated with *Escherichia coli* O157:H7 infections. A broad clinical spectrum. *Ann Intern Med* 109:705-712.
- Gunde-Cimmerman N (1999) Medicinal value of the genus *Pleurotus* (fr). P Karst (Agaricales s.l. Basidiomycetes). *Int J Med Mush* 1:69-80.
- Gupta KK, Agarwala RK, Kumar S, Seth PK (1974) Gasteromycetes of Himachal Pradesh. *Indian Phytopath* 27:45-48.
- Guzmán M, Jean GD, Stephan G (2009) Synthesis of silver nanoparticles by chemical reduction method and their antibacterial activity. *Int J Chem Biomol Eng* 2: 104-111.
- Hammond H (2003) Ecosystem-based management is high-yield forestry. *Ecoforestry* 18(3): 6-8.
- Hara C, Kumazawa Y, Inagaki K, Kaneko M, Kiho T, Ukai S (1991) Mitogenic and colony-stimulating factor-inducing activities of polysaccharide fractions from the fruit bodies of *Dictyophora indusiata* Fisch. *Chem Pharm Bull* 39:1615-1616.
- Harbarth S, Harris AD, Carmeli Y, Samore MH (2001) Parallel analysis of individual and aggregated data on antibiotic exposure and resistance in gram-negative bacilli. *Clin Infect Dis* 33:1462-1468.
- Harsh NSK, Rai BK, Ayachi SS (1993) Forest Fungi and Tribal Economy- A Case Study in Baiga tribe of Madhya Pradesh (India). *J Trop Forestry* 9:270-279.
- Hatvani N (2001) Antibacterial effect of the culture fluid of *Lentinus edodes* mycelium grown in submerged liquid culture. *Int J Antimicrob Agents* 17:71-74.

- Hawksworth DL (1991) The fungal dimension of biodiversity, magnitude and significance and conservation. *Mycol Res* 641-655.
- Hawksworth DL (2001) The magnitude of fungal diversity: the 1.5 million species estimate revisited. *Mycol Res* 105:1422-1432.
- He PX, Li FL, Huang LN, Xue DD, Liu W, Xu CP (2016) Chemical characterization and antioxidant activity of polysaccharide extract from spent mushroom substrate of *Pleurotus eryngii*. *J Taiwan Inst Chem Eng* 69:48-53.
- He XR, Wang XX, Fang JC, Chang Y, Ning N, Guo H, Huang LH, Huang XQ, Zhao ZF (2017) Polysaccharides in *Grifola frondosa* mushroom and their health promoting properties: A review. *Int J Biol Macromol* 101:910-921.
- Hearst R, Nelson D, McCollum G, Millar BC, Maeda Y, Goldsmith CE, Rooney PJ, Loughrey A, Rao JR, Moore JE (2009) An examination of antibacterial and antifungal properties of constituents of Shiitake (*Lentinula edodes*) and Oyster (*Pleurotus ostreatus*) mushrooms. *Complement Ther Clin Pract* 15:5-7.
- Heleno SA, Carolina, Ferreira RC, Antonio AL, Queiroz Maria-Joao, Barros L, Ferreira I (2015) Nutritional value, bioactive compounds and antioxidant properties of three edible mushrooms from Poland. *Food Biosci* 11.10.1016/j.fbio.2015.04.006.
- Heleno SA, Barros L, Sousa MJ, Martins A, Santos-Buelga C, Ferreira ICFR (2011) Targeted metabolites analysis in wild Boletus species. *LWT Food Sci Technol* 44:1343-1348.
- Heleno SA, Barros L, Martins A, Queiroz MJRP, Santos-Buelga C, Ferreira ICFR (2012) Fruiting body spores and in vitro produced mycelium of *Ganoderma lucidum* from Northeast Portugal: a comparative study of the antioxidant potential of phenolic and polysaccharidic extracts. *Food Res Int* 46:135-140.
- Hibbett DS, Binder M, Bischoff JF (2007) A higher-level phylogenetic classification of the Fungi. *Mycol Res* (3):509-547.

- Hirasawa M, Shouji N, Neta T, et al. (1999) Three kinds of antibacterial substances from *Lentinus edodes* (Berk.) Sing. (Shiitake an edible mushroom). *Int J Antimicrob Agents* 11:151-157.
- Hirabayashi T, Larson TJ, Dowhan W (1976) Membrane-associated phosphatidylglycerophosphate synthetase from *Escherichia coli*: purification by substrate affinity chromatography on cytidine 5'-diphospho-1,2-diacyl-sn-glycerol sepharose. *Biochemistry* 15:5205-5211.
- Hsieh HM, Ju YM (2018) Medicinal components in *Termitomyces* mushrooms. *Appl Microbiol Biotechnol* 102.
- Huang N (1982) Cultivation of *Tremella fuciformis* in Fujian, China. *Mushroom Newsletter for the Tropics* 2:2-5.
- Hyde KD, Bussaban B, Paulus B, Crous PW, Lee S, Mckenzie EHC, Photita W, Lumyong S (2001) Diversity of saprobic microfungi. *Biodivers Conserv* 16:7-35.
- Ishikawa NK, Fukushi Y, Yamaji K, Tahara S, Takahashi K (2001) Antimicrobial Cuparene-type sesquiterpenes, Enokipodins C and D, from a mycelial culture of *Flammulina velutipes*. *J Nat Prod* 64:932-934.
- Iwalokun BA, Usen UA, Otunba AA, Olukoya DK (2007) Comparative phytochemical evaluation, antimicrobial and antioxidant properties of *Pleurotus ostreatus*. *Afr J Biotechnol* 6(15):1732-1739.
- Jagadeesh R, Raaman N, Periyasamy K, Hariprasath L, Thangaraj R, Srikumar R, Ayyappan SR (2010) Proximate analysis and antibacterial activity of edible mushroom *Volvariella bombycina*. *Int J Microbiol Res* 1(3):110-113.
- Jedinak A, Sliva D (2008) *Pleurotus ostreatus* inhibits proliferation of human breast and colon cancer cells through p53-dependent as well as p53- independent pathway. *Int J Oncol* 33:1307-1313.

- Jerga A, Lu YJ, Schujman GE, De Mendoza D, Rock CO (2007) Identification of a soluble diacylglycerol kinase required for lipoteichoic acid production in *Bacillus subtilis*. *J Biol Chem* 282:21738-21745.
- Jemal A, Bray F, Center MM (2011) Global cancer statistics. *Cancer J Clin* 61:69-90.
- Jin X, Ruiz Beguerie J, Sze DM, Chan GC (2012) *Ganoderma lucidum* (Reishi mushroom) for cancer treatment. *Cochrane Database Syst Rev*. 13(6).
- John S (2005) Medicinal mushrooms: their therapeutic properties and current medical usage with special emphasis on cancer treatments. *Med Mushrooms Cancer*.
- Johnsy G, Davidson Sargunam S, Dinesh MG, Kaviyarasan V (2011) Nutritive Value of Edible Wild Mushrooms Collected from the Western Ghats of Kanyakumari District. *Bot Res Int* 4(4):69-74.
- Johnsy G, Kaviyarasan V (2015) Fatty Acids and Vitamin Composition of Indigenous Isolates of *Termitomyces microcarpus* and *T. heimii*. *Indo Am J Pharm Sci* 2(3):731-736.
- Jones KE, Patel NG, Levy MA, Storeygard A, Balk D, Gittleman JL, Daszak P (2008) Global trends in Infectious diseases. *Nature* 451(7181): 990-993.
- Jones S, Janardhanan KK (2000) Antioxidant and antitumor activity of *Ganoderma lucidum* (cult ex Fr.). P. Karst-Reshi (Aphyllophoromycetieae) from south India. *Int J Med Mushr* 2:195-200.
- Jose N, Janardhanan KK (2000) Antioxidant and antitumor activity of *Pleurotus florida*. *Curr Sci* 79:941-943.
- Kabir Y, Kimura S, Tamura T (1988) Dietary effect of *Ganoderma lucidum* mushroom on blood pressure and lipid levels in spontaneously hypertensive rats (SHR). *J Nutr Sci Vitaminol* 34:433-438.

- Kajendran M, Balaji SS, Sathya S (2018) Cultivation and determination of nutritional value on edible mushroom *Pleurotus ostreatus* European J Biotechnol Biosci 6(3):40-44.
- Kalač P (2009) Chemical composition and nutritional value of European species of wild growing mushrooms: A review. Food Chem 113:9-16.
- Kalava SV, Menon SG (2012) *In vitro* free radical scavenging activity of aqueous extract from the mycelia of *Volvariella volvacea* (Bulliard Ex Fries) Singer. Int Curr Pharm Res 4(3):94-100.
- Kalyoncu F, Oskay M, Salam H, Erdogan TF, Tamer AÜ (2010) Antimicrobial and antioxidant activities of mycelia of 10 wild mushroom species. J MedFood 13:415-419.
- Kamble R, Venkata S, Gupta AM (2011) Antimicrobial activity of *Ganoderma lucidum* mycelium. J Pure Appl Microbio 5(2):983-986.
- Kaper JB, Nataro JP, Mobley HLT (2004) Pathogenic *Escherichia coli*. Nat Rev Microbiol 2: 123-140.
- Kapteyn JC, Montijn RC, Dijkgraaf GJP, Van den Ende H, Klis FM (1995) Covalent association of  $\beta$ -1,6-glucan glucosylated mannoproteins in cell walls of *Candida albicans*. J Bacteriol 177:3788- 3792.
- Kaul TN (2002) Conservation of Mycodiversity in India: An Appraisal. In: Watling R, Frankland JC, Ainsworth AM, Isaac S, Robinson CH (eds). Trop Mycol 1:131-147.
- Kavishree S, Hemavathy J, Lokesh BR, Shashirekha MN, Rajarathnam S (2008) Fat and fatty acids in Indian edible mushrooms. Food Chem 106:597-602.
- Kelley LA, Mezulis S, Yates CM, Wass MN, Sternberg MJ (2015) The Phyre2 web portal for protein modeling, prediction and analysis. Nat Protoc 10(6):845-858.
- Khan FY, Abu Khattab M, Baagar K, Mohamed SF, Elgendy I, Anand D, Malallah H, Sanjay D (2013) Characteristics of patients with definite septic arthritis at Hamad General Hospital, Qatar: a hospital-based study from 2006 to 2011. Clin Rheumatol 32:969-973.

- Khatua S, Paul S, Acharya K (2013) Mushroom as the potential source of new generation of antioxidant: A review. *Res J Pharm Technol* 6:496-505.
- Khatua S, Dutta AK, Chandra S, Paloi S, Das K, Acharya K (2017) Introducing a novel mushroom from mycophagy community with emphasis on biomedical potency. *PLoS ONE* 12(5).
- Khaund P, Joshi SR (2013) Wild edible macrofungal species consumed by the Khasi tribe of Meghalaya, India. *Indian J Nat Prod Resour* 4:197-204.
- Khoddami A, Wilkes MA, Roberts TH (2013) Techniques for analysis of plant phenolic compounds. *Mol* 18:2328-2375.
- Khot M, Ghosh D (2017) Lipids of *Rhodotorula mucilaginosa* IIP32 with biodiesel potential: oil yield, fatty acid profile, fuel properties. *J Basic Microbiol* 57(4):345-352.
- Kim BK, Kim HW, Choi EC (1993) Anti-HIV activity of *Ganoderma lucidum*. *J Biol Chem* 264:472-478.
- Kim Y, Han L, Lee H, Ahn H, Yoon Y, Jung J et al. (2005) Immuno-stimulating effect of the endo-polysaccharide produced by submerged culture of *Inonotus obliquus*. *Life Sci* 77:2438-2456.
- Kim MY, Seguin P, Ahn JK, Kim JJ, Chun SC, Kim EH, Seo SH, Kang EY et al. (2008) Phenolic compound concentration and antioxidant activities of edible and medicinal mushrooms from Korea. *J Agric Food Chem* 56:7265-7270.
- Kim S, Paul AT, Bolton EE (2016) PubChem Substance and Compound databases. *Nucleic Acids Res* 44:1202-1213.
- Kino KY, Yamaoka K., Watanabe J, Kotk SK, Tsunoo H (1989) Isolation and characterization of a new immunomodulatory protein Zhi-8 (LZ-8) from *Ganoderma lucidum*. *J Biol Chem* 264:472-478.



- Kolayli S, Huseyin S, Rezzan A, Ertugrul S (2012) Phenolic components and antioxidant activity of three edible wild mushrooms from Trabzon, Turkey. *Chemistry of Natural Compounds* 48(1):137-140.
- Kong CS, Jeong CH, Choi JS, Kim KJ, Jeong JW (2013) Antiangiogenic effects of *p*-coumaric acid in human endothelial cells. *Phytother Res* 27:317-323.
- Kozarski M, Klaus A, Niksic M, Jakovljevic D, Helsper JPF, VanGriensven LJLD (2011) Antioxidative and immunomodulating activities of polysaccharide extracts of the medicinal mushrooms *Agaricus bisporus*, *Agaricus brasiliensis*, *Ganoderma lucidum* and *Phellinus linteus*. *Food Chem* 129:1667-1675
- Kozarski MS, Klaus AS, Niksic MP, VanGriensven LJLD, Vrvic MM, Jakovljevic DM (2014) Polysaccharides of higher fungi: Biological role, structure and antioxidative activity. *Chem Ind* 68:305-320.
- Krishnaraj C, Jagan EG, Rajasekar S, Selvakumar P, Kalaichelvan PT (2010) Synthesis of silver nanoparticles using *Acalypha indica* leaf extracts and its antibacterial activity against water borne pathogens. *Colloids Surf B Biointerfaces* 76:50-56.
- Kuete V, Nana F, Ngameni B, Mbaveng AT, Keumedjio F, Ngadjui BT (2009) Antimicrobial activity of the crude extract, fractions and compounds from stem bark of *Ficus ovata* (Moraceae). *J Ethnopharmacol* 124:556-561.
- Kumar M, Kaviyaran V (2012) Distribution of *Lentinus tuber-regium* (Fr.), an indigenous edible medicinal mushroom in Tamil Nadu, South India. *J Acad Indus Res* 1(6).
- Kumar R, Tapwal A, Pandey S, Borah RK, Borah D, Borgohain J (2013) Macro-fungal diversity and nutrient content of some edible mushrooms of Nagaland, India. *Nusantara Biosci* 5(1):1-7.

- Kumar S, Sharma YP (2011) Diversity of wild mushrooms from Jammu and Kashmir (India). Proceedings of the 7th International Conference on Mushroom Biology and Mushroom Products (ICMBMP7):568-577.
- Kumar M, Harsh NSK, Prasad R, Pandey VV (2017) An ethnomycological survey of Jaunsar, Chakrata, Dehradun, India. J Threat Taxa 9(9):10717-10725.
- Kumari D, Reddy MS, Upadhyay RC (2011) Antioxidant activity of three species of wild mushroom genus *Cantharellus* collected from North-Western Himalaya, India. Int J Agric Biol 13:415-418.
- Kumari SG, Kumari R, PK, Geetha S (2017) In vitro antioxidant and antimicrobial activity of edible mushroom (*Termitomyces heimii*). Int J Dev Res 07(12):17531-17535.
- Kües U, Liu Y (2000) Fruiting body production in Basidiomycetes. Appl Microbiol Biotechnol 54:141-152.
- Lairon D, Amiot MJ (1999) Flavonoids in food and natural antioxidants in wine. Curr Opin Lipidol 10:23-28.
- Lakshmi B, Ajith TA, Sheena M, Nidhi G, Janardhanan KK (2003) Antiperoxidative, anti-inflammatory and antimutagenic activities of ethanol extract of the mycelium of *Ganoderma lucidum* occurring in South India. Teratogen Carcinogen Mutagen 22:1-13.
- Larkin MA, Blackshields G, Brown NP, Chenna R, McGettigan PA, William HM, Valentin F, Wallace IM, Wilm A, Lopez R, Thompson JD, Gibson TJ, Higgins DG (2007) Clustal W and clustal X version 2.0. Bioinformatics 23:2947-2948.
- Laskowski RA, Watson JD, Thornton JM (2005) ProFunc: a server for predicting protein function from 3D structure. Nucleic Acids Res 33:89-93.
- Lee DS, Woo JY, Ahn CB, Je JY (2014) Chitosan-hydroxycinnamic acid conjugates: Preparation, antioxidant and antimicrobial activity. Food Chem 148:97-104.

- Lee SJ, Yeo WH, Yun BS, Yoo ID (1999) Isolation and sequence analysis of new peptaibol, boletusin, from *Boletus* spp. J Pept Sci 5(8):374-378.
- Lei M, Sun SS, Li R, Shen ZP, Wang P, Jiang XL (2015) Antioxidant activity of polysaccharides produced by *Hirsutella* sp. and relation with their chemical characteristics. Carbohydr Polym 117:452-457.
- Li HJ, Zhang DH, Yue TH, Jiang LX, Yu X, Zhao P, Li T, Xu JW (2016) Improved polysaccharide production in a submerged culture of *Ganoderma lucidum* by the heterologous expression of vitreoscilla hemoglobin gene. J Biotechnol 217:132-137.
- Liang Z, Yuan Z, Guo J, Wu J, Yi J, Deng J, Shan Y (2019) *Ganoderma lucidum* Polysaccharides Prevent Palmitic Acid-Evoked Apoptosis and Autophagy in Intestinal Porcine Epithelial Cell Line via Restoration of Mitochondrial Function and Regulation of MAPK and AMPK/Akt/mTOR Signaling Pathway. Int J Mol Sci 20(3):478.
- Lindequist U, Niedermeyer THJ, Julich WD (2005) The pharmacological potential of mushrooms. Evid Based Complement Alternat Med 2:285-299.
- Lintzel W (1941) The nutritional value of edible mushroom proteins. Biochem Acta 308: 413-419.
- Liu FO, Chang ST (1995) Antitumor components of culture filtrates from *Tricholoma* sp. World J Microbiol Biotechnol 11:486-490.
- Liu C, Xie H, Su B, Han J, Liu Y (2003) Anti-thrombus effect on the fermented products of mycelium from *Tremella aurantialba*. Natural Product Res Dev 3:35-37.
- Liu XC, Zhu ZY, Tang YL, Wang MF, Wang Z, Liu AJ, Zhang YM (2016) Structural properties of polysaccharides from cultivated fruit bodies and mycelium of *Cordyceps militaris*. Carbohydr Polym 142:63-72.

- Lo CT, Cheng AC, Chiu KH, Tsay PK, Jen JF (2011) Correlation evaluation of antioxidant properties on the monosaccharide components and glycosyl linkages of polysaccharide with different measuring methods. *Carbohydr Polym* 86:320-327.
- Lodge DJ, Bayman P, Lebrón LL, Tremblay RL (1997) Variation in endophytic fungi from roots and leaves of *Lepanthes* sp. (Orchidaceae). *New Phytol* 135:143-149.
- Loganathan JK, Gunasundari D, Hemalatha M, Shenbhagaraman R, Kaviyaran V (2010) Antioxidant and phytochemical potential of wild edible mushroom *Termitomyces reticulatus*: individual cap and stipe collected from south eastern part of India. *Int J Pharma Sci Res* 1(7):62-72.
- Loganathan KJ, Ramalingam S, Venkatasubbu V, Venketesan KM (2008) Studies on the phytochemical, antioxidant and antimicrobial properties of three indigenous *Pleurotus* species. *J Mol Biol Biotech* 1:20-29.
- Longvah T, Deosthale YG (1998) Compositional and nutritional studies on edible wild mushrooms from northeast India. *Food chem* 64(3):331-334.
- Lou Z, Wang H, Rao S, Sun J, Ma C and Li J (2012) *p*-Coumaric acid kills bacteria through dual damage mechanisms. *Food Control* 25:550-554.
- Lowry OH, Rosebrough NJ, Farr AL, Randall RJ (1951) Protein measurement with the Folin phenol reagen. *J Biol Chem* 193:265-275.
- Lowy B (1971) New records of mushroom stories in Guatemala. *Mycologia* 63:983.
- Lu YY, Ao ZH, Lu ZM, Xu HY, Zhang XM, Dou WF, Xu ZH (2008) Analgesic and anti-inflammatory effects of the dry matter of culture broth of *Termitomyces albuminosus* and its extracts. *120(3):432-436*.
- Lucas EH (1957) Tumor inhibition in *Boletus edulis* and other Holobasidiomycetes. *Antibiotic Chemotherapy* 7(1):4.

- Lund RG, Del Pino FAB, Serpa R, Nascimento JS, Silva VM, Ribeiro GA, Rosalen PL (2009) *Agaricus brasiliensis* against mutans streptococci. *Pharm Biol* 47:910-915.
- Maga JA (1981) Mushroom flavour. *J Agric Food Chem* 29:1-4.
- Maity S, Bhunia SK, Sen IK, Mandal EK, Maity K, Behera B, et al. (2013) A heteropolysaccharide from an edible hybrid mushroom pfl: structural and immunostimulating studies. *Carbohydr Res* 374:89-95.
- Maity P, Samanta S, Nandi AK, Sen IK, Paloi S, Acharya K, Islam SS (2014a) Structure elucidation and antioxidant properties of a soluble  $\beta$ -d-glucan from mushroom *Entoloma lividoalbum*. *Int J Biol Macromolecul* 63:140-149.
- Maity P, Nandi AK, Sen IK, Pattanayak M, Chattopadhyay S, Dash SK, Roy S, Acharya K, Islam SS (2014b) Heteroglycan of an edible mushroom *Entoloma lividoalbum*: Structural characterization and study of its protective role for human lymphocytes. *Carbohydr Polym* 114:157-165.
- Malek Abd SN, Kanagasabapathy G, Sabaratnam V, Abdullah N, Yaacob H (2012) Lipid Components of a Malaysian Edible Mushroom, *Termitomyces heimii* Natarajan. *Int J Food Pro* 15(4):809-814.
- Malhotra KC, Deb D, Dutta M, Vasulu T, Adhikari M, Yadav G (1993) Role of non-timber forest produce in village economy. Mimeo. Calcutta, Indian Institute of Bio-social Research and Development.
- Mallavadhani UV, Sudhakar AVS, Sathyanarayana KVS, Mahapatra A, Li W, Richard B (2006) Chemical and analytical screening of some edible mushrooms. *Food Chem* 95:58-64.
- Manjunathan J, Kaviyaran V (2011) Nutrient composition in wild and cultivated edible mushroom, *Lentinus tuber-regium* (Fr.) Tamil Nadu, India. *Int Food Res J* 18:59-61.

- Manjunathan J, Subbulakshmi N, Shanmugapriya R, Kaviyarasan V (2011) Proximate and mineral composition of four edible mushroom species from South India. *Int. J. Biodivers. Conserv.* 3(8):386-388.
- Manna D, Nandi A, Pattanayak M, Maity P, Tripathy S, Mandal A, Roy S, Tripathy SS, Gupta N, Islam SS (2015) A water soluble  $\beta$ -glucan of an edible mushroom *Termitomyces heimii*: structural and biological investigation. *Carbohydr Polym* 134:375-384.
- Manoharachary C, Sridhar K, Singh R, Adholeya A, Suryanarayanan TS, Rawat S, Johri BN (2005) Fungal diversity: Distribution, conservation and prospecting of fungi from India. *Curr Sci* 89:58-71.
- Manzi PA, Agguzzi A, Pizzoferrato L (2001) Nutritional mushrooms widely consumed in Italy. *Food Chem* 73:321-325.
- Margalef R (2008) Correspondence between the classic types of lakes and the structural and dynamic properties of their population. *Verhandlungen der International en Vereinigung für Theoretische und Angewandte Limnologie* 15:169-170.
- Martinac B, Saimi Y, Kung C (2008) Ion Channels in microbes. *Physiol Rev* 88(4):1449-90.
- Mathew S, Abraham TE, Zakaria ZA (2015) Reactivity of phenolic compounds towards free radicals under in vitro conditions. *J Food Sci Technol* 52:5790-5798.
- Mattila P, Konko K, Eurola M, Pihlava JM, Astola J, Vahteristo L, Hietaniemi V, Kumpulainen J et al. (2001) Contents of vitamins, mineral elements and some phenolic compounds in cultivated mushrooms. *J Agric Food Chem* 49:2343-2348.
- Mau JL, Chao GR, Wu KT (2001) Antioxidant properties of methanol extracts from several ear mushrooms. *J Agric Food Chem* 49:5461-5467.

- Mazzutti S, Ferreira SRS, Riehl CAS, Smania A, Smania FA, Martínez J (2012) Supercritical fluid extraction of *Agaricus brasiliensis*: antioxidant and antimicrobial activities. *J Supercrit Fluids* 70:48-56.
- Meda A, Lamien CE, Romito M, Millogo J, Nacoulma OG (2005) Determination of the total phenolic, flavonoid and proline contents in Burkina Fasan honey, as well as their radical scavenging activity. *Food Chem* 91:571-577.
- Miles PG, Chang ST (1997) *Mushroom biology - concise basics and current developments*. Singapore: World Scientific.
- Mitra P, Mandal NC, Acharya K (2015) Biocomponents and Bioprospects of Ethanolic Extract of *Termitomyces heimii*. *Asian J Pharma and Clin Res* 8(3):331-334.
- Mitra P, Mandal NC, Acharya K (2016) Polyphenolic extract of *Termitomyces heimii*: antioxidant activity and phytochemical constituents. *J Consumer Protection and Food Safety* 11(1):25-31.
- Mizuno T (2000) Development of an antitumour biological response modifier from *Phellinus linteus* (Berk. Et Curt.) Teng (Aphyllorphomycetidae) (Review). *Int J Med Mushrooms* 2:21-33.
- Mohammad MR, Rahaman A, Taslima N, Borhan U, Mafroz AB, Shahdat H (2013) Antioxidant and Antimicrobial Activity of *Pleurotus florida* Cultivated in Bangladesh, *J Med Plants Stud* 1(3):166-175.
- Mondal A, Banerjee D, Majumder R, Maity TK, Khowala S (2016) Evaluation of in vitro antioxidant, anticancer and in vivo antitumor activity of *Termitomyces clypeatus* MTCC 5091. *Pharm Biol* 54(11):2536-2546.
- Mondal S, Chakraborty I, Pramanik M, Rout D, Islam SS (2004) Structural studies of water-soluble polysaccharides of an edible mushroom, *Termitomyces eurhizus*. A re-investigation. *Carbohydr Res* 339:1135-1140.

- Mondal S, Chakraborty I, Rout D, Islam SS (2006) Isolation and structural elucidation of a water-soluble polysaccharide (PS-I) of a wild edible mushroom, *Termitomyces striatus*. Carbohydr Res 341:878-886.
- Mondal S, Chandra K, Maiti D, Ojha AK, Das D, Roy SK, et al. (2008) Carbohydr Res 343:1062-1070.
- Mocan A, Fernandes Â, Barros L, Crişan G, Smiljković M, Soković M, Ferreira ICFR (2017) Chemical composition and bioactive properties of the wild mushroom *Polyporus squamosus* (Huds.) Fr: a study with samples from Romania. Food Funct 1(9):160.
- Mohanta YK, Nayak D, Biswas K, Singdevsachan SK, Elsayed-FathiAbdAllah AH, Alqarawi AA, Dhananjay Yadav TKM (2018) Silver nanoparticles synthesized using wild mushroom show potential antimicrobial activities against food borne pathogens. Molecules 23:1-18.
- Mothana RAA, Jansen R, Jülich WD, Lindequist U (2000) Ganomycins A and B, new antimicrobial Farnesyl hydroquinones from the Basidiomycete *Ganoderma pfeifferi*. J Nat Prod 63:416-418.
- Mueller GM, Bills GF (2004) Introduction. In: Mueller GM, Bills GF, Foster MS (eds) Biodiversity of fungi: inventory and monitoring methods. Elsevier Academic Press, San Diego 1-4.
- Mueller MG, Schmit JP, Leacock PR, Buyck B, Cifuentes J et al. (2007) Global diversity and distribution of macrofungi. Biodivers Conserv 16:37-48.
- Mukherjee P, Roy M, Mandal B, Dey G, Mukherjee P, Ghatak J, Tyagi AK, Kale SP (2008) Green synthesis of highly stabilized nanocrystalline silver particles by a non-pathogenic and agriculturally important fungus *Trichoderma asperellum*. Nanotechnology 19:75103-75110.



- Muthu N, Shanmugasundaram K (2016) Proximate and mineral compositions of edible mushroom *Agrocybe aegerita*. J Pharmacogn Phytochem 5(1):116-119.
- Mursito B, Jenie UA, Mubarika S, Kardono LBS (2010) Isolation of  $\beta$ -(1-3) Glucan compound from the water extract of Indonesian jamurtanduk (*Termitomyces eurhizus* berk). Pak J Biol Sci 13(17):847-851.
- Muthukrishnan L, Nanda A (2013) Geno-toxic study of silver bio-nanoparticles toward Gram-positive and Gram-negative clinical isolates. J Pharm Res 6:725-729.
- Mygind PH, Fischer RL, Schnorr KM, Hansen MT, Sönksen CP, Ludvigsen S, Raventós D, Buskov S, Christensen B, De Maria L, Taboureau O, Yaver D, ElvigJørgensen SG, Sørensen MV, Christensen BE, Kjærulff S, Frimodt-Møller N, Lehrer RI, Zasloff M, Kristensen HH (2005) Plectasin is a peptide antibiotic with therapeutic potential from a saprophytic fungus. Nature 437: 975-980.
- Ngai PHK, Ng TB (2004) A ribonuclease with antimicrobial, antimitogenic and antiproliferative activities from the edible mushroom *Pleurotus sajor-caju*. Peptides 25: 11-17.
- Nakalembe I, Kabasa D, Olila D (2009) Indigenous knowledge and usage of wild mushrooms in Mid-Western, Uganda. Afr J Anim Biomed Sci 4(1):63-73.
- Nandi AK, Samanta S, Maity S, Sen IK, Khatua S, Devi KSP, Acharya K, Maiti TK, Islam SS (2014) Carbohydr Polym 99:774-782.
- Narayanan KB, Sakthivel N (2010) Biological synthesis of metal nanoparticles by microbes. Adv Colloid Interface Sci 156:1-13.
- Natarajan K (1995) Mushroom flora of South India (except Kerala). In: Chadha KL, Sharma SR (eds). Advances in Horticulture 13 Mushroom. Malhotra Publishing House, New Delhi, India 381-397.

- Noginov MA, Zhu G, BahouraM, Adegoke J, Small C, Ritzo BA, Drachev VP, Shalaev VM (2007) The effect of gain and absorption on surface plasmons in metal nanoparticles. *Appl Phys* 86:455-460.
- Noroozi M, Angerson WJ, Lean MEJ (1998) Effects of flavonoids and vitamin C on oxidative DNA damage to human lymphocytes. *American J Clinic Nutr* 67:1210-1218.
- Nwachukwu E, Uzoeto HO (2011) Antimicrobial activity of some local mushrooms on pathogenic isolates. *Int J Curr Res* 33(6):1-5.
- Oda M, Ueno T, Kasai N, Takahashi H, Yoshida H, Sugawara F, Sakaguchi K, Hayashi H, Mizushina Y (2002) Inhibition of telomerase by linear-chain fatty acids: a structural analysis. *Biochem J* 367: 329-334.
- Okwulehie IC, Odunze EI (2004) Evaluation of the nutritional value of some tropical edible mushrooms. *J Sustainable Agri and Environ* 6(2):157-162.
- Orhan DD, Ozçelik B, Ozgen S, Ergun F (2010) Antibacterial, antifungal, and antiviral activities of some flavonoids. *Microbiol Res* 165(6):496-504.
- Osaki Y, Kato T, Yamamoto K, Okubo J, Miyazaki T (1994) Antimutagenic and bactericidal substances in the fruit body of a Basidiomycete *Agaricus blazei*. *Yakugaku Zasshi* 114: 342-350.
- Oso BA (1997) *Pleurotus tuber-regium* from Nigeria. *Mycologia* 69:271-279.
- Oyetayo FL (2007) Potential antioxidant properties of Nigerian edible mushrooms. *Agro Food Ind Hi Tech* 18:44-45.
- Oyetayo VO, Ariyo OO (2013) Antimicrobial and antioxidant properties of *Pleurotus ostreatus* (Jacq: Fries) cultivated on different tropical woody substances. *J Waste convers Bioprod biotechnol* 1(2):28-32.

- Ozen T, Darcan C, Aktop O, Turkekul I (2011) Screening of antioxidant, antimicrobial activities and chemical contents of edible mushrooms wildy grown in the Black Sea region of Turkey. *Comb Chem High Throughput Screen* 14:72- 84.
- Öztürk M, Duru ME, Kivrak S, Mercan-Doğan N, Türkoglu A, Özler MA (2011) In vitro antioxidant, anticholinesterase and antimicrobial activity studies on three *Agaricus* species with fatty acid compositions and iron contents: A comparative study on the three most edible mushrooms. *Food Chem Toxicol* 49:1353-1360.
- Pal S, Tak YK, Song JM (2007) Does the antibacterial activity of silver nanoparticles depend on the shape of the nanoparticle: A study of the Gram-negative bacterium *Escherichia coli*. *Appl Environ Microbiol* 73:1712-1720.
- Paloi S, Dutta AK, Acharya K (2015) A new species of *Russula* (Russulales) from Eastern Himalaya, India. *Phytotaxa* 234(3):255-262.
- Panda A, Ghosh AK, Mirdha BR, Xess I, Paul S, Samantaray JC, Srinivasan A, Khalil S, Rastogi N, Dabas Y (2015) MALDI-TOF mass spectrometry for rapid identification of clinical fungal isolates based on ribosomal protein biomarkers. *J Microbiol Methods* 109:93-105.
- Panda AK, Swain KC (2011) Traditional uses and medicinal potential of *Cordyceps sinensis* of Sikkim. *J Ayurveda Integr Med* 2(1):9-13.
- Panda MK, Tayung K (2015) Documentation and Ethnomedicinal Knowledge on Wild Edible Mushrooms Among Ethnic Tribes of Northern Odisha, India. *Asian J Pharm Clin Res* 8(4):139-143.
- Parent G, Thoen D (1977) Food value of edible mushrooms from Upper-Shaba region. *Econ Bot* 31:436-445.
- Patel S, Goyal A (2013) Recent developments in mushrooms as anti-cancer therapeutics. *J Biotechnol* 2:1-15.

- Patil BD, Jadhav SW, Sathe AV (1995) Mushroom flora of Maharashtra. In: Chadha KL, Sharma SR (eds). Advances in Horticulture 13, Mushroom. Malhotra Publishing House, New Delhi, India 317-328.
- Patra S, Patra P, Maity KK, Mandal S, Bhunia SK, Dey B (2013) A heteroglycan from the mycelia of *Pleurotus ostreatus*: Structure determination and study of antioxidant properties. Carbohydr Res 368:16-21.
- Pattanayak M, Samanta S, Maity P, Sen IK, Nandi AK, Manna DK (2015) Heteroglycan of an edible mushroom *Termitomyces clypeatus*: Structure elucidation and antioxidant properties. Carbohydr Res 413:30-36.
- Pedneault K, Angers P, Gosselin A, Tweddell RJ (2006). Fatty acid composition of lipids from mushrooms belonging to the family Boletaceae. Mycol Res 110:1179-83.
- Pegler DN (1983) Agaric Flora of the Lesser Antilles. London, Royal Botanic Gardens, Kew, Kew Bulletin Additional Series IX 668.
- Pei K, Ou J, Huang J, Ou S (2015) *p*-Coumaric acid and its conjugates: dietary sources, pharmacokinetic properties and biological activities. J Sci Food Agric 96:2952-2962.
- Peleg AY, Miyakis S, Ward DV, Earl AM, Rubio A, Cameron DR, Pillai S, Moellering RC, Eliopoulos GM (2012) Whole genome characterization of the mechanisms of daptomycin resistance in clinical and laboratory derived isolates of *Staphylococcus aureus*. PLoS ONE 7:28316.
- Peng Y, Zhang L, Zeng F, Xu Y (2003) Structure and activity of extracellular polysaccharides from mycelium. Carbohydr Polym 54:297-303.
- Pereira E, Lillian B, Martins A, Ferreira ICFR (2012) Towards chemical and nutritional inventory of Portuguese wild edible mushrooms in different habitats. Food chem 130: 394-403.

- Pereira L, Dias N, Carvalho J, Fernandes S, Santos C, Lima N (2014) Synthesis, characterization and antifungal activity of chemically and fungal-produced silver nanoparticles against *Trichophyton rubrum*. *J Appl Microbiol* 117:1601—1613.
- Peres-Bota D, Rodriguez H, Dimopoulos G, DaRos A, Mélot C, Struelens MJ, Vincent JL (2003) A reinfections due to resistant pathogens associated with a worse outcome in critically ill patients? *J Infect* 47:307-316.
- Philip D (2009) Biosynthesis of Au, Ag and Au-Ag nanoparticles using edible mushroom extract, *Spectrochim Acta A Mol Biomol Spectrosc* 73:374-381.
- Pielou EC (1996) The measurement of diversity in different types of biological collections. *J Theor Biol* 13:131-144.
- Pietta PG (2000) Flavonoids as antioxidants. *J Nat Prod* 63:1035-1042.
- Pointing SB, Hyde KD (2001) Bio exploitation of filamentous fungi. Fungal Diversity Press, Hong Kong, China.
- Pradhan P, Dutta AK, Roy A, Acharya K (2013) Notes on *Ramaria fumigata* regarding its occurrence and plant association in West Bengal, India. *Environ Ecol* 31(1A):243-246.
- Pradhan P, Dutta AK, Roy A, Basu SK, Acharya K (2012) Inventory and spatial ecology of macrofungi in the *Shorea robusta* forest ecosystem of lateritic region of West Bengal. *Biodiversity* 13:88-99.
- Pradhan P, Banerjee S, Roy A, Acharya K (2010) Role of Wild Edible Mushrooms in the Santal Livelihood in Lateritic Region of West Bengal. *Journal of Botanical Society of Bengal* 64(1):61-65.
- Pradhan P, Dutta AK, Paloi S, Roy A, Acharya K (2016) Diversity and distribution of macrofungi in the Eastern Himalayan ecosystem. *Eurasia J Biosci* 10:1-12.
- Pramanik S, Chaudhuri S (2017) Macrofungal diversity in the forest litter of Nadia District, West Bengal, India. *Afr J Microbiol Res* 11:927-944.

- Punitha SC, Rajasekaran M (2014) Free radical scavenging activity of fruiting body extracts of an edible mushroom, *Volvariella volvacea* (Bull.ex Fr.) Singer: An *in vitro* study. Asian J Biomed Pharma Sci 04:6-11.
- Purkayastha RP, Chandra A (1974) A new species of edible mushroom from India. Trans Brit Mycol Soc 62:415-418.
- Purkayastha RP, Chandra A (1985) Manual of Indian Edible Mushrooms. Today and Tomorrow's Printers and Publishers, New Delhi, India.
- Pushpa H, Purushothama KB (2012) Biodiversity of mushrooms in and around Bangalore (Karnataka), American-Eurasian Journal of Agriculture and Environmental Sciences 12:750-759.
- Pushpa H, Purushothoma KB (2010) Nutritional analysis of wild and cultivated edible medicinal mushrooms. World J Dairy Food Sci 5(2):140-144.
- Puttaraju NG, Venkateshaiah SU, Dharmesh SM, Urs SM, Somasundaram R (2006) Antioxidant Activity of Indigenous Edible mushrooms. J Agric Food Chem 54:9764-9772.
- Quang DN, Bach DD, Hashimoto T, Asakawa Y (2006) Chemical constituents of the Vietnamese inedible mushroom *Xylaria intracolorata*. Nat Prod Res 20:317- 321.
- Quereshi S, Pandey AK, Sandhu SS (2010) Evaluation of antibacterial activity of different *Ganoderma lucidum* extracts. J Sci Res 3:9-13.
- Raghuramulu N, Madhavan NK, Kalyanasundaram S (2003) A manual of laboratory techniques (National Institute of Nutrition, Hyderabad, India) 56-58.
- Rai M, Tidke G, Wasser SP (2005) Therapeutic potential of mushrooms. Nat Prod Radiance 4(4):246-257.
- Rai RD, Sohi HS (1988) How protein rich are mushrooms. Indian Hort 33:2-3.

- Rai RD, Saxena S, Upadhyay RC, Sohi HS (1988) Comparative nutritional value of various *Pleurotus* species grown under identical conditions. *Mushroom J Tropics* 8:93-98.
- Ransbottom J (1965) *A Handbook of the Larger British fungi*, Alden & Mowbray Ltd. Great Britain.
- Rastogi J (2003) An introduction to ecoforestry. *Ecoforestry* 18(2):1-4.
- Raya MA, Shalaby MT, Hafez SA, Hamouda M (2014) Chemical Composition and Nutritional Potential of Some Mushroom Varieties Cultivated in Egypt. *J Food and Dairy Sci, Mansoura Univ* 5(6):421- 434.
- Rekha C, Poornima G, Manasa M, Abhipsa V, Pavithra DJ, Vijay KHT, Prashith KTR (2012) *Chem Sci Trans*1(2):303-310.
- Ren L, Visitev AV, Grekhov AN, Tertov VV, Tutelyan VA (1989) Antiatherosclerotic properties of macrofungi. *Voprosy Pitaniya* 1:16-19.
- Ribeiro B, Valentao P, Baptista P, Seabra RM, Andrade PB (2007) Phenolic compounds, organic acids profiles and antioxidative properties of beefsteak fungus (*Fistulina hepatica*). *Food Chem Toxicol* 45:1805-1813.
- Robert V, Stegehuis G, Stalpers J (2005) The MycoBank engine and related databases. <http://www.mycobank.org>.
- Roberto Garibay-Orijel J, Cifuentes, Estrada-Torres A, Caballero J (2005) Fungal Biodiversity, People using macro-fungal diversity in Oaxaca, Mexico 21:41-67.
- Robinson CM, Sinclair JF, Smith MJ, O'Brien AD (2006) Shiga toxin of enterohemorrhagic *Escherichia coli* type O157:H7 promotes intestinal colonization. *Proc Natl Acad Sci USA* 103:9667-9672.
- Rodriguez D, Pigrau C, Euba G, Cobo J, Garcia-Lechuz J, Palomino J, Riera M, Del Toro MD, Granados A, Ariza X (2010) Acute haematogenous prosthetic joint infection:

- prospective evaluation of medical and surgical management. *Clin Microbiol Infect* 16:1789-1795.
- Roedig-Penman A, Gordon MH (1998) Antioxidant properties of myricetin and quercetin in oil and emulsions. *J Am Oil Chem Soc* 75:169-180.
- Rolfe RT, Rolfe FW (1925) *The Romance of the fungus world*. Chapman and Hall Ltd., London 309.
- Rosa LH, Machado KMG, Jacob CC, Capelari M, Rosa CA, Zani CL (2003) Screening of Brazilian Basidiomycetes for antimicrobial activity. *Mem Inst Oswaldo Cruz* 98:967-974.
- Ruess L, Hågblom MM, GarcíaZapata EJ, Dighton J (2002) Fatty acids of fungi and nematodes—possible biomarkers in the soil food chain? *Soil Biol Biochem* 34(6):745-756.
- Russo TA, Johnson JR (2003) Medical and economic impact of extraintestinal infections due to *Escherichia coli*: focus on an increasingly endemic problem. *Microbes Infect* 5:449-456.
- Ruthes AC, Carbonero ER, Córdova MM, Baggio CH, Santos ARS, Sasaki GL, Cipriani TR, Gorin PAJ, Iacomini M (2013) *Lactarius rufus* (1→3), (1→6)-β-D-glucans: structure, antinociceptive and anti-inflammatory effects. *Carbohydr Polym* 94(1):129-136.
- Sachan SKS, Patra JK, Thatoi HN (2013) Indigenous knowledge of ethnic tribes for utilization of wild mushrooms as food and medicine in similipal biosphere reserve, Odisha, India. *J Agric Technol* 9(2):335-348.
- Saikkonen K (2007) Forest structure and fungal endophytes. *Fungal Biol Rev* 21:67-74.



- Salamat S, Shahid M, Najeeb J (2017) Proximate analysis and simultaneous mineral profiling of five selected wild commercial mushrooms as a potential nutraceutical. *Int J Chem* 5(3): 297-303.
- Samajipati N (1978) Nutritive value of Indian edible mushrooms. *Mushroom Sci* 10:695-703.
- Samorini G (2001) New data on the ethnomycology of psychoactive mushrooms. *Int J Med Mushrooms* 3(2-3):257-278.
- Sanjuan R, Stock R, De mora JF, Sentandreu R (1995) Identification of glucan-mannoprotein complexes in the wall of *Candida albicans* using monoclonal antibody that reacts with a (1,6)- $\beta$ -glucan epitope. *Microbiol* 141:1545-1551.
- Sarbhojy AK, Aggarwal DK, Varshney JL (1996) *Fungi of India*. CBS Publishers and Distributors, Daryaganj, New Delhi, India.
- Sargunam SD, Johnsy G, Dinesh MG, Kaviyaran V (2012) Nutritive value of edible wild mushrooms collected from the Western Ghats of Kanyakumari district. *Botany Research International* 4 (4):69-74.
- Sarma TC, Sarma I, Patiri BN (2010) Wild edible mushrooms used by some ethnic tribes of western Assam. *The Bioscan* 3:613-625.
- Sathe AV (1979) Agaricology in India-a review of work on Indian Agaricales. *Biovigyanam* 5:125-130.
- Schneidman-Duhovny D, Inbar Y, Nussinov R, Wolfson HJ (2005) PatchDock and SymmDock: servers for rigid and symmetric docking. *Nucleic Acids Res* 33:363-367.
- Schwan WR, Dunek C, Gebhardt M, Engelbrecht K, Klett T, Monte A, Toce J, Rott M, Volk TJ, LiPuma JJ, Liu X-T, McKelvey R (2010) Screening a mushroom extract library for activity against *Acinetobacter baumannii* and *Burkholderia cepacia* and the identification of a compound with anti-Burkholderia activity. *Ann Clin Microb Antimicrob* 9:4.

- Semwal KC, Stephenson SL, Bhatt VK, Bhatt RP (2014) Edible mushrooms of the Northwestern Himalaya, India, a study of indigenous knowledge, distribution and diversity. *Mycosphere* 5(3):440-461.
- Sharifi A, Naseri MH, Jahedi S, Sarkary B, Rooz SSK, Khosravani SM, Kalantar E (2012) Antimicrobial potentials of crude fractions of polysaccharides of *Ganoderma* spp. *Afr J Microbiol Res* 6(39):6817-6821.
- Sharma B, Singh S, Siddiqi NJ (2014) Biomedical implications of heavy metals induced imbalances in redox systems. *Biomed Res Int* 640754:1-26.
- Sharma N (2003) Medicinal uses of macrofungi. *Ethnobotany* 15:97-99.
- Sharma RP, Kaisth KR, Lakhanpal TN (1988) Protein and mineral content of two edible *Lactarius* species. *Indian J Mushrooms* 14:44-47.
- Sharma TC (2010) Wild edible mushroom used by some ethnic tribes of Western Assam. *The Bioscan* 3:613-25.
- Sharma TK (2008) Vegetable caterpillar, *Science Reporter*. 5th May ISBN 0036-8512. National institute of science communication and information resources (NISCAIR), CSIR 33-35.
- Sharma SH, Chellappan DR, Chinnaswamy P, Nagarajan S (2017) Protective effect of p-coumaric acid against 1,2 dimethylhydrazine induced colonic preneoplastic lesions in experimental rats. *Biomed Pharmacother* 94:577-588.
- Sheehy SH, Atkins BA, Bejon P, Byren I, Wyllie D, Athanasou NA, Berendt AR, McNally MA (2010) The microbiology of chronic osteomyelitis: prevalence of resistance to common empirical anti-microbial regimens. *J Infect* 60:338-343.

- Sheena N, Lakshmi B, Janardhanan KK (2005) Therapeutic potential of *Ganoderma lucidum* (Fr.) P. Karst. Nat Prod Rad 4(5):382-386.
- Sheena N, Ajith TA, Janardhan KK (2003) Antibacterial activity of three macrofungi, *Ganoderma lucidum*, *Navesporus floccose* and *Phellinus rimousus* occurring in South India. Pharm Biol 41(8):564 -567.
- Shen Y, Songa LL, Sun J, Jaiswal Y, HuangeJ, Liu C, Yan W, Williams L, Zhang H, Guan Y (2019) Protective effects of *p*-coumaric acid against oxidant and hyperlipidemia- an *in vitro* and *in vivo* evaluation. Biomed Pharmacother 111:579-587.
- Shimada K, Fujikawa K, Yahara K, Nakamura T (1992) Antioxidative properties of xanthan on the autoxidation of soybean oil in cyclodextrin emulsion. J Agric Food Chem 40:945-948.
- Simpson EH (1949) Measurement of diversity. Nature 163:688.
- Sing NI, Sing SM (1993) Edible fleshy fungal flora of Manipur. Bioveel 4(2):153-158.
- Sing NI, Sing SM, Th C (2002) Fleshy fungi of Manipur. In: Vij SP, Kondo K, Sharma ML, Gupta A (eds). Plant Genetic Diversity: Exploaration, Evaluation, Conservation. Afficiated East West Press Pvt. Ltd., New Delhi, India 9-13.
- Singdevsachan SKS, Patra JK, Thatoi HN (2013) Nutritional and Bioactive Potential of Two Wild Edible Mushrooms (*Lentinus sajor-caju* and *Lentinus torulosus*) from Similipal Biosphere Reserve, India Food Sci Biotechnol 22(1):137-145.
- Singer (1986) The Agaricales in modern taxonomy. 4<sup>th</sup> Edn.
- Singer R (1961) Mushrooms and Truffles, Leonard Hill Books Ltd. pp. 272.

- Singh K, Nizam S, Sinha M, Verma PK (2012). Comparative transcriptome analysis of the necrotrophic fungus *Ascochyta rabiei* during oxidative stress: insight for fungal survival in the host plant. PLoS ONE 7: 33128
- Singh D, Rathod V, Ninganagouda S (2014) Optimization and characterization of silver nanoparticle by endophytic fungi *Penicillium* sp. isolated from *Curcuma longa* (turmeric) and application studies against MDR *E. coli* and *S. aureus*. Bioinorg Chem Appl 408021.
- Singh CS, Prasad AB (2003) Diversity of Fleshy Fungi in Eastern UttarPradesh. Frontiers of Fungal Diversity in India. Int Book dist Co 327-350.
- Singleton VL, Orthofer R, Lamuela-Raventos RM (1999) Analysis of total phenols and other oxidation substrates and antioxidants by means of Folin-Ciocalteu reagent. Methods Enzymol 299:152-178.
- Smânia A, Monache FD, Smânia EFA, Gil ML, Benchetrit LC, Cruz FS (1995) Antibacterial activity of a substance produced by the fungus *Pycnoporus sanguineus* (Fr.) Murr J Ethnopharmacol 45:177-181.
- Sousa S, Fernandes PA, Joa M (2006) Protein-ligand docking: current status and future. Proteins 26:15-26.
- Solak MH, Kalmis E, Saglam H, Kalyoncu F (2006) Antimicrobial activity of two wild mushrooms *Clitocybe alexandri* (Gill.) Konr and *Rhizopogon roseolus* (Corda) T.M. Fries collected from Turkey. Phytother Res 20:1085-1087.
- Solomko EF (1992) The physiology-biochemical properties and biosynthetic activities of higher Basidiomycetes mushroom *Pleurotus ostreatus* (Jacq.: Fr.) Kumm. In submerged culture: Dr. Sci. Thesis, N.G. Kholodny Inst. Of Botany Acad. Sci. Ukraine-Kiev (Russ.) 49-63.

- Srivastava B, Dwivedi AK, Pandey VN (2011) Ethnobotanical survey, distribution and utilization of *Termitomyces* species in Gorakhpur forest division. *Plant Sciences Feed* 1(3):28-33.
- Stametes P (2000) *Growing Gourmet and Medicinal Mushroom*, Ten speed press, Berkeley, California 94707 367-376.
- Steuber H, Czodrowski P, Sotriffer CA, Klebe G (2007) Tracing changes in protonation: A prerequisite to factorize thermodynamic data of inhibitor binding to aldose reductase. *J Mol Biol* 373(5):1305-1320.
- Stojkovic D, Reis FS, Barros L, Glamoclija J, Ciric A, Barros L, van Griensven LJ, Sokovic M, Ferreira IC (2014) Cultivated strains of *Agaricus bisporus* and *A. brasiliensis*: chemical characterization and evaluation of antioxidant and antimicrobial properties for the final healthy product–natural preservatives in yoghurt. *Food Funct* 5:1602-1612.
- Sudhakar T, Nanda A, Babu G. S, Janani S, Evans DM, Markose KT (2014) Synthesis of silver nanoparticles from edible mushroom and its antimicrobial activity against human pathogens. *Int J Pharm Tech Res* 6(5):718-1723.
- Sujata P, Sudip M, Ayan B, Chittaranjan P, Anirban G, Seedhar B (2015) Green synthesis, characterization of gold and silver nanoparticles and their potential application for cancer therapeutics. *Mater Sci Eng C*53(10):1016
- Surekha C, Kaladhar DSVGK. Raju S, Haseena (2011) Evaluation of antioxidant and antimicrobial potentiality of some edible mushrooms. *Int J Adv Biotech Res* 2(1):130-134.
- Suryanarayanan TS, Venkatesan G, Murali TS (2003) Endophytic fungal communities in leaves of tropical forest trees: Diversity and distribution patterns. *Curr Sci* 85:489-493.

- Suutari M (1995) Effect of growth temperature on lipid fatty acids of four fungi *Aspergillus niger*, *Neurospora crassa*, *Penicillium chrysogenum* and *Trichoderma reesei*. Arch Microbiol 164:212-216.
- Swapna S, Abrar S, Krishnappa M (2008) Diversity of macrofungi in semi-evergreen and moist deciduous forest of Shimoga District Karnataka, India. J Mycol Plant Pathol 38(1):21-26.
- Swier H, Dkhar MS, Kayang H (2011) Fungal population and diversity in organically amended agricultural soils of Meghalaya, India. J Org Syst 6:1-12.
- Tam SC, Yip KP, Fund KP, Chang ST (1986) Hypotensive and renal effect of an extract of the edible mushroom *Pleurotus sajor-caju*. Life Sci 38:1155.
- Tamrakar S, Tran HB, Nishida M, Kaifuchi S, Suhara H, Doi K, Fukami K, Parajuli GP, Shimizu K (2016) Antioxidative activities of 62 wild mushrooms from Nepal and the phenolic profile of some selected species. J Nat Med 70:769-779.
- Tambeker DH, Sonar TP, Khodke MV, Khante BS (2006) The novel antimicrobials from two edible mushrooms: *Agaricus bisporus* and *Pleurotus sajor-caju*. Int J Pharmacol 2(5): 584-587.
- Tanti B, Gurung L, Sarma GC (2011) Wild edible fungal resource used by the ethnic tribes of Nagaland, India. Indian J Tradit Knowl 10(3):512-515.
- Taron DJ, Childs WC III, Neuhaus FC (1983) Biosynthesis of D-alanyl-lipoteichoic acid: role of diglyceride kinase in the synthesis of phosphatidylglycerol for chain elongation. J Bacteriol 154:1110-1116.
- Tenover FC (2006) Mechanisms of antimicrobial resistance in bacteria. Am J Infect Control 34: S3-S10.
- Thiribhuvanamala G, Prakasam V, Chandrasekar G, Sakthivel K, Veeralakshmi S, Velazhahan R, Kalaislvi G (2014) Biodiversity, Conservation and utilisation of

- mushroom flora from the Western Ghats region of India Agricultural University. Proceedings of the 7th International Conference on Mushroom Biology and Mushroom Products (ICMBMP7):155-164.
- Tripathy SS, Rajoriya A, Mahapatra A, Gupta N (2016) Biochemical and Antioxidant properties of Wild Edible Mushrooms used for Food by Tribal of Eastern India. Int J Pharm Pharm Sc 8(4):194-199.
- Trotter RT, Logan MH (1986) Informant consensus, a new approach for identifying potentially effective medicinal plants. Plants in indigenous Medicine and Diet, Behavioural Approaches. In Etkin N.L. (Ed.).
- Tunimal J (1989) A primer to phylogenetic analysis using the PHYLIP package. Cladistic 5:164-166.
- Turhan Ş, Zararsiz A, Karabacak H (2010) Determination of Element Levels in Selected Wild Mushroom Species in Turkey Using Non-Destructive Analytical Techniques. Int J Food Prop 13:723-731.
- Turkoglu A, Duru ME, Mercan N, Kivrak I, Gezer K (2007) Antioxidant and antimicrobial activities of *Laetiporus sulphureus* (Bull.) Murrill. Food Chem 101(1):267-273.
- Ukai S, Morisaki S, Goto M, Kiho T, Hara C, Hirose K (1982) Polysaccharides in fungi. VII. Acidic heteroglycans from the fruiting bodies of *Auricularia auricula-judae*. Chem Pharm Bull 30:635-649.
- Venkatesh R, Sood D (2011) Review of the Physiological Implications of Antioxidants in Food Interactive Qualifying; Project Report; Faculty of the Worcester Polytechnic Institute: Worcester, MA, USA 1-72.
- Verma RK, Pandro V (2018) Diversity and Distribution of Clavarioid Fungi in India, Three Fungi from Central India. Int J Curr Microbiol App Sci 7(12):2129-2147.

- Vieira V, Fernandes A, Barros L, Glamoclija J, Ciric A, Stojkovic D, Martins A, Sokovic M, Ferreira I (2016) Wild *Morchella conica* Pers. from different origins: A comparative study of nutritional and bioactive properties. *J Sci Food Agric* 96:90-98. India, Three Fungi from Central India. *Int J Curr Microbiol App Sci* 7(12):2129-2147.
- Vishwakarma P, Singh P, Tripathi NN (2017) Diversity of macrofungi and its distribution pattern of Gorakhpur District, Uttar Pradesh, India. *Studies in Fungi* 2(1):92-105.
- Waithaka PN, Gathuru EM, Githaiga BM, Onkoba KM (2017) Antimicrobial activity of mushroom (*Agaricus bisporus*) and fungal (*Trametes gibbosa*) extracts from mushrooms and fungi of egerton main campus, njorokenya. *J Biomed Sci* 6(3):1-6.
- Wang H, Ng TB, Ooi VEC (1998) Lectins from mushroom—A review. *Mycol Res* 102:897-906.
- Wang SL (2013) The antagonism of *Termitomyces albuminosus* polysaccharide to cyclophosphamide on immune organ injury in mice. *Prog Vet Med* 34:56-59.
- Wang J, Nie S, Cui SW, Wang Z, Phillips AO (2017) Structural characterization and immunostimulatory activity of a glucan from natural *Cordyceps sinensis*. *Food Hydrocolloid* 67:139-147.
- Wani BA, Bodha RH, Wani AH (2010) Nutritional and medicinal importance of mushrooms. *J Med Plants Res* 4(24):2598-2604.
- Wasser SP, Weis AL (1999) Medicinal properties of substances occurring in higher Basidiomycetes mushrooms: Current perspective (review), *Int J Med Mushrooms* 1:30.
- Wasser SP (2002) Medicinal mushrooms as a source of antitumor and immunomodulating polysaccharides. *Appl Microbiol Biotechnol* 60:258-274.
- Wasson VP, Wasson RG (1957) *Mushrooms Russia and History*. Pantheon Books.
- Weaver C, Marrs ET (2013) White vegetables: a forgotten source of nutrients: Purdue roundtable executive summary. *Adv Nutr* 4:318-326.



- WHO (2012) World Health Organization report on infectious diseases 2000 –Overcoming antimicrobial resistance. Available at <http://www.who.int/infectious-disease-report>.
- Wiegand I, Hilpert K, Hancock REW (2008) Agar and broth dilution methods to determine the minimal inhibitory concentration (MIC) of antimicrobial substances. *Nat Protocvol* 3(2):163-175.
- Wisitrassameewong K, Nuytinck J, Hyde KD, Verbeken A (2014) *Lactarius* subgenus *Russularia* in South-East Asia: 1. Species with very distant gills. *Phytotaxa* 158(1): 23-42.
- Wu JY, Chen CH, Chang WH, Chung KT, Liu YW, Lu FJ (2011) Anti-cancer effects of protein extracts from *Calvatia lilacina*, *Pleurotus ostreatus* and *Volvariella volvacea*. *Evid Based Complement Alternat. Med* 982368.
- Xu XF, Yan HD, Tang J, Chen J, Zhang XW (2014) Polysaccharides in *Lentinus edodes*: Isolation, structure, immunomodulating activity and future prospective. *Crit Rev Food Sci Nutr* 54:474-487.
- Yadav A, Kon K, Kratosova G, et al. (2015) Fungi as an efficient mycosystem for the synthesis of metal nanoparticles: progress and key aspects of research. *Biotechnol Lett* 37:2099-2120.
- Yamac M, Bilgili F (2006) Antimicrobial activities of fruit bodies and/or mycelial cultures of some mushroom isolates. *Pharmaceut Biol* 44(9):660-667.
- Yamamoto T (1981) Inhibition of pulmonary metastasis of Lewis lung carcinoma by a glucan, schizophyllan. *Invasion Metastasis* 1(1):71-84.
- Yang L, Wang R, Liu J, Tong H, Deng Y, Li Q (2004) The effect of *Polyporus umbellatus* polysaccharide on the immunosuppression property of culture supernatant of S180 cells. *Chinese J Cell Mol Immunol* 20:234-237.

- Yu R, Tan TH, Kong AN (1997) Butylated hydroxyanisole and its metabolite *tert* butylhydroquinone differentially regulate mitogen-activated protein kinases. The role of oxidative stress in the activation of mitogen-activated protein kinases by phenolic antioxidants. *JBiol Chem* 272:28962-28970.
- Zang LY, Cosma G, Gardner H, Shi XY, Castranova V, Vallyathan V (2000) Effect of antioxidant protection by *p*-coumaric acid on low-density lipoprotein cholesterol oxidation. *Am J Physiol Cell Physiol* 279:954-960.
- Zeng Q (1990) The antitumor activity of *Flammulina velutipes* polysaccharide (FVP), edible fungi of China. *Szechuan Institute of MateriaMedica*, 10:2-19.
- Zhang LJ, Huang HT, Huang SY, Lin ZH, Shen CC, Tsai WJ, Kuo YH (2015) Antioxidant and anti-inflammatory phenolic glycosides from *Clematis tashiroi*. *J Nat Prod* 78:1586-1592.
- Zhang M, Cui S, Cheung P, Wang Q (2007) Antitumor polysaccharides from mushrooms: a review on their isolation process, structural characteristics and antitumor activity. *Trends Food Sci Technol* 18:4-19.
- Zhang L (1995) The effect of *Trametes robiniophila* Murr. (TRM) substantial composition on immune function of Mice. *Acta Edulis Fungi* 2:35-40.
- Zhang JJ, Meng GY, Zhai GY, Yang YH, Zhao HJ, Jia L (2016) Extraction, characterisation and antioxidant activity of polysaccharides of spent mushroom compost of *Ganoderma lucidum*. *Int J Biol Macromol* 82:432-439.
- Zhao M, Chen Z, Xia G, Cui FY, Zhang JJ, Jia MS, Jia SH, Jia L (2015) Enzymatic and acidic degradation effect on intracellular polysaccharide of *Flammulina velutipes* SF-08. *Int J Biol Macromol* 73:236-244.

- Zheng H, Maoqing Y, Liqiu X, Wenjuan T, Lian L, Guolin Z (2006) Purification and characterization of an antibacterial protein from the cultured mycelia of *Cordyceps sinensis*. Wuhan University J Nat Sci 11:709-714.
- Zheng S, Liu Q, Zhang G, Wang H, Ng TB (2010) Purification and characterization of an antibacterial protein from dried fruiting bodies of the wild mushroom *Clitocybe sinopica*. Acta Biochim Pol 51:43-48.
- Zhuqiu Y, Zhang Y (2001) Study of antibacterial effects of *Agaricus blazei*. J Food Sci 22: 84-87.