

References

A

Abdel Hamid, AA, Al-Ghobashy, MA, Fawzy, M, Mohamed, MB, and Abdel-Mottaleb, MM, Phytosynthesis of Au, Ag, and Au–Ag bimetallic nanoparticles using aqueous extract of sago pondweed (*Potamogeton pectinatus* L.), ACS Sustainable Chemistry & Engineering, 1(12), 1520-1529, 2013.

Adair, JH and Suvaci, E, Morphological control of particles, Curr Opin Colloid Interface Sci., 5, 160–167, 2000.

Aditya, NP, Vatsala, PG, Vieira, V, Murthi, RSR and Souto, FB, Advances in nano medicines for malaria treatment, Advances in Colloid and Interface Science, vol. 201-202, 1-17, 2013.

Ahmad, A, Mukherjee, P, Mandal, D, Senapati, S, Khan, I, Kumar, R and Shashtri, MJ, Enzyme mediated extracellular synthesis of CdS nanoparticles by the fungus, *Fusarium oxysporum*, J. Am. Chm. Soc., 124 (41), 2108-2109, 2002.

Ahmad, A, Mukherjee, P, Senapati, S, Mandal, D, Khan, MI, Kumar, R and Sastri, M, Extracellular biosynthesis of silver nanoparticles using the fungus *Fusarium oxysporum*, Colloids Surf B Biointerfaces, 28(4), 313–318, 2003a.

Ahmad, A, Senapati, S, Khan, MI, Kumar, R, Ramani, R, Shrinivas, V and Sastri, M, Intracellular synthesis of gold nanoparticles by a novel alkotolerant actinomycetes *Rhodococcus sp*, Nanotechnology, 14, 824-828, 2003b.

Ahmad, A, Senapati, S, Khan, MI, Kumar, R and Sastry, M, Extra-/intracellular, biosynthesis of gold nanoparticles by an alkalotolerant fungus, *Trichothecium sp*, J Biomed Nanotechnol, 1(1), 47–53, 2005.

- Alatraktchi, FA, Zhang, Y and Angelidaki, I, Nanomodification of the electrodes in microbial fuel cell: Impact of nanoparticle density on electricity production and microbial community, *Applied Energy*, 116, 216-222, 2014.
- Ali, ME, Hashim, U, Mustafa, S, Che Man, YB and Islam, KH, Gold Nanoparticle Sensor for the Visual Detection of Pork Adulteration in Meatball Formulation, *Journal of Nanomaterials*, Volume 2012, Article ID 103607, 7, 2012.
- Alappat, CF, Kannan, KP and Vasanthi, NS, Biosynthesis of Au nanoparticles using the endophytic fungi isolated from *Bahunia variegata* L, *IRACST–Engineering Science and Technology: An International Journal (ESTIJ)*, ISSN: 2250-3498, 2(3), 377-380, 2012.
- Amarowicz, R, Pegg, RB, Rahimi-Moghaddam, P, Barl, B and Weil, JA, Free radical – scavenging capacity and antioxidant activity of selected plant species from the Canadian prairies, *Food Chem.*, 84, 551-562, 2004.
- An, C, Kuang, Y, Fu, C, Zeng, F, Wang, W and Zhou, H, Study on Ag–Pd bimetallic nanoparticles for electrocatalytic reduction of benzyl chloride, *Electrochemistry Commun*, 13, 1413–1416, 2011.
- Andrienko, D, *Cyclic Voltammetry*, 22, 2008.
- Arasu, MV, Duraipandiyar, V, Agastian, P and Ignacimuthu, S, In vitro antimicrobial activity of *Streptomyces* spp. ERI-3 isolated from Western Ghats rock soil (India) Activite antimicrobienne in vitro de *Streptomyces* sp. ERI-3 isole du sol rocheux du Ghats occidental (Inde), *J. Med. Mycol.*, 19, 22-28, 2009.
- Armendariz, V, Herrera, I, Peralta-Videa, JR and Jose-Yacaman, J, Size controlled gold nanoparticles formation by *Avena sativa* biomass: use of plants in nanobiotechnology, *J Nanoparticle Res*, 6, 377–382, 2004.
- Asakura, K, Yamazaki, Y, Kuroda, H, Harada, M and Toshima, N, A cluster-in cluster structure of the SiO₂-supported Pt-Pd clusters, *Kobe Jpn J Appl Phys*, 32, 448, 1992.
- Ashour, SM, Silver nanoparticles as antimicrobial agent from *Kluyveromyces marxianus* and *Candida utilis*, *Int. J. Curr. Microbiol. App. Sci*, 3(8), 384-396, 2014.

Authier, L, Grossiord, C and Brossier, P, Gold Nanoparticle-Based Quantitative Electrochemical Detection of Amplified Human Cytomegalovirus DNA Using Disposable Microband Electrodes, *Ana Chem.*, 73(18), 4450-4456, 2001.

Avalos, A, Haza, A, Mateo, D and Morales, P, Interaction of manufactured silver nanoparticles of different sizes with normal human dermal fibroblasts, *International Wound Journal*, 2014.

Ayala-Nunez, NV, Villegas, HHL, Turrent, LdCI and Padilla, CR, Silver Nanoparticles Toxicity and Bactericidal Effect Against Methicillin-Resistant *Staphylococcus aureus*, *Nanobiotechnology*, 5, 2-9, 2009.

Aymonier, C, Schlotterbeck, U, Antonietti, L, Zacharias, P, Thomann, R and Tiller, JC, Hybrids of silver nanoparticles with amphiphilic hyperbranched macromolecules exhibiting antimicrobial properties, *Chem Commun (Camb)*, 24, 3018-3019, 2002.

Azim, A, Davood, Z, Ali, F, Mohammad, RM, Dariush, N, Shahram, T, Majid, M and Nasim, B, Synthesis and characterization of gold nanoparticles by tryptophan, *Am. J. Appl. Sci.*, 6, 691-695, 2009.

B

Bahrami, K, Nazari, P, Nabavi, M, Golkar, M, Almasirad, A and Shahverdi, AR, Hydroxyl capped silver-gold alloy nanoparticles: characterization and their combination effect with different antibiotics against *Staphylococcus aureus*, *Nanomedicine Journal*, 1(3), 155-161, 2014.

- Balaji, DS, Basavaraja, S, Deshpande, R, Mahesh, DB, Prabhakar, BK and Venkataraman, A, Extracellular biosynthesis of functionalized silver nanoparticles by strains of *Cladosporium cladosporioides* fungus, *Colloids Surf. B*, 68(1), 88-92, 2009.
- Baletto, F, Mottet, C and Ferrando, R, Growth of Three-Shell Onion like Bimetallic Nanoparticles, *Phys Rev Lett*, 90(13), 135504, 2003.
- Bali, R, Razak, N, Lumb, A and Harris, AT, The synthesis of metallic nanoparticles inside live plants, In: International conference on nanoscience and nanotechnology, Brisbane, Queensland, 224-227, 2006.
- Banerjee, M, Shilpa, S, Arun, C and Sankar, GS, Enhanced antibacterial activity of bimetallic gold-silver core-shell nanoparticles at low silver concentration, *Nanoscale*, 3(12), 5120-5125, 2011.
- Bankura, K, Maity, D, Mollick, M, Mondal, D, Bhowmick, B, Bain, M, Chakraborty, A, Sarkar, J, Acharya, K and Chattopadhyay, D, Synthesis, characterization and antimicrobial activity of dextran stabilized silver nanoparticles in aqueous medium, *Carbohydr. Polym.*, 89, 1159-1165, 2012.
- Barth, G, Gaillardin, C, Physiology and genetics of the dimorphic fungus *Yarrowia lipolytica*, *FEMS Microbiol Rev*, 19(4), 219-237, 1997.
- Barua, A, Chakravarty, I, Kundu, K, Singh, S and Kundu, S, Sustainable and Effectual Bio Fabrication of Gold Nanoparticles for Screening for Mild Adulteration, *J Nanomater Mol Nanotechnol*, 4, 5, 2015.

Basavaraja, S, Balaji, SD, Lagashetty, A, Rajasab, AH and Venkataraman, A, Extracellular biosynthesis of silver nanoparticles using the fungus *Fusarium semitectum*, Mater Res. Bull, 43(5), 1164-1170, 2007.

Basu, S and Maity, S, Preparation and characterization of Muco-adhesive Nasal gel of venlafaxin hydrochloride for treatment of anxiety disorder, Indian Journal of Pharmaceutical Sciences, 75(5), 428-433, 2012.

Bathrinarayanan, PV, Thangavelu, D, Muthukumarasamy, VK, Munusamy, C and Gurunathan, B, Biological synthesis and characterization of intracellular gold nanoparticles using biomass of *Aspergillus fumigates*, Bull. Mater. Sci., 36(7), 1201–1205, 2013.

Behari, J, Principles of nanoscience: an overview, Indian J Exp Biotechnol, 48(10), 1008–1019, 2010.

Bek, A, Jensen, R, Ringler, M, Mayilo, S, Klar, TA and Feldmann, J, Fluorescence Enhancement in Hot Spots of AFM-Designed Gold Nanoparticles Sandwiches, Nano Lett., 8(2), 485-490, 2008.

Bergen, JM, Recum, HAV, Goodman, TT, Massey, AP and Pun, SH, Gold Nanoparticle as a Versatile Platform for Optimizing Physicochemical Parameters for Targeted Drug Delivery, Macromol Bioscience, 6(7), 506-516, 2006.

Bernan, VS, Montenegro, DA, Korshalla, JD, Maiese, WM, Steinberg, DA and Greenstein, M, Oxalomycins, New Antibiotics Produced by the Marine *Streptomyces* sp. LL-31F508: Taxonomy and Fermentation, J. Antibiot., 47(12), 1417-1424, 1994.

Beveridge, TJ and Murray, RGE, Site of metal deposition in the cell wall of *Bacillus subtilis*, J Bacteriol, 141, 876-887, 1980.

Byeon, JH and Kim, YW, An aerosol-seed-assisted hybrid chemical route to synthesize anisotropic bimetallic nanoparticles, *Nanoscale*, 4(21), 6726-6729, 2012.

Bhainsa, KC and D'Souza, SF, Extracellular Biosynthesis of Silver Nanoparticles Using the Fungus *Aspergillus fumigates*. *Colloids and Surfaces B: Biointerfaces*, *Colloids Surf. B*, 47, 160-164, 2006.

Bhambure, R, Bule, M, Shaligram, N, Kamat, M and Singhal, R, Extracellular Biosynthesis of Gold Nanoparticles using *Aspergillus niger* - its characterization and Stability, *Chem Eng. Technol*, 32(7), 1036-1041, 2009.

Bhattacharya, D and Rajinder, G, Nanotechnology and potential of microorganisms, *Crit Rev Biotechnol*, 25, 199-204, 2005.

Bhattacharya, R and Mukherjee, P, Biological properties of naked nanoparticles, *Adv Drug Deliv Rev*, 60, 1289-1306, 2008.

Bhattacharya, R, Patra, CR, Verma, R, Griep, PR and Mukherjee, P, Gold nanoparticles inhibit the proliferation of multiple myeloma cells, *Adv. Mater*, 19, 711-716, 2007.

Boca, S, Rugina, D, Pintea, A, Barbu-Tudoran, L and Astilean, S, Flower-shaped gold nanoparticles: synthesis, characterization and their application as SERS-active tags inside living cells, *Nanotechnology*, 2 (5), 7, 2011.

Bonet, F, Grugeon, S, Dupont, L, Urbina, RH, Guery, C and Tarascon, JM, Synthesis and characterization of bimetallic Ni-Cu particles, *J Solid State Chem*, 172, 111-115, 2003.

Bosetti, M, Masse, A, Tobin, E and Cannas, M, Silver coated materials for external fixation devices: in vitro biocompatibility and genotoxicity, *Biomaterial*, 23(3), 887-892, 2002.

Brady, D and Duncan, JR, Binding of heavy metals by the cell walls of *Saccharomyces cerevisiae*, *Enzyme Microb. Technol.*, 16, 633–638, 1994.

Brown, SD, Nativo, P, Smith, JA, Stirling, D, Edwards, PR, Venu Gopal, B, Flint, DJ, Plumb, JA, Graham, D and Wheate, NJ, Gold Nanoparticles for the Improved Anticancer Drug Delivery of the Active Component of Oxaliplatin, *J. Am. Chem. Soc.*, 132, 4678-4684, 2010.

Burda, C, Chen, X, Narayanan, R and El-Sayed, MA, Chemistry and Properties of Nanocrystals of Different Shapes, *Chem. Rev.*, 105, 1025-1102, 2005.

C

Cai, F, Li, J, Sun, J and Ji, Y, Biosynthesis of gold nanoparticles by biosorption using *Magnetospirillum gryphiswaldense MSR-1*, *Chemical Engineering Journal*, 175, 70-75, 2011.

Cai, H, Wang, Y, He, P and Fang, Y, Electrochemical detection of DNA hybridization based on silver-enhanced gold nanoparticles label, *Analytica Chimica Acta*, 469(2), 165-172, 2002.

Cao, YC, Jin, R and Mirkin, CA, Nanoparticles with Raman Spectroscopic fingerprints for DNA and RNA detection, *Science*, 297 (5586), 1536-1540, 2002.

Cao. YW, Jin, R and Mirkin, CA, DNA-modified core–shell Ag/Au nanoparticles, *J Am Chem Soc.*, 123, 7961–7962, 2001.

Ceylan, A, Jastrzembki, K and Shah, SI, Enhanced solubility Ag-Cu nanoparticles and their thermal transport properties, *Metall Mater Trans A.*, 37, 2033, 2006.

Chandrasekharan, N and Kamat, PV, Improving the photochemical performance of nanostructured TiO₂ film by absorption of gold nanoparticles, *J Phys Chem B*, 104, 10851-10857, 2000.

Chau, JLH, Chen, CY. and Yang, CC, Facile synthesis of bimetallic nanoparticles by femtosecond laser irradiation method., *Arabian Journal of Chem*, 10, S1395–S1401, 2017.

Chen, DH and Chen, CJ, Formation and characterization of Au–Ag bimetallic nanoparticles in water-in-oil micro-emulsions, *Journal of Materials Chemistry*, 12(5), 1557-1562, 2002.

Chitra, K and Annadurai, G, Antibacterial activity of pH-dependent biosynthesized silver nanoparticles against clinical pathogen, *BioMed research international*, 20(12), 101-105, 2014.

Chowdhury, S, Bhethanabotla, VR and Sen, R, Effect of Ag-Cu Alloy Nanoparticle Composition on Luminescence Enhancement/Quenching, *Journal of Physical Chemistry C*, 113, 13016-13022, 2009.

Chen, DH and Chen, CJ, Formation and characterization of Au–Ag bimetallic nanoparticles in water-in-oil microemulsions, *J Mater Chem.*, 12, 1557–1562, 2002.

Chen, JC, Lin, JZ and Ma, XX, Evidence of the production of silver nanoparticles via pretreatment of *Phoma sp.* 32883 with silver nitrate, *Lett Appl Microbiol*, 37, 105-108, 2003.

Chen, JY, McLellan, J., Siekkinen, A, Xiong, YJ, Li, ZY and Xia, YN, Synthesis of Ag@AgAu metal core/alloy shell bimetallic nanoparticles with tunable shell compositions by a galvanic replacement reaction, *J Am Chem Soc.*, 128, 14776–14777, 2006.

Cheng, MT, Liu, SD and Wang, QQ, Modulating emission polarization of semiconductor quantum dots through surface plasmon of metal nanorods, *Appl Phys Lett.*, 92, 162–107, 2008.

Cho, KH, Park, JE, Osaka, T and Park, SG, The study of antimicrobial activity and preservative effects of nanosilver ingredients, *Electrochimica Acta*, 51, 956-960, 2005.

Cho, M, Chung, H, Choi, W and Yoon, J, Different Inactivation Behaviors of MS-2 Phage and *Escherichia coli* in TiO₂ Photocatalytic Disinfection, *Appl. Environ. Microbiol.*, 71(1), 270-275, 2005.

Choi, WS, Koo, HY and Kim, DY, Facile Fabrication of Core-in-Shell Particles by the Slow Removal of the Core and Its Use in the Encapsulation of Metal Nanoparticles, *Langmuir*, 24(9), 4633–4636, 2008.

Clark, ES, Templeton, DH and MacGillavry, CH, The crystal structure of gold (III) chloride, *Acta Crystallographica*, 11(4), 284-288, 1958.

Couchman, PR and Jesse, WA, Thermodynamic theory of size dependence of melting temperature in metals, *J Nat Products*, 269, 481, 1977.

Crabtree, JH, Burchette, RJ, Siddiqi, RA, Huen, IT, Handott, LL and Fishman, A, The efficacy of silver ion implanted catheters in reducing peritoneal dialysis-related infections, *Perit Dial Int.*, 23(4), 368-374, 2003.

Cui, Y, Ren, B, Yao, JL, Gu, RA and Tian, ZQ, Synthesis of Ag core Au shell bimetallic nanoparticles for immunoassay based on surface enhanced Raman spectroscopy, *J Phys Chem B.*, 110, 4002–4006, 2006.

D

Dai, T, Huang, YY, Sharma, SK, Hashmi, JT, Kurup, DB and Hamblin, MR, Tropical Antimicrobials for Burn Wound Infections, *Recent Patents on Anti-Infect Drug Discovery*, 5(2), 124-151, 2010.

Danhui, Z and Xiaoheng, L, Synthesis of polymer-stabilized monometallic Cu and bimetallic Cu/Ag nanoparticles and their surfaceenhanced Raman scattering properties, *J Mol Struct*, 1035, 471–475, 2013.

Daniel, MC and Astruc, D, Gold nanoparticles: assembly, supramolecular chemistry, quantum-size-related properties, and applications toward biology, catalysis and nanotechnology, *Chem Rev.*, 104, 293–346, 2004.

Danilcauk, M, Lund, A, Saldo, J, Yamada, H and Michalik, J, Conduction electron spin of small silver particles, *Spectrochimica Acta. Part A*, 63, 189-191, 2006.

Das, SK, Das, AR and Guha, AK, Gold Nanoparticles: Microbial Synthesis and Application in Water Hygiene Management, *Langmuir*, 25(14), 8192–8199, 2009.

Dash, P, Dehm, NA and Scott, RWJ, Bimetallic Pd Au nanoparticles as hydrogenation catalysts in imidazolium ionic liquids, *J Mol Catal A Chem*, 286, 114–119, 2008.

Delannoy, L, Hassan, NEI, Musi, A, To, NNLe, Krafft, J.M. and Louis, C., Preparation of Supported Gold Nanoparticles by a Modified Incipient Wetness Impregnation Method., *J Phys Chem B*, 110(45), 22471-22478, 2006.

Deplanche, K and Macaskiel, LE, Biorecovery of Gold by *E. coli* and *Desulfovibrio desulfuricans*, *Biotechnol. And Bioeng.*, 99(5), 1055-1064, 2008.

Dhillon, GS, Brar, SK, Kaur, S and Verma, M, Green approach for nanoparticle biosynthesis by fungi: current trends and applications, *Crit Rev Biotechnol*, 32, 49–73, 2012.

Dijk, MAV, Nonlinear-optical studies of single gold nanoparticles, Ph.D. dissertation (Universiteit Leiden), 2007.

Dong, TT, Luo, H, Wang, Y, Hu, B and Chen, H, Stabilization of Fe–Pd bimetallic nanoparticles with sodium carboxymethyl cellulose for catalytic reduction of para-nitrochlorobenzene in water, *Elsevier Desalination*, 271, 11–19, 2011.

D’Souza, L, Suchopar, A and Richards, RM, In situ approaches to establish colloidal growth kinetics, *J Colloid Interface Sci.*, 279, 458–463, 2004.

Du, JQ, Zhang, Y, Tian, T, Yans, SC and Wang, HT, Microwave irradiation assisted rapid synthesis of Fe–Ru bimetallic nanoparticles and their catalytic properties in water-gas shift reaction, *Mater Res Bull*, 44, 1347–1351, 2009.

Du, L, Xian, L and Feng, JX, Rapid extra-/intracellular biosynthesis of gold nanoparticles by the fungus *Penicillium sp*, *J Nanopart Res*, 13, 921-930, 2011.

Duran, N, Marcato, PD, Alves, OL, Desouza, G and Esposito, E, Mechanistic aspects of biosynthesis of silver nanoparticles by several *Fusarium oxysporum* strains, *J Nanobiotechnol*, 3, 1–8, 2005.

Duran, N, Marcato, PD, Duran, M, Yadav, A, Gade, A and Rai, M, Mechanistic aspects in the biogenic synthesis of extracellular metal nanoparticles by peptides, bacteria, fungi, and plants., *Applied microbiology and biotechnology*, 90(5), 1609-1624, 2011.

Dykman, L and Khlebtsov, N, Gold nanoparticles in biomedical applications: recent advances and perspectives, *Chem.Soc.Rev.*, 41, 2256-2282, 2012.

E

Elliott, C, The effects of silver dressings on chronic and burns wound healing, *British Journal of Nursing*, 19(15), S32-S36, 2010.

Enache, DI, Edwards, JK, Landon, P, Solsona-Espriu, B, Carley, AF, Herzing, AA, Watanabe, M, Kiely, CJ, Knight, DW and Hutchings, GJ, Solvent-free oxidation of primary alcohols to aldehydes using Au-Pd/TiO₂, *Catalysts Sci*, 311, 362–265, 2006.

Evanoff, DD and Chumenov, G, Size-controlled synthesis of nanoparticles. 2. measurement of extinction, scattering and absorption cross sections, *J Phys Chem B.*, 108(37), 13957-13962, 2004.

Evans, DJ, Cullinan, P, Geddes, DM, Walters, EH, Milan, SJ and Jones, P, Gold as an oral corticosteroid sparing agent in stable asthma, *Cochrane Database Syst. Rev.*, 4, 1–17, 2000.

F

Fang, Z, Qiu, X, Chen, J and Qiu, X, Debromination of polybrominated diphenyl ethers by Ni/Fe bimetallic nanoparticles: influencing factors, kinetics, and mechanism, *J Hard Mater*, 185, 958–969, 2010.

Fayaz, AM, Balaji, K, Girilal, M, Kalaichelvan, PT and Venkatesan, R, Mycobased synthesis of silver nanoparticles and their incorporation into sodium alginate films for vegetable and fruit preservation, *J Agric Food Chem*, 57, 6246-6252, 2009.

Feng, L, Gao, G, Huang, P, Wang, K, Wang, X, Luo, T and Zhang, C, Optical properties and catalytic activity of bimetallic gold-silver nanoparticles, *Nano Biomedicine and Engineering*, 2(4), 258-267, 2010.

Ferrando, R, Jellinek, J and Johnston, RL, Nanoalloys: From Theory to Applications of Alloy Clusters and Nanoparticles, *Chem Rev*, 108(3), 845–910, 2008.

Ferrer, D, Torres-Castro, A, Gao, X, Sepulveda-Guzman, S, Ortiz-Mendez, U and Jose-Yacamán, M, Three-Layer Core/Shell Structure in Au–Pd Bimetallic Nanoparticles, *Nano Lett*, 7(6), 1701–1705, 2007.

Fickers, P, Benetti, PH, Wache, Y, Marty, A, Mauersberger, S, Smit, MS and Nicaud, JM, Mini Review Hydrophobic Substrate utilization by the Yeast *Yarrowia lypolytica* and its potential applications, *FEMS Yeast Res*, 5, 527–543, 2005.

Fong, J and Wood, F, Nanocrystalline silver dressings in wound management: a review, *International Journal of Nanomedicine*, 1(4), 441-449, 2006.

G

Gade, AK, Bonde, P, Ingle, AP, Marcato, PD, Duran, N and Rai, MK, Exploitation of *Aspergillus niger* for synthesis of silver nanoparticles, *J Biobased Mater Bioenergy*, 2, 243-247, 2008.

Ganesh, BMM and Gunasekaran, P, Production and structural characterization of crystalline silver nanoparticles from *Bacillus cereus* isolate, *Colloids and Surfaces B: Biointerfaces*, 74(1), 191–195, 2009.

Gangula, A, Podila, R, Ramakrishna, M, Karanam, L, Janardhana, C and Rao AM, Catalytic Reduction of 4-Nitrophenol using biogenic gold and silver nanoparticles derived from *Breynia rhamnoides*, *Langmuir*, 27, 15268–15274, 2011.

Gao, J, Ren, X, Chen, D, Tang, F and Ren, J, Bimetallic Ag–Pt hollow nanoparticles: Synthesis and tunable surface plasmon resonance, *Scr Mater*, 57, 687–690, 2007.

Garcia, AG, Lopes, PP, Gomes, JF, Pires, C, Ferreira, EB, Lucena, RG, Gasparotto, LH and Filho, GT, Eco-friendly synthesis of bimetallic Au Ag nanoparticles., *New Journal of Chemistry*, 38(7), 2865-2873, 2014.

Garcia, S, Prado, M, Degano, R and Dominguez, A, A Copper-responsive Transcription Factor, CRF1, Mediates Copper and Cadmium Resistance in *Yarrowia lipolytica*, *J Biol. Chemistry*, 277(40), 37359–37368, 2002.

Gericke, M and Pinches A, Biological synthesis of metal nanoparticles, *Hydrometallurgy*, 83, 132-140, 2006a.

Gericke, M and Pinches, A, Microbial production of gold nanoparticles, *Gold Bull*, 39, 22-28, 2006b.

Ghosh, CR and Paria, S, Core/Shell Nanoparticles: Classes, Properties, Synthesis Mechanisms, Characterization, and Applications, *Chem Rev*, 112(4), 2373–2433, 2012.

Ghosh, P, Han, G, De, M, Kim, CK and Rotello, VM, Gold nanoparticles in delivery applications, *Advanced Drug Delivery Reviews*, 60(11), 1307-1315, 2008.

Ghosh, S, Jagtap, S, More, P, Shete, UJ, Maheshwari, NO, Rao, SJ, Kitture, R, Kale, S, Bellare, J, Patil, S and Pal, JK, *Dioscorea bulbifera* mediated synthesis of novel Au core

Ag shell nanoparticles with potent antibiofilm and antileishmanial activity, *Journal of Nanomaterials*, 16(1), 161, 2015.

Ghosh, SK, Mandal, M, Kundu, S, Nath, S and Pal, T, Bimetallic Pt–Ni nanoparticles can catalyze reduction of aromatic nitro compounds by sodium borohydride in aqueous solution, *Appl Catal A*, 268, 61–66, 2004.

Ghosh, SK and Pal, T, Interparticle coupling effect on the surface plasmon resonance of gold nanoparticles: from theory to applications, *Chem Rev*, 107, 4797–4862, 2007.

Gibson, JD, Khanal, BP and Zubarev, ER, Paclitaxel-Functionalized Gold Nanoparticles, *J. Am. Chem. Soc.*, 129, 11653-11661, 2007.

Gulsin, I, Alici, HA and Cesur, M, Determination of in vitro antioxidant and radical scavenging activities of propofol, *Chem. Phar. Bull.*, 53, 281-285, 2005.

Gupta, A and Silver, S, Molecular Genetics: Silver as a biocide: Will resistance become a problem?, *Nat. Biotechnol*, 16, 888, 1998.

Granqvist, CG, Buhrman, RA, Wyns, J and Sievers, AJ, Far-Infrared Absorption in Ultrafine Al Particles, *Physical Review Letter*, 37(10), 625-629, 1976.

Gumeci, C, Cearnaigh, DU, Casadonte, DJ and Korzeniewski, C, Synthesis of PtCu₃ bimetallic nanoparticles as oxygen reduction catalysts *via* a sonochemical method, *Journal of Materials Chemistry A*, 1(6), 2322-2330, 2013.

H

Han, G, Ghosh, P and Rotello, VM, Functionalized gold nanoparticles for drug delivery, *Nanomedicine*, 2(1), 113-123, 2007.

Han, SW, Kim, Y and Kim, K, Dodecanethiol-derivatized Au/Ag bimetallic nanoparticles: TEM, UV/VIS, XPS and FTIR analysis, *J. Colloid Interface Sci.*, 208, 272–278, 1998.

Hayashi, C, Uyeda, R and Tasaki, A, Ultra-fine particles: exploratory science and technology (1997 Translation of the Japan report of the related ERATO Project 1981–86), Noyes Publications, 1997.

He, P, Wang, X, Liu, Y, Liu, X and Yi, L, Comparison of electrocatalytic activity of carbon-supported Au-M (M = Fe, Co, Ni, Cu and Zn) bimetallic nanoparticles for direct borohydride fuel cells, *Int J Hydrogen Energy*, 37(16), 11984–11993, 2012a.

He, P, Wang, X, Liu, Y, Yi, L and Li, X, Reverse micelle synthesis of AuNi alloy as electro catalyst of borohydride oxidation, *Int J Hydrogen Energ*, 37, 1254–1262, 2012b.

He, P, Wang, Y, Wang, X, Pei, F, Wang, H, Liu, L and Yi, L, Investigation of carbon supported Au–Ni bimetallic nanoparticles as electrocatalyst for direct borohydride fuel cell, *J of Power Sources*, 196, 1042–1047, 2011.

He, S, Guo, Z, Zhang, Y, Zhang, S, Wang, J and Gu, N, Biosynthesis of gold nanoparticles using the bacteria *Rhodopseudomonas capsulate*, *Mater Lett*, 61, 3984-3987, 2007.

Heshmatpour, F, Abazari, R and Balalaie, S, Preparation of monometallic (Pd, Ag) and bimetallic (Pd/Ag, Pd/Ni, Pd/Cu) nanoparticles via reversed micelles and their use in the Heck reaction, *Tetrahedron*, 68, 3001–3011, 2012.

Hirakawa, K, Self-organization of silver-core bimetallic nanoparticles and their application for catalytic reaction, *Smart Nanoparticles Technol*, 567-592, 2012.

Hiramatsu, H and Osterloh, FE, A Simple Large-Scale Synthesis of Nearly Monodisperse Gold and Silver Nanoparticles with Adjustable Sizes and with Exchangeable Surfactants, *American Chemical Society*, 16 (13), 2004.

Holt, JG, Krieg, RN, Sneath, PHA, Staley, JT and Williams, ST, *Bergey's manual of determinative bacteriology*, Vol. 1 (Williams and Wilkins, Baltimore), 668, 1994.

Honary, S, Fathabad, EG, Paji, ZK and Eslamifar, M, A novel biological synthesis of gold nanoparticle by *Entero bacteriaceae* family, *Tropical Journal of Pharmaceutical Research*, 11(6), 887-891, 2012.

Hood, AR, Saurakhiya, N, Deva, D, Sharma, A and Verma, N, Development of bimetal-grown multi-scale carbon micronanofibers as an immobilizing matrix for enzymes in biosensor applications, *Mater Sci Eng C*, 33, 4313–4322, 2013.

Hostetler, MJ, Zhong, CJ, Yen, BKH, Andereg, J, Gross, SM, Evans, ND, Porter, M and Murray, RW, Stable, monolayer-protected metal alloy clusters, *J. Am. Chem. Soc.*, 120, 9396–9397, 1998.

Huang, D, Liao, F, Molesa, S, Redinger, D and Subramanian, V, Plastic-Compatible Low Resistance Printable Gold Nanoparticle Conductors for Flexible Electronics, *Journal of the Electrochemical Society*, 150(7), G412-417, 2003.

Huang, J, Chen, C, He, N, Hong, J, Lu, Y, Qingbiao, L, Shao, W, Sun, D, Wang, XH, Wang, Y and Yiang, X, Biosynthesis of silver and gold nanoparticles by novel sundried *Cinnemomum camphora* leaf, *Nanotechnology*, 18, 105-106, 2007.

Huang, Q, Yang, H, Tang, Y, Lu, T and Akins, DL, Carbon-supported Pt–Co alloy nanoparticles for oxygen reduction reaction, *Electrochem Commun.*, 8, 1220-1224, 2006.

Hutchison, JE, Greener nanoscience: a proactive approach to advancing applications and reducing implications of nanotechnology., *ACS Nano* 2, 395–402, 2008.

Husseiny, MI, Aziz, MAEI, Badr, Y and Mahmoud, MA, Biosynthesis of gold nanoparticles using *Pseudomonas aeruginosa*, *Spectrochim Acta A: Mol Biomol Spectrosc*, 67, 1003-1006, 2007.

I

Ingle, A, Gade, A, Pierrat, S, Sonnichsen, C and Rai, M, Mycosynthesis of silver nanoparticles using the fungus *Fusarium acuminatum* and its activity against some human pathogenic bacteria, *Curr Nanosci*, 4, 141–144, 2008.

Ivan, S and Branka, SS, Silver nanoparticles as antimicrobial agent: A case study on *E. coli* as a model for Gram negative bacteria, *Journal of Colloid and Interface Science*, 275, 177-182, 2004.

J

Jaeger, GT, Larsen, S and Moe, L, Two years follow-up study of the pain-relieving effect of gold bead implantation in dogs with hip-joint arthritis, *Acta Veterinaria Scandinavica*, 49, 9, 2007.

Jain, P and Pradeep, T, Potential of Silver Nanoparticle-Coated Polyurethane Foam As an Antibacterial Water Filter, *Biotechnol. And Bioeng.*, 90(1), 59-63, 2005.

Jain, PK, Huang, X, El-sayed, IH and El-sayed, MA, Noble metals on the nanoscale: optical and photothermal properties and some applications in imaging, sensing, biology and medicine, *Accounts of chemical research*, 41(12), 1578-1586, 2008.

Jana, NR, Gearheart, L and Murphy, CJ, Evidence for seed mediated nucleation in the chemical reduction of gold salts to gold nanoparticles, *Chem Mater*, 13, 2313–2322, 2001.

Jayabal, S and Ramaraj, R, Synthesis of core/shell Au/Ag nanorods embedded in functionalized silicate sol–gel matrix and their applications in electrochemical sensors, *Electrochim Acta*, 88, 51–58, 2012.

Jellinek, J, Nanoalloys: tuning properties and characteristics through size and composition, *The Royal Society of Chemistry, Faraday Discussions*, 138, 11–35, 2008.

Jiang, J, Oberdorster, G and Biswas, P, Characterization of size, surface charge and agglomeration state of nanoparticles dispersions for toxicological studies, *J. Nanopart. Res.*, 11, 77-89, 2009.

Jiang, Xm, Wang, Lm, Wang J and Chen, Cy, Gold Nanomaterials: Preparation, Chemical Modification, Biomedical Applications and Potential Risk Assessment, *Appl Biochem and Biotechnol*, 166(6), 1533-1551, 2012.

Joerger, R, Klaus, T and Granqvist, CG, Biologically produced silver-carbon composite materials for optically functional thin-film coatings, *Adv Mater*, 12, 407-409, 2000.

K

Kalishwarlal, K, Deepak, V, Ramkumarpandian, S, Nellaiah, H and Sangiliyandi, G, Extracellular biosynthesis of silver nanoparticles by the culture supernatant of *Bacillus lichiniiformis*, *Mater. Lett.*, 62, 4411-4413, 2008.

Karmakar, S, Kundu, S and Kundu, K, Bioconversion of silver salt into silver nanoparticles using different microorganisms, *Artificial Cells, Blood Substitutes, and Biotechnology*, 38(5), 259-266, 2010.

Kashyap, PL, Kumar, S, Srivastava, AK and Sharma, AK, Myconanotechnology in agriculture: A perspective, *World Journal of Microbiology Biotechnology*, 29, 191-207, 2012.

Kumar, SA, Abyaneh, MK, Gosavi, SW, Kulkarni, SK, Pasricha, R, Ahmad, A and Khan, MI, Nitrate reductase-mediated synthesis of silver nanoparticles from AgNO₃, *Biotechnol Lett*, 29, 439-445, 2007.

Kowshik, M, Ashtaputre, S, Kharrazi, S, Vogel, W, Urban, Y, Kulkarni, SK and Paknikar, KM, Extracellular synthesis of silver nanoparticles by a silver-tolerant yeast strain *MKY3*, *Nanotechnology*, 14, 95-100, 2003.

Kim, H, Lu, C, Worrell, WL, Vohs, JM and Gorte, RJ, Cu-Ni cermet anodes for direct oxidation of methane in solid-oxide fuel cells, *J Electrochem Soc*, 149, A 247-A 250, 2002.

Kim, JH, Ishihara, A, Mitsushima, S, Kamiya, N and Ota, KI, Catalytic activity of titanium oxide for oxygen reduction reaction as a nonplatinum catalyst for PEFC, *Electrochim Acta.*, 52, 2492-2497, 2007.

Kim, JS, Kuk, E, Yu, K, Kim, JH, Park, SJ, Lee, HJ, Kim, SH, Park, YK, Park, YH, Hwang, CY, Kim, YK, Lee, YS, Jeong, DH and Cho, MH, Antimicrobial effects of silver nanoparticles, *Nanomedicine*, 3, 95-101, 2007.

Kim, K, Kim, KL and Lee, SJ, Surface enrichment of Ag atoms in Au/Ag alloy nanoparticles revealed by surface enhanced Raman scattering spectroscopy, *Chem Phys Lett.*, 403, 77–82, 2005.

Kim, MJ, Na, HJ, Lee, KC, Yoo, EA and Lee, MY, Preparation and characterization of Au–Ag and Au–Cu alloy nanoparticles in chloroform, *J Mater Chem.*, 13, 1789–1792, 2003.

Kiss, LB, Soderlund, J, Niklasson, GA and Granqvist, CG, New approach to the origin of lognormal size distributions of nanoparticles, *Nanotechnology*, 10(1), 25-28, 1999.

Klich, CM, Swarbrick, J and Boylan, JC, *Encyclopedia of Pharmaceutical Technology*, New York, NY:Marcel Dekker Inc, 6, 415-439, 1992.

Koh, J, Kwon, Y and Pak, YN, Separation and sensitive determination of arsenic species ($\text{As}^{3+}/\text{As}^{5+}$) using the yeast-immobilized column and hydride generation in ICP-AES, *Microchem. J.*, 80, 195–199, 2005.

Koh, S, Michel, FT and Strasser, P, Electrocatalysis on Bimetallic Surfaces: Modifying Catalytic Reactivity for Oxygen Reduction by Voltammetric Surface Dealloying, *J. Am. Chem. Soc.*, 129, 12624-12625, 2007.

Krieg, NR, Chan, ECS and MJ Jr, Pelczar, *Microbiology*, Tata McGraw-Hill Publishing Company Limited; 37th reprint, 47, 701-711, 2008.

Krolikowska, A, Kudelski, A, Michota, A and Bukowska, J, SERS studies on the structure of thioglycolic acid monolayers on silver and gold, *Surf Sci*, 532, 227-232, 2003.

Kreibing, U and Vollmer, M, *Optical Properties of Metal Clusters*, Berlin, Germany: Springer, vol. 25, 1995.

Kruis, F, Fissan, H and Reillinghaus, B, Sintering and evaporation characteristics of gas-phase synthesis of size-selected PbS nanoparticles, *Mater Sci Eng B.*, 69, 329-334, 2000.

Krutyakov, Y, Olenin, A, Kudrinskii, A, Dzhurick, P and Lisichkin, G, Aggregative stability and polydispersity of silver nanoparticles prepared using two phase aqueous organic systems, *Nanotechnol Russia*, 3, 303-310, 2008.

Ksar, F, Ramos, L, Keita, B, Nadjjo, L, Beaunier, P and Remita, H, Bimetallic palladium–gold nanostructures: application in ethanol oxidation, *Chem Mater*, 21, 3677–3683, 2009.

Kuhn, S, Kanson, UH, Rogobete, L and Sandoghdar, V, Enhancement of Single-Molecule Fluorescence Using a Gold Nanoparticle as an Optical Nanoantenna, *Physical Review Lett.*, 97, 017402, 2006.

Kulkarni, SK, *Nanotechnology: Principles & practices*: Capital Publishing Company, 2009.

Kumar, A, Mandal, S, Selvakannan, PR, Perischa, R, Mandale, AB and Sastry, M, Investigation into the interaction between surface-bound alkylamine and gold nanoparticles, *Langmuir*, 19, 6277-6282, 2003.

Kumar, SA, Peter, YA and Nadeau, JL, Facile biosynthesis, separation and conjugation of gold nanoparticles to doxorubicin, *IOP Science, Nanotechnology*, 19, 2008.

Kumar, PSS, Manivel, A, Anandan, S, Zhou, M and Grieser, AM, Sonochemical synthesis and characterization of gold–ruthenium bimetallic nanoparticles, *Colloid surface A*, 356, 140–144, 2010.

Kumar, R, Singh, S and Singh, OV, Review: Bioconversion of lignocellulosic biomass: biochemical and molecular perspectives, *J. Ind. Microbiol. Biotechnol.*, 35 (5), 377–391, 2008.

Kumar, SA, Ansari, AA, Ahmad, A and Khan, MI, Extracellular biosynthesis of CdSe quantum dots by the fungus, *Fusarium oxysporium*, *J. Biomed Nanotechnol*, 3, 190-194, 2007a.

Kumar, SA, Abyaneh, MK, Gosavi, SW, Kulkarni, SK, Pasricha, R, Ahmad, A and Khan, MI, Nitrate reductase-mediated synthesis of silver nanoparticles from AgNO₄, *Biotechnol Lett.*, 29, 439-445, 2007b.

Kumar, SA, Peter, Y-A and Nadeau, JL, Facile biosynthesis, separation and conjugation of gold nanoparticles to doxorubicin, *Nanotechnology*, 19(495101), 10, 2008.

Kvistek, L and Pucek, R, The preparation and application of silver nanoparticles, *J Mater Sci.*, 22, 2461-2473, 2005.

L

Longoria, EC, Alfredo, Nestor, ARV and Borja, MA, Biosynthesis of silver, gold and bimellalic nanoparticles using the filamentous fungus *Neurospora crassa*, *Colloids and Surfaces B: Biointerfaces*, 83, 42-48, 2011.

Lee, KS and Sayed, MAEl, Gold and silver nanoparticles in sensing and imaging: sensitivity of Plasmon response to size, shape, and metal composition, *J Phys Chem B.*, 110(39), 19220–19225, 2006.

Lengke, M, Fleet, ME and Southam, G, Morphology of gold nanoparticles synthesized by filamentous cyanobacteria from gold (I)-thiosulfate and gold (III)-chloride complexes, *Lengmuir*, 22, 2780-2787, 2006.

- Li, Q, Mahendra, S, Lyon, DY, Brunet, L, Liga, MV, Li, D and Alvarez, PJJ, Review: Antimicrobial nanomaterials for water disinfection and microbial control: Potential applications and implications, *Water Res.*, 42(18), 4591-4602, 2008.
- Liang, HP, Wan, LJ, Bai, CL and Jiang, L, Gold hollow nanospheres: tunable surface plasmon resonance controlled by interior-cavity sizes, *J Phys Chem B*, 109, 7795-7800, 2005.
- Lin, Z, Wu, J, Xue, R and Yang, Y, Spectroscopic characterization of Au⁺³ biosorption by waste biomass of *Saccharomyces cerevisiae*, *Spectrochimica Acta A*, 61, 761-765, 2005.
- Link, S, Wang, ZL and El-Sayed, MA, Alloy formation of gold-silver nanoparticles and the dependence of the plasmon absorption on their composition, *J Phys Chem B.*, 103, 3529–3533, 1999.
- Link, S and Sayeed, MAEI, Optical properties and ultrafast dynamics of metallic nanocrystals, *Annu. Rev. Phys. Chem.*, 54, 331–366, 2003.
- Liu, RS, Cheng, LC, Huang, JH, Chen, HM, Lai, TC, Yang, KY, Hsiao, M, Chen, CH, Her, LJ and Tsai, DP, Highly efficient urchin-like bimetallic nanoparticles for photothermal cancer therapy, *SPIE Newsroom*, doi:10.1117/2.1201301.004676: Page 3, 2013.
- Liu, H, Zhang, H, Wang, J and Wei, J, Effect of temperature on the size of biosynthesized silver nanoparticle: deep insight into microscopic kinetics analysis, *Arabian Journal of Chemistry*, 9(4), 14, 2017.
- Liu, W, Yang, X and Xie, L, Size-controlled gold nanocolloids on polymer microsphere-stabilizer via interaction between functional groups and gold nanocolloids, *Journal of Colloid and Interface Science*, 313 (2), 494–502, 2007.
- Lloyd, JR, Yong, P and Macaskie, LE, Enzymatic Recovery of Elemental Palladium by Using Sulfate-Reducing Bacteria, *Appl Environ Microbiol*, 64(11), 4607-4609, 1998.

Loomba, L and Scarabelli, T, Metallic nanoparticles and their medicinal potential. Part I: gold and silver colloids, *Therapeutic Delivery*, 4(7), 859-873, 2013.

Lovely, DR, Stolz, JF, Nord, GL and Philips, EJP, Anaerobic production of magnetite by a dissimilatory iron-reducing microorganisms, *Nature*, 330, 252, 1987.

Lu, XM, Tuan, HY, Chen, JY, Li, ZY, Korgel, BA and Xia, YN, Mechanistic studies on the galvanic replacement reaction between multiply twinned particles of Ag and HAuCl_4 in an organic medium, *J Am Chem Soc.*, 129, 1733–1742, 2007.

Luo, XL, Xu, JJ, Du, Y and Chen, HY, A glucose biosensor based on chitosan–glucose oxidase–gold nanoparticles biocomposite formed by one-step electrodeposition, *Analytical Biochemistry*, 334, 284–289, 2004.

M

Madhumitha, G and Roopan, SM, Devastated crops: multifunctional efficacy for the production of nanoparticles, *J Nanomater*, 951858, 12, 2013.

Mahia, J, Lorenzo, MJL, Blanco, MC and Lopez, QMA, Structural characterization of electrochemically oxidized $\text{La}_2\text{CuO}_4^{\delta}$ particles prepared by a sol–gel method, *J Solid State Chem*, 131, 246–251, 1997.

Mahia, J, Qiwu, W, Jianlong, Y, Jingfang, R, Minming, H and Chunhu, M, Structure and catalytic properties of Cu–Ni bimetallic catalysts for hydrogenation, *Catal Lett*, 4, 63–74, 1990.

Magnusson, M, Deppert, K, Malm, J, Bovin, J and Samuelson, L, Gold nanoparticles: production, reshaping and thermal charging, *J Nanoparticle Res.*, 1, 243-251, 1999.

Major, KJ, De, C and Obare, SO, Recent Advances in the Synthesis of Plasmonic Bimetallic Nanoparticles, *Plasmonics*, 4, 61–78, 2009.

Malapermal, V, Mbatha, JN, Gengan, RM and Anand, K, Biosynthesis of bimetallic Au-Ag nanoparticles using *Ocimum basilicum* (L.) with antidiabetic and antimicrobial properties, *Advanced Materials Letters*, 6(12), 1050-1057, 2015.

Maliszewska, I, Szewczk, K and Waszak, K, Biological synthesis of silver nanoparticles, *J. Phys.:Conf. Ser.*, 146(012025), 6, 2009.

Mallin, MP and Murphy, CJ, Solution-phase synthesis of sub-10 nm Au-Ag alloy nanoparticles, *Nano Lett*, 2, 1235–1237, 2002.

Mandal, D, Bolander, ME, Mukhopadhyay, D, Sarkar, G and Mukherjee, P, The use of microorganisms for the formation of metal nanoparticles and their application, *Appl Microbiol Biotechnol*, 69, 485–492, 2006.

Mann, S, *Biomimetic materials chemistry*, VCH Publishers, New York, 1995.

Marchiol, L, Synthesis of metal nanoparticles in living plants, *Italian J Agron*, 7, 37, 2012.

Markova, Z, Siskova, KM, Filip, J, Cuda, J, Kolar, M, Safarova, K, Medrik, I and Zboril, R, Air stable magnetic Fe-Ag nanoparticles for advanced antimicrobial treatment and phosphorus removal, *Environ Sci Technol*, 47(10), 5285–5293, 2013.

Marsili, E, Rollefson, JB, Baron, DB, Hozalski, RM and Bond, DR, Microbial Biofilm Voltammetry: Direct Electrochemical Characterization of Catalytic Electrode-Attached Biofilms, *Applied and Environmental Microbiology*, 74 (23), 7329–7337, 2008.

Martinez, D, Berka, RM, Henrissat, B, Saloheimo, M, Arvas, M, Baker, SE, Chapman, J, Chertkov, O, Coutinho, PM, Cullen, D, Danchin, EG, Grigoriev, IV, Harris, P, Jackson, M, Kubicek, CP, Han, CS, Ho, I, Larrondo, LF, de Leon, AL, Magnuson, JK, Merino, S, Misra, M, Nelson, B, Putnam, N, Robbertse, B, Salamov, AA, Schmoll, M, Terry,

A, Thayer, N, Westerholm-Parvinen, A, Schoch, CL, Yao, J, Barabote, R, Nelson, MA, Detter, C, Bruce, D, Kuske, CR, Xie, G, Richardson, P, Rokhsar, DS, Lucas, SM, Rubin, EM, Dunn-Coleman, N, Ward, M and Brettin, TS, Genome sequencing and analysis of the biomass-degrading fungus *Trichoderma reesei* (syn. *Hypocrea jecorina*), *Nat. Biotechnol.*, 26(5), 553–560, 2005.

Maliszewska, I, Szewczyk, K and Waszak K, Biological synthesis of silver nanoparticles, *J. Phys.: Conf.Ser.*, 146(012025), 6, 2009.

McFarland, AD and Duyne, RPV, Single silver nanoparticles as Real-time optical sensors with

Menezes, WG, Neumann, B, Zielasek, V, Thiel, K and Baumer, M, Bimetallic AuAg nanoparticles: Enhancing the catalytic activity of Au for reduction reactions in the liquid phase by addition of Ag, *Chem. Phys. Chem.*, 14(8), 1577–1581, 2013.

Merga, G, Wilson, R, Lynn, G, Milosavljevic, B and Meisel, D, Redox Catalysis on “naked” silver nanoparticles, *J Phys Chem C.*, 111, 12220-12226, 2007.

Merroun, M, Rossberg, A, Hennig, C, Scheinost, AC and Selenska-Pobell, S, Spectroscopic characterization of gold nanoparticles formed by cells and S-layer protein of *Bacillus sphaericus*, JG-A12, *Mater. Sci. Eng., C* 27, 188–192, 2007.

Mhlanga, SD, Coville, NJ, Iron cobalt catalysts synthesized by a reverse micelle impregnation method for controlled growth of carbon nanotubes, *Diamond Relat Mater*, 82, 1489–1493, 2008.

Milligan, AJ and Morel, FMM, A proton buffering role for silica in diatoms, A proton buffering role for silica in diatoms, *Science*, 297, 1848, 2002.

Min, Y-L, Wan, Y, Liu, R and Yu, S-H, Novel hollow sub-microspheres with movable Au nanoparticles and excessive Pt nanoparticles in core and silica as shell, *Mater Chem Phys*, 111, 364–367, 2008.

Mishra, A, Tripathi, SK and Yun, S, Fungus mediated synthesis of gold nanoparticles and their conjugation with genomic DNA isolated from *Escherichia coli* and *Staphylococcus aureus*, *Process Biochem*, 47(5), 701-711, 2012.

Moghaddam, KM, An introduction to microbial metal nanoparticle preparation method, *J Young Investig*, 19, 7, 2010.

Mohammed Fayaz, A, Girilal Saba, M, Mahdy, A, Somsundar, SS, Venkatesan, R and Kalaichelvan, PT, Vancomycin bound biogenic gold nanoparticles: A different perspective for development of anti VRSA agents, *Process Biochemistry*, 46(3), 636–641, 2011.

Mohammed, MB, Volkov, V, Link, S and El-Sayed, MA, The ‘lightning’ gold nanorods: fluorescence enhancement of over a million compared to the gold metal, *Chemical Physics Letters*, 317(6), 517–523, 2000.

Mohl, M, Dobo, D, Kukovecz, A, Konya, Z, Kordas, K, Wei, J, Wjltai, R and Ajayan, PM, Formation of CuPd and CuPt bimetallic nanotubes by galvanic replacement reaction, *J Phys Chem C.*, 115(19), 9403-9409, 2011.

Mondal, S, Roy, N, Laskara, RA, Ska, I, Basu, S, Mandal, D and Begum, NA, Biogenic synthesis of Ag, Au and bimetallic Au/Ag alloy nanoparticles using aqueous extract of mahogany (*Swietenia mahogany* JACQ.), leaves, *Colloids Surf B Biointerfaces.*, 82, 497–504, 2011.

Montes, MO, Mayoral, A, Deepak, FL, Parsons, JG, Jose-Yacaman, M, Peralta-Videa, JR and Gardea-Torresdey, JL, Anisotropic gold nanoparticles and gold plates biosynthesis using *alfalfa* extracts, *J Nanopart Res*, 13(8), 3113–3121, 2011.

Mousumi, M and Ambikesh, M, Au–Ag bimetallic nanoparticles, binary and ternary mixed micelles as active catalysts for the reduction of $[\text{Co}(\text{NH}_3)_5\text{Br}](\text{NO}_3)_2$ by iron(II), *Colloid Surface A*, 430, 13–20, 2013.

Mouxing, F, Qingbiao, L, Daohua, S, Yinghua, L, Ning, H, Xu, D, Huixuan, W and Jiale, H, Rapid preparation Process of Silver Nanoparticles by Bioreduction and Their Characterizations, *Chin J Chem Eng*, 14(1), 114-117, 2006.

Mukherjee, P, Ahmad, A, Mandal, D, Senapati, S, Sainkar, SR, Khan, MI, Ramani, R, Parischa, R, Ajayakumar, PV, Alam, M, Sastry, M and Kumar, R, Bioreduction of AuCl_4 ions by the fungus, *Verticillium sp.* and surface trapping of the gold nanoparticles formed, *Angewandte Chemie International Edition*, 40(19):3585-3588, 2001.

Mukherjee, P, Roy, M, Mandal, BP, Dey, GK, Mukherjee, PK, Ghatak, J, Tyagi, AK and Kale, SP, Green synthesis of highly stabilized nanocrystalline silver particles by a non-pathogenic and agriculturally important fungus *T. asperellum*, *Nanotechnology*, 19(75103), 7, 2008.

Mukherjee, P, Senapati, S, Mandal, D, Ahmad, A, Khan, MI, Kumar, R and Sastry, M, Extracellular synthesis of gold nanoparticles by the fungus *Fusarium oxysporium*, *Chembiochem*, 3, 461-463, 2002.

Mukhopadhyay, A, Nag, M, Laskar, S and Lahiri, S, Accumulation of radio cesium by *Pleurotus citrinopileatus* species of edible mushroom, *J. Radioanal. Nucl. Chem.*, 273, 415–418, 2007.

N

Nair, B and Pradeep, T, Coalescence of nanoclusters and formation of submicron crystallites assisted by *Lactobacillus* strains, *Crystal Growth Design*, 2, 293-298, 2002.

Nair, LS and Laurencin, CT, Silver nanoparticles: synthesis and therapeutic applications, J Biomed Nanotechnol, 3, 301-316, 2007.

Njoki, PN, Lim, I-ImS, Mott, D, Park, H-Y, Khan, B, Mishra, S, Sujakumar, R, Luo, J, Zhong, C-J, Size correlation of optical and spectroscopic properties of gold nanoparticles, J. Phys. Chem. C, 111, 14664-14669, 2007.

Narayanan, KB and Sakthivel, N, Coriander leaf mediated biosynthesis of gold nanoparticles, Mater Lett, 62, 4588–4590, 2008.

Nayak, D, Nag, M, Banerjee, S, Pal, R, Laskar, S and Lahiri, S, Preconcentration of 198 Au in *Rhizoclonium*—a green alga, J. Radioanal, Nucl. Chem., 268, 337–340, 2006.

Ngo, YH, Li, D, Simon, GP and Garnier, G, Gold nanoparticle–Paper as a three-dimensional surface enhanced raman scattering substrate, Langmuir, 28, 8782–8790, 2012.

Nicklin, J, Graeme-Cook, K and Killington, R, Instant Notes Microbiology, 2nd Edition, 2003.

Nitani, H, Nakagawa, T, Daimon, H, Kurobe, Y, Ono, Y, Honda, Y, Koizumi, A, Seino, S, Takao, A and Yamamoto, TA, Methanol oxidation catalysis and substructure of PtRu bimetallic nanoparticles, Appl Catal A Gen, 326(2), 194–201, 2007.

O

Ogi, T, Saitoh, N, Nomura, T and Konishi, Y, Room-temperature synthesis of gold nanoparticles and nanoplates using *Shewanella algae* cell extract, J of Nanopart Res., 12(7): 2531-2539, 2010.

Okada, T, Patterson, BK, Ye, S-Q and Gurney, ME, Aurothiolates inhibit HIV-1 infectivity by Gold (I) ligand exchange with a component of the virion surface, Virology, 192(2), 631–642, 1993.

Oswal, N, Sharma, PM, Zinjarde, SS and Pant, A, Palm oil mill effluent treatment by a tropical marine yeast, *Bioresour Technol*, 85(1), 35–37, 2002.

P

Pal, K, Banitha, AK and Majundar, DK, Polymeric hydrogels: characterization and biomedical applications, *Design Mono Polymers*, 12, 197, 2009.

Panda, T and Deepa, K, Biosynthesis of Gold Nanoparticles, *Journal of Nanoscience and Nanotechnology*, 11(12), 10279-10294, 2011.

Parashar, V, Parashara, R, Sharma, B and Pandey, AC, Parthenium leaf extract mediated synthesis of silver nanoparticles: a novel approach towards weed utilization, *Digest Journal of Nanomaterials and Biostructures*, 4(1), 45-50, 2009.

Park, J, Zheng, H, Jun, YW and Alivisatos, AP, Hetero-epitaxial anion exchange yields single-crystalline hollow nanoparticles, *J Am Chem Soc.*, 131, 13943–13945, 2009.

Peng, G, Tisch, U, Adams, O, Hakim, M, Shehada, N, Broza, YY, Billan, S, Abdah-Bortnyak, R, Kuten, A and Haick, H, Diagnosing lung cancer in exhaled breath using gold nanoparticles, *Nature Nanotec.*, 4, 669-673, 2009.

Petro, G, Molnar, GL, Paszti, Z, Geszt, O, Beck, A, Guezi, L, Electronic structure of gold nanoparticles deposited on SiO_x/Si, *Mater Sci Eng C*, 19, 95-99, 2002.

Pilolli, R, Palmisano, F and Cioffi, N, Gold nanomaterials as a new tool for bioanalytical applications of laser desorption ionization mass spectrometry, *Anal Bioanal Chem*, 24(2), 2012.

Pissuwan, D, Valenzuela, SM and Cortie, MB, Therapeutic possibilities of plasmonically heated gold nanoparticles, *TRENDS in Biotechnology*, 2, 508-516, 2006.

Poulose, S, Panda, T, Nair, PP and Theodore, T, Biosynthesis of silver nanoparticles. *Journal of Nanoscience and Nanotechnology*, 14(2), 2038-2049, 2014.

Prabhu, S and Poulose, EK, Silver nanoparticles: mechanism of antimicrobial action, synthesis, medical applications and toxicity effects Review, Prabhu and Poulose International Nano Letters, 2, 32, 2012.

Priyadarshini, E, Pradhan, N, Sukla, LB, Panda, PK and Mishra, BK, Biogenic synthesis of floral-shaped gold nanoparticles using a novel strain, *Talaromyces flavus*, Annals Microbiol, 64, 1055–1063, 2014.

Pum, D and Sleytr, UB, The application of bacterial S-layers in molecular nanotechnology, Trends Biotechnol, 17, 8, 1999.

Purohit, SK and Solanki, R, Microorganisms Responsible for Wound Infection on Human Skin, Asian J. Res Pharm. Sci., 3(2), 68-71, 2013.

Q

Qiu, Y and Park, K, Environment-sensitive hydrogels for drug delivery, Advanced drug delivery reviews, 53, 321-339, 2001.

Qu, YB, Recent Development in the Determination of Precious Metals: A Review, Analyst, 121, 139-161, 1996.

R

Rabaey, K and Verstraete, W, Microbial fuel cells: novel biotechnology for energy generation, Review Trends in Biotechnology, 23(6), 291-298, 2005.

Rai, M and Duran, N, Metal nanoparticles in microbiology, Springer, 2011.

Rai, M, Ingle, AP, Birla, S, Yadav, A and Santos CA, Strategic role of selected noble metal nanoparticles in medicine, Critical reviews in microbiology, 42(5), 696-719, 2016.

Rad, AG, Abbasi, H and Afzali, MH, Gold Nanoparticles: Synthesising, Characterizing and Reviewing Novel Application in Recent Years, International Conference on Physics Science and Technology (ICPST 2011), Physics Procedia 22, 203 – 208, 2011.

Rahman, Lu, Shah, A, Khan, SB, Asiri, AM, Hussain, H, Han, C, Qureshi, R., Ashiq, MN, Zia, MA, Ishaq, M and Kraatz, HB, Synthesis, characterization, and application of Au–Ag alloy nanoparticles for the sensing of an environmental toxin, pyrene, *J Appl Electrochem*, 2015.

Rai, M, Yadav, A and Gade, A, Current trends in phytosynthesis of metal nanoparticles, *Crit. Rev Biotechnol*, 28(4), 277-284, 2008.

Rai, M, Yadav, A and Gade, A, Silver nanoparticles as a new generation of antimicrobials, *Biotechnology Advances*, 27(1), 76-83, 2009.

Ramakritinan, CM, Kaarunya, E, Shankar, S and Kumaraguru, AK, Antibacterial effects of Ag, Au and bimetallic (Ag-Au) nanoparticles synthesized from red algae, In *Solid State Phenomena*; 201, 211-230, 2013.

Ranga Reddy, P, Varaprasad, K, Narayana Reddy, N, Mohana Raju, K and Reddy, NS, Fabrication of Au and Ag Bi-metallic nanocomposite for antimicrobial applications, *Journal of Applied Polymer Science*, 125(2), 1357-1362, 2012.

Rangnekar, A, Sarma, TK, Singh, AK, Deka, J, Ramesh, A and Chattopadhyay, A, Retention of Enzymatic Activity of α -Amylase in the Reductive Synthesis of Gold Nanoparticles, *Langmuir*, 23, 5700-5706, 2007.

Rao, CNR, Kulkarni, GU, Thomas, PJ and Edwards, PP, Metal nanoparticles and their assemblies, *Chem. Soc. Rev.*, 29, 27-35, 2000.

Rao, CRM and Reddi, GS, Platinum group metals (PGM); occurrence, use and recent trends in their determination, *Trends in analytical chemistry*, 19(9), 565-586, 2000.

Rathna, GS, Elavarasi, A, Peninal, S, Subramanian, J, Mano, G and Kalaiselvam, M, Extracellular Biosynthesis of Silver Nanoparticles by Endophytic Fungus *Aspergillus*

terreus and its Anti-dermatophytic Activity, International Journal of Pharmaceutical & Biological Archives, 4(3), 481–487, 2013.

Rao, CRM and Reddi, GS, Platinum group metals (PGM); occurrence, use and recent trends in their determination, Trends in analytical chemistry, 19(9), 565-586, 2000.

Reddy, RP, Varaprasad, K, Reddy, N., Raju, MK and Reddy, SN, Fabrication of Au and Ag bi-metallic nanocomposite for antimicrobial applications, J Appl Polym Sci, 2, 1357–1362, 2012.

Reddy, VR, Gold Nanoparticles: synthesis and applications, Synlett, 11, 1791-1792, 2006.

Remita, H, Lampre, I, Mostafavi, M, Balanzat, E and Bouffard, S, Comparative study of metal clusters induced in aqueous solutions by γ -rays, electron or C^{6+} ion beam irradiation, Radiat Phys Chem, 72, 575–586, 2005.

Riabinina, D, Zhang, J, Chaker, M, Margot, J and Ma, D, Size Control of gold nanoparticles synthesized by laser ablation in liquid media, ISRN Nanotechnology, Article ID 297863, 5, 2012.

Riddin, TL, Gericke, M and Whiteley, CG, Analysis of the inter- and extracellular formation of platinum nanoparticles by *Fusarium oxysporium* using response surface methodology, Nanotechnology, 17, 3482-3489, 2006.

Rivas, L, Sanchez-Cortes, S, Garcia-Ramos, JV and Morcillo, G, Mixed silver/gold colloids: a study of their formation, morphology, and surface-enhanced Raman activity, Langmuir, 16, 9722–9728, 2000.

Rodriguez-Gonzalez, B, Burrows, A, Watanabe, M, Kiely, CJ and Liz-Marzan, LM, Multishell bimetallic AuAg nanoparticles: synthesis, structure and optical properties, J Mater Chem., 15, 1755–1759, 2005.

Rollet-Labelle, E, Grange, MJ, Elbim, C, Marquetty, C, Go-qgerot-Pacidalo, MA and Pasquier, C, Hydroxyl radical as a potential intracellular mediator of polymorphonuclear neutrophil apoptosis, *Free Rad. Biol. Med.*, 24, 563-572, 1998.

Roopan, SM, Rohit, G, Madhumitha, G, Rahuman, A, Kamaraj, C, Bharathi, A and Surendra TV, Low-cost and eco-friendly phyto-synthesis of silver nanoparticles using *Cocos nucifera* coir extract and its larvicidal activity, *Ind Crop Prod*, 43, 631–635, 2013.

Roopan, SM, Surendra, TV, Elango, G and Kumar, SH, Biosynthetic trends and future aspects of bimetallic nanoparticles and its medicinal applications, *Applied microbiology and biotechnology*, 8(12), 5289-5300, 2014.

Roshmi, T, Soumya, KR, Jyothis, M and Radhakrishnan, EK, Effect of biofabricated gold nanoparticle-based antibiotic conjugates on minimum inhibitory concentration of bacterial isolates of clinical origin, *Gold Bulletin*, 48(2), 63-71, 2015.

Roy, N and Barik, A, Waste to health: Biorecovery of nanoparticles from e-waste and their medical applications, *Int J Nanotechnol Appl*, 4, 95–101, 2010.

Rubello, S, Asok, AK, Mundayoor, S and Jisha, MS, Surfactants: Chemistry, Toxicity and Remediation, *Environmental Chemistry for a sustainable world 4*, Springer International Publishing Switzerland, 2013.

Rushender, CR, Eerike, M, Madhusudhanan, N and Venugopal, RK, In vitro Antioxidant and free radical scavenging activity of *Nympha eapubescens*, *J. Pharm. Res.*, 5(7), 3804-3806, 2012.

S

Saha, B and Bhattacharya, J, In Vitro Structural and Functional Evaluation of Gold Nanoparticles Conjugated Antibiotics, *Nanoscale Research Letters*, 2, 614-622, 2007.

Salata, OV, Applications of nanoparticles in biology and medicine, *J. Nanobiotech*, 2, 3, 2004.

Salunke, GR, Ghosh, S, Kumar, RS, Khade, S, Vashisth, P, Kale, T, Chopade, S, Pruthi, V, Kundu, G, Bellare, JR and Chopade, BA, Rapid efficient synthesis and characterization of

silver, gold, and bimetallic nanoparticles from the medicinal plant *Plumbago zeylanica* and their application in biofilm control, *International journal of nanomedicine*, 9, 2635, 2014.

Sandt, C, Madoulet, C, Kohler, A, Allouch, P, De Champs, C, Manfait, M and Sockalingum, GD, FT-IR micro-spectroscopy for early identification of some clinically relevant pathogens, *Journal of applied microbiology*, 101(4), 785-797, 2006.

Sanghi, R and Verma, P, pH dependent fungal proteins in the 'green' synthesis of gold nanoparticles, *Adv. Matt. Lett.*, 1(3), 193-199, 2010.

Saravanan, P, Gopalan, R and Chandrasekaran, V, Synthesis and characterization of nanomaterials, *Def Sci J*, 58, 504–516, 2008.

Sarkar, J, Ray, S, Chattopadhyay, D, Laskar, A and Acharya, K, Mycogenesis of gold nanoparticles using a phytopathogen *Alternaria alternate*, *Bioprocess and Biosystems Engineering*, 35, 637–643, 2012.

Sarkar, S, Jana, AP, Samanta, SK and Mostafa G, Facile synthesis of silver nanoparticles with highly efficient anti-microbial properties, *Polyhedron*, 26, 15, 4419-4426, 2007.

Sastry, M, Ahmad, A, Khan, MI and Kumar, R, Biosynthesis of metal nanoparticles using fungi and actinomycetes, *Curr. Sci.*, 85(2), 162-170, 2003.

Sawle, BD, Salimath, B, Deshpande, R, Bedre, MD, Prabhakar, BK and Venkataraman, A, Biosynthesis and stabilization of Au and Au–Ag alloy nanoparticles by fungus, *Fusarium semitectum*, *Science and technology of advanced materials*, 9(35012), 6, 2008.

Sayed, IHEh, Huang, X and Sayed, MAEl, Selective laser photo-thermal therapy of epithelial carcinoma using anti-EGFR antibody conjugated gold nanoparticles., *Cancer Letters*, 239 (1), 129-135, 2006.

Sayed, MAEl, Some interesting properties of metals confined in time and nanometer space of different shapes, *Accounts of chemical research*, 34 (4), 257-264, 2001.

Schider, G, Krenn, JR, Gotschi, W, Lamprecht, B, Ditzbacher, H, Leitner, A and Aussenegg, FR, Optical properties of Ag and Au nanowire gratings, *Journal of Applied Physics*, 90(8), 3825-3830, 2001.

Schrofel, A and Gabriela Kratosova, G, Biosynthesis of Metallic Nanoparticles and Their Applications, A. Prokop (ed.), *Intracellular Delivery: Fundamentals and Applications*, Fundamental, Biomedical Technologies, 373-409, 2011.

Schrofel, A, Kratosova, G, Krautova, M, Dobrocka, E and Vavra, I, Biosynthesis of gold nanoparticles using diatoms-silica-gold and EPS-gold bionanocomposite formation, *Journal of Nanoparticle Research*, 13(8), 3207-3216, 2011.

Seidl, V, Gamauf, C, Druzhinina, IS, Seiboth, B, Hartl, L and Kubicek, CP, The *Hypocrea jecorina* (*Trichoderma reesei*) hypercellulolytic mutant RUT C 30 lacks an 85 kb (29 gene coding) region of the wild type genome, *BMC Genomics*, 9, 327, 2008.

Seidl, V, Seibel, C, Kubicek, CP and Schmoll, M, Sexual development in the industrial workhorse *Trichoderma reesei*, *PNAS*, 106 (33), 13909–13914, 2009.

Shah, A, Rahman, Lu, Qureshi, R and Rehman, Zu, Synthesis, characterization and applications of bimetallic (Au-Ag, Au-Pt, Au-Ru) alloy nanoparticles, *Rev Adv Mater Sci.*, 30, 133–149, 2012.

Shaligram, NS, Bule, M, Bhumbure, RM, Singhal, RS, Singh, SK, Szakacs, G and Pandey, A, Biosynthesis of silver nanoparticles using aqueous extract from the compactin producing fungal strain, *Process Biochem*, 44, 939-948, 2009.

Shankar, SS, Ahmad, A, Pasricha, R and Sastry, M, Bioreduction of chloroaurate ions by geranium leaves and its endophytic fungus yields gold nanoparticles of different shapes, *Journal of Materials Chemistry*, 13(7), 1822-1826, 2003.

Shankar, SS, Rai, A, Ahmad, A and Sastry, M, Rapid synthesis of Au, Ag, and bimetallic Au core–Ag shell nanoparticles using Neem (*Azadirachta indica*) leaf broth, *Journal of colloid and interface science*, 275(2), 496-502, 2004.

Sharma, NC, Sahi, SV, Nath, S, Parsons, JG, Torresdey, JL and Pal, T, Synthesis of plant-mediated gold nanoparticles and catalytic role of biomatrix embedded nanomaterials, *Environ Sci Technol*, 41, 5137–5142, 2007.

Shaw III, C.F, Gold-Based Medicinal Agents, *Chemical Reviews*, 99 (9), 2589–2600, 1999.

Shchukin, DG, Redtchenko, IL and Sukhorukov, G, Photoinduced reduction of silver inside microscale polyelectrolyte capsules, *Chem Phys Chem*, 4, 1101-1103, 2003.

Shedbalkar, U, Singh, R, Wadhvani, S, Gaidhani, S and Chopade, BA, Microbial synthesis of gold nanoparticles: current status and future prospects. *Advances in colloid and interface science*, 209, 40-48, 2014.

Sheny, DS, Joseph, M and Philip, D, Phytosynthesis of Au, Ag and Au–Ag bimetallic nanoparticles using aqueous extract and dried leaf of *Anacardium occidentale*, *J Spec Act A*, 79, 254–262, 2011.

Shi, X, Wang, S, Meshinchi, S, Antwerp, MEV, Bi, X, Lee, I and Baker, JRJr, Dendrimer-entrapped gold nanoparticles as a platform for cancer-cell targeting and imaging, *Small*, 3(7), 1245-1252, 2007.

Shin, KS, Kim, JH, Kim, IH and Kim, K, Poly(ethylenimine)-stabilized hollow gold-silver bimetallic nanoparticles: fabrication and catalytic application, *Bulletin of Korean Chem Soc.*, 33(3), 906-910, 2012.

Shong, CW, Haur, SC and Wee, ATS, *Science at the nano scale: An introductory textbook*, Pan Stanford Publishing Pte. Ltd., 2010.

Simkiss, K and Wilbur, KM, *Biom mineralization Cell Biology & Mineral Deposition*, Academic Press, New York, 1989.

Singh, HP, Gupta, N, Sharma, SK and Sharma, RK, Synthesis of bimetallic Pt–Cu nanoparticles and their application in the reduction of rhodamine, *B. Colloids Surfaces A*, 416, 43–50, 2013.

Singh, M, Manikandan, S and Kumaraguru, AK, Nanoparticles: a new technology with wide applications, *Res J Nanosci Nanotechnol*, 1, 1–11, 2011.

Singh, P and Balaji, R, Biological synthesis and characterization of silver nanoparticles using the fungus *Trichoderma harzianum*, *Asian J Exp Biol Sci*, 2, 600–605, 2011.

Slawson, RM, Trevors, JT and Lee, H, Silver accumulation and resistance in *Pseudomonas stutzeri*, *Arch. Microbiol.*, 158, 398-404, 1992.

Soares, JR, Dinis, TCP, Cunha, AP and Almeida, LM, Antioxidant activities of some extracts of *Thymus zygis*, *Free Rad. Res.*, 26, 469-478, 1997.

Sondi, I and Salopek-Sondi, B, Silver nanoparticles as antimicrobial agent: a case study of *E. coli* as a model for Gram negative bacteria, *J. Colloid Interface Sci.*, 275, 177-182, 2004.

Soni, N and Prakash, S, Efficacy of fungus mediated silver and gold nanoparticles against *Aedes aegypti* larvae, *Parasitol Res.*, 110(1), 175–184, 2012.

Soni, N and Prakash, S, Synthesis of gold nanoparticles by the fungus *Aspergillus niger* and its efficacy against mosquito larva, *Dovepress Journal, Report in Parasitology*, 7, 2012.

Sperling, RA, Gil, PR, Zhang, F, Zanella, M and Parak, WJ, Biological applications of gold nanoparticles, *Chem Soc Rev*, 37, 1896–1908, 2008.

Strouhal, M, Kizek, R, Vacek, J, Trnkova, L and Nimec, M, Electrochemical study of heavy metals and metallothionein in yeast *Yarrowia lipolytica*, *Bio electrochemistry*, 60, 29–36, 2003.

Stuchinskaya, T, Moreno, M, Cook, MJ, Edwards, DR and Rusell, DA, Targeted photodynamic therapy of breast cancer cells using antibody–phthalocyanine–gold nanoparticle conjugates, *Photochem. & Photobiol. Sci.*, 10, 822-831, 2011.

Sun, H, Shen, X, Yao, L, Xing, S, Wang, H, Feng, Y and Chen, H, Measuring the Unusually Slow Ionic Diffusion in Poly aniline via Study of Yolk-Shell Nanostructures, *J Am Chem Soc*, 134, 11243–11250, 2012.

Sun, Y, Mayers, BT and Xia, Y, Template-engaged replacement reaction: a one-step approach to the large-scale synthesis of metal nanostructures with hollow interiors, *Nano Lett.*, 2(5), 481-485, 2002.

Sun, YG and Xia, YN, Mechanistic study on the replacement reaction between silver nanostructures and chloroauric acid in aqueous medium, *J Am Chem Soc.*, 126, 3892–3901, 2004.

T

Tajkarimi, M, Iyer, D, Tarranum, M and Cunningham, Q, The effects of silver nanoparticle size and coating on *E. coli*, *JSM Nanotechnology and Nanomedicine*, 2, 2014.

Taleb, A, Petit, C and Pileni, MP, Optical properties of Self-Assembled 2D & 3D Superlattices of Silver Nanoparticles, *J. phys. Chem.*, 102, 2214-2220, 1998.

Takami, A, Kurita, H and Koda, S, Laser-induced size reduction of noble metal particles, *J Phys Chem B.*, 103, 1226–1232, 1999.

Tamuly, C, Hazarika, M, Borah, SC, Das, MR and Boruah, MP, In situ biosynthesis of Ag, Au and bimetallic nanoparticles using *Piper pedicellatum* C. DC: green chemistry approach, *Colloids and Surfaces B: Bio interfaces*, 102, 627-634, 2013.

Tapan, KS and Andrey, LR, Nonspherical noble metal nanoparticles: colloid chemical synthesis and morphology control, *Adv.Mater.*, 21, 1-24, 2009.

Thakkar, KN, Mhatre, SS and Parikh, RY, Biological synthesis of metallic nanoparticles, *Nanomed Nanotechnol Biol Med*, 6, 257–262, 2010.

Thompson, DT, Using gold nanoparticles for catalysis, *Nano Today*, 2(4), 40-43, 2007.

Tiekink, ERT, Gold derivatives for the treatment of cancer, *Crit. Rev. Oncol. Hematol*, 42, 225–248, 2002.

Tojo, C and Vila-Romeu, N, Kinetic Study on the Formation of Bimetallic Core-Shell Nanoparticles via Microemulsions, *Mater*, 7, 7513–7532, 2014.

Toshima, N and Yonezawa, T, Bimetallic nanoparticles-novel materials for chemical and physical applications, *New J Chem.*, 22, 1179-1201, 1998.

Tripathi, RM, Gupta, RK, Bhadwal, AS, Singh, P, Shrivastav, A and Shrivastav, BR, Fungal biomolecule assisted biosynthesis of Au–Ag alloy nanoparticles and evaluation of their catalytic property, *IET Nanobiotechnology*, 9(4), 178-183, 2015.

Tsai, CY, Shiau, AL, Chen, SY, Chen, YH, Cheng, PC, Chang, MY, Chen, DH, Chou, CH, Wang, CR and Wu, CL, Amelioration of Collagen-Induced Arthritis in Rats by Nanogold, *Arthritis & Rheumatism*, 56(2), 544-554, 2007.

Turkevich, J, Stevenson, PC and Hillier, J, A study of the nucleation and growth processes in the synthesis of colloidal gold, *Disc of the Faraday Soc.*, 11, 55-75, 1951.

V

Van Hying, DL and Zukoski, CF, Formation mechanisms and aggregation behavior of borohydride reduced silver particles, *Langmuir.*, 14, 7034–7046, 1998.

Velikov, KP, Zegers, GE and Blaaderen, Av Synthesis and characterization of large colloidal silver particles, *Langmuir*, 19, 1384–1389, 2003.

Velissaratou, AS and Papaianou, G, In vitro release of chlorempheniramine maleate from ointment bases, *Int J Pharm*, 52, 83-86, 1989.

Verma, S, Abirami, S and Mahalakshmi, V, Anticancer and antibacterial activity of silver nanoparticles biosynthesized by *Penicillium* spp. and its synergistic effect with antibiotics, *Journal of Microbiology and Biotechnology Research*, 3(3), 54-71, 2017.

Vigneshwaran, N, Ashtaputre, NM, Varadarajan, PV, Nachane, RP, Paralikar KM and Balsubramanya, RH, *Mater. Lett.*, 61, 1413, 2007.

Viikari, L, Alapuranen, M, Puranen, T, Vehmaanpera, J and Siika-Aho, M, Thermostable enzymes in lignocellulose hydrolysis. *Adv, In Biochem. Eng. Biotechnol*, 108, 121–145, 2007.

Vilchis-Nestor, AR, Sanchez-Mendieta, V, Camacho-Lopez, MA, Gómez-Espinosa, RM, Camacho-Lopez, MA and Arenas-Allatore, JA, Solventless synthesis and optical properties of Au and Ag nanoparticles using *Camellia sinensis* extract, *Mater Lett*, 62, 3103–3105, 2008.

W

Waghmare, SR, Mulla, MN, Marathe, SR and Sonawane, KD, Eco friendly production of silver nanoparticles using *Candida utilis* and its mechanistic action against pathogenic microorganisms, *3 Biotech*, 5, 33–38, 2015.

Wang, C, Chi, M, Li, D, Strmcnik, D, Van der Vliet, D, Wang, G, Komanicky, V, Chang, KC, Paulikas, AP, Tripkovic, D and Pearson, J, Design and synthesis of bimetallic electro catalyst with multilayered Pt-skin surfaces, *Journal of the American Chemical Society*, 133(36), 14396-14403, 2011.

Wang, C, Yin, H, Chan, R, Peng, S, Dai, S and Sun, S, One-pot synthesis of Oleylamine coated AuAg alloy NPs and their catalysis for CO oxidation, *Chem Mater.*, 21, 433–435, 2009.

- Wang, H, Brandl, DW, Le, F, Nordlander, P and Halas, NJ, Nanorice: a hybrid plasmonic nanostructure, *Nano Lett.*, 6, 827–832, 2006.
- Wang, L, Shi, X, Kariuki, NN, Schadt, M, Wang, GR, Rendeng, Q, Choi, J, Luo, J, Lu, S and Zhong, CJ, Array of molecularly mediated thin film assemblies of nanoparticles: correlation of vapor sensing with interparticle spatial properties, *J. Am. Chem. Soc.*, 129, 2161–2170, 2007.
- Wang, X, Chen, C, Chang, Y and Liu, H, Dechlorination of chlorinated methanes by Pd/Fe bimetallic nanoparticles, *J HardMater*, 161, 815–823, 2008.
- Wang, Z, Chen, J, Yang, P and Yang, W, Biomimetic synthesis of gold nanoparticles and their aggregates using a polypeptide sequence, *Appl. Organometal, Chem.*, 21, 645–651, 2007.
- Wanjala, BN, Luo, J, Fang, B, Mott, D and Zhong, CJ, Gold-platinum nanoparticles: alloying and phase segregation, *J Mater Chem*, 21, 4012–4020, 2011.
- Wanjala, BN, Luo, J, Loukrakpam, R, Fang, B, Mott, D, Njoki, PN, Engelhard, M, Naslund, HR, Wu, JK, Wang, L, Malis, O and Zhong, CJ, Nanoscale Alloying, Phase-Segregation, and Core-Shell Evolution of Gold-Platinum Nanoparticles and Their Electro catalytic Effect on Oxygen Reduction Reaction, *Chem Mater*, 22, 4282–4294, 2010.
- Weihua, W, Xuelin, T, Chen, K and Gengyu, C, Synthesis and characterization of Pt–Cu bimetallic alloy nanoparticles by reverse micelles method, *Colloids and Surfaces A: Physicochem Eng Aspects*, 273, 35–42, 2006.
- Wessling, B, *Conductive Polymer/Solvent Systems: Solutions or Dispersions?*, 4, 50, 1996.
- Westsson, E and Koper, GJ, How to determine the core-shell nature in bimetallic catalyst particles? *Catalysts*, 4(4), 375-396, 2014.

Wiederrecht, GP, Near-field optical imaging of noble metal nanoparticles, *Eur Phys J Appl Phys.*, 28, 3-18, 2004.

Wiberg, E, Wiberg, N and Holleman, AF, *Inorganic Chemistry* (101 ed.), Academic Press, pp., 1286–1287, 2001.

Wiley, B, Sun, Y, Mayers, B and Xi, Y, Shape-controlled synthesis of metal nanostructures: the case of silver, *Chem Eur J.*, 11, 454-463, 2005.

Wiley, BJ, Chen, Y, McLellan, JM, Xiong, Y, Li, ZY, Ginger, D and Xia Y, Synthesis and optical properties of silver nanobars and nanorice, *Nano Lett.*, 7(4), 1032–1036, 2007.

Wilson, OM, Scott, RWJ, Garcia-Martinez, JC and Crooks, RM, Synthesis, characterization, and structure-selective extraction of 1-3-nm diameter Au Ag dendrimer-encapsulated bimetallic nanoparticles, *J Am Chem Soc.*, 127, 1015–1024, 2005.

Wright, JB, Lam, K, Hansen, D and Burrell, RE, Efficacy of tropical silver against fungal burn wound pathogens, *American Journal of Infection Control*, 27(4), 344-350, 1999.

Wu, P, Gao, Y, Zhang, H and Cai, C, Aptamer-guided silver-gold bimetallic nanostructures with highly active surface-enhanced Raman scattering for specific detection and near-infrared photothermal therapy of human breast cancer cells, *J Anal Chem (Washington, DC, United States)*, 84, 18, 7692–7699, 2012.

X

Xiao, Q, Yao, Z, Liu, J, Hai, R, Oderji, HY and Ding, H, Synthesis and characterization of Ag–Ni bimetallic nanoparticles by laser-induced plasma, *Thin Solid Films*, 519, 7116–7119, 2011.

Xie, J, Lee, JY, Wang, DIC and Ting, YP, Silver nanoplates: from biological to biomimetic synthesis, *ACS Nano*, 1(5), 429–439, 2007.

Ximei, Q, In vivo tumour targeting and spectroscopic detection with surface-enhanced Raman nanoparticle tags, *Nature biotechnology*, 26, 1, 2008.

Xiong, L and Manthiram, A, Nanostructured Pt–M/C (M = Fe and Co) catalysts prepared by a microemulsion method for oxygen reduction in proton exchange membrane fuel cells, *Electrochimica Acta.*, 50, 2323-2329, 2005.

Xiong, Y, Washio, I, Chen, J, Cai, H, Li, YZ and Xia, Y, Poly(vinyl pyrrolidone): a dual functional reductant and stabilizer for the facile synthesis of metal nanoplates in aqueous solutions. *Langmuir*, 22:8563–8570, 2006.

Xiuli, L, Baozong, L, Manhuan, C, Yukou, D, Xiaomei, W and Ping, Y, Catalytic hydrogenation of phenyl aldehydes using bimetallic Pt/Pd and Pt/Au nanoparticles stabilized by cubic silsesquioxanes, *J Mol Catal A-Chem*, 284, 1–7, 2008.

Xu, ZP, Zeng, QH, Lu, GQ and Yu, AB, Inorganic nanoparticles as carriers for efficient cellular delivery, *Chemical Engineering Science*, 61, 1027-1040, 2006.

Y

Yallappa, S, Manjanna, J and Dhananjaya, BL, Phytosynthesis of stable Au, Ag and Au–Ag alloy nanoparticles using *J. sambac* leaves extract, and their enhanced antimicrobial activity in presence of organic antimicrobials, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 137, 236-243, 2015.

Yi, X, Xian, JH and Yuan, CH, Direct electrochemistry of horseradish peroxidase immobilized on a colloid cysteamine-modified gold electrode. *Analytical Biochemistry*, 2000, 278: 22–28.

Z

Zent, CS, Call, TG, Hogan, WJ, Shanafelt, TD and Kay, NE, Uptake on risk-stratified management for chronic lymphocytic leukemia, *Leuk Lymphoma*, 47, 1738-1746, 2006.

Zhang, H, Okuni, J and Toshima, N, One-pot synthesis of Ag–Au bimetallic nanoparticles with Au shell and their high catalytic activity for aerobic glucose oxidation, *J Colloid Interface Sci*, 354, 131–138, 2011.

Zhang, Q, Lee, JY, Yang, J, Boothroyd, C and Zhang, J, Size and composition tunable Ag–Au alloy nanoparticles by replacement reactions, *Nanotechnology*, 18, 8, 2007.

Zhang, X, Yan, S, Tyagi, RD and Surampalli, RY, Synthesis of nanoparticles by microorganisms and their application in enhancing microbiological reaction rates, *Chemosphere*, 82, 489–494, 2011.

Zhang, X, Zhang, G, Zhang, B and Su, Z, Synthesis of hollow Ag–Au bimetallic nanoparticles in polyelectrolyte multilayers, *Langmuir*, 29, 22, 6722-6727, 2013.

Zhang, Y and Shen, J, Enhancement effect of gold nanoparticles on biohydrogen production from artificial waste water, *Int. J. Hydrogen Energy*, 32, 17–23, 2007.

Zhao, GJ and Stevens, SE, Multiple parameters for the comprehensive evaluation of the susceptibility of *Escherichia coli* to the silver ion, *Biometals*, 11, 27-32, 1998.

Zheng, K, Setyawati, MI, Lim, TP, Leong, DT and Xie, J, Antimicrobial cluster bombs: silver nanoclusters packed with Daptomycin, *ACS nano*, 10(8), 7934-7942, 2016.

Zhong, H, Zhang, H, Liu, G, Liang, Y and Hu, B, A novel non-noble electrocatalyst for PEM fuel cell based on molybdenum nitride, *J Electrochem Commun.*, 8, 707 , 2006.