

# Synthesis and Characterization of Silver Nanoparticle Zingiber Officinale Extract and their Antibacterial Activity

**D. B. Dupare**

Shri Dr. R. G. Rathod Arts and Science College, Murtizapur, Akola, Maharashtra, India  
duparedharam5@gmail.com

**Abstract:** *A commercial accessible noble metal such as Silver exhibits essentially distinct chemical, physical and Biological properties. Today Nano size material have more because of more fascination increase its small size particle dimension, high surface area and quantum dot effect so it give it give wide scope of utilization in drug, catalytic Industry. In past decay, focus on their catalytic, optical and electromagnetic and magnetic application of silver Nano size material. We are utilized green route to synthesis silver Nano size material of Zingiber Officinale extract by using sohelate extraction methods and collected sample using vacuum rotavapour method and characterization for their application observe in different distinct field.*

**Keywords:** Nano materials, Nano particle, Silver, Zingiber Officinale, Green method

## REFERENCES

- [1]. Chhangte V., Samuel L., Ayushi B., Manickam S., Bishwajit C. and Samuel L. R ; Green synthesis of silver nanoparticles using plant extracts and their antimicrobial activities: a review of recent literature, Royal Society of Chemistry RSC Adv., 2021, 11, 2804-28037.
- [2]. Alaa H. A. ,Hessah A. A. , Mujeeb K. , Merajuddin K., Abdullah A. , Musaed A. ,Aws A., Hamad Z. A, and M. Rafiq H. S. Ecofriendly Synthesis of Silver Nanoparticles Using Aqueous Extracts of Zingiber officinale (Ginger) and Nigella sativa L. Seeds (Black Cumin) and Comparison of Their Antibacterial Potential j. www.mdpi.com/journal/sustainability Sustainability 2020, 12, 10523 1-15.
- [3]. PimsumonJiamboonsri 1 and SompitWanwong, Photoassisted Synthesis of Silver Nanoparticles Using Riceberry Rice Extract and Their Antibacterial Application; HindawiJournal of Nanomaterials Vol. 2021, , 1-18 .
- [4]. Zhang, K.; Gao, H.; Deng, R.; Li, J. Emerging Applications of Nanotechnology for Controlling Cell-Surface Receptor Clustering. Angew. Chem. Int. Ed. 2019, 58, 4790–4799.
- [5]. Moza\_ari, S.; Li, W.; Dixit, M.; Seifert, S.; Lee, B.; Kovarik, L.; Mpourmpakis, G.; Karim, A.M. The role of nanoparticle size and ligand coverage in size focusing of colloidal metal nanoparticles. Nanoscale Adv. 2019,1, 4052–4066.
- [6]. Kim, M.; Lee, J.H.; Nam, J.M. Plasmonic photothermal nanoparticles for biomedical applications. Adv. Sci. 2019, 6, 1900471
- [7]. Anderson, S.D.; Gwenin, V.V.; Gwenin, C.D. Magnetic functionalized nanoparticles for biomedical, drug delivery and imaging applications. Nanoscale Res. Lett 2019, 14, 1–16.
- [8]. Azharuddin, M.; Zhu, G.H.; Das, D.; Ozgur, E.; Uzun, L.; Turner, A.P.; Patra, H.K. A repertoire of biomedical applications of noble metal nanoparticles. Chem. Commun. 2019, 55, 6964–6996.
- [9]. Dhand, C.; Dwivedi, N.; Loh, X.J.; Ying, A.N.J.; Verma, N.K.; Beuerman, R.W.; Lakshminarayanan, R.; Ramakrishna, S. Methods and strategies for the synthesis of diverse nanoparticles and their applications: A comprehensive overview. RSC Adv. 2015, 5, 105003–105037

- [10]. Asimuddin, M.; Shaik, M.R.; Fathima, N.; Afreen, M.S.; Adil, S.F.; Siddiqui, R.H.; Jamil, K.; Khan, M. Study of Antibacterial Properties of Ziziphus mauritiana based Green Synthesized Silver Nanoparticles against Various Bacterial Strains. *Sustainability* 2020, 12, 1484.
- [11]. Khan, M.; Shaik, M.R.; Adil, S.F.; Khan, S.T.; Al-Warthan, A.; Siddiqui, M.R.H.; Tahir, M.N.; Tremel, W. Plant extracts as green reductants for the synthesis of silver nanoparticles: Lessons from chemical synthesis. *Dalton Trans.* 2018, 47, 11988–12010.
- [12]. Alkhalaf, M.I.; Hussein, R.H.; Hamza, A. Green synthesis of silver nanoparticles by *Nigella sativa* extract alleviates diabetic neuropathy through anti-inflammatory and antioxidant effects. *Saudi J. Biol. Sci.* 2020, 27, 2410–2419.
- [13]. Venkatadri, B., Shanparvish, E., Rameshkumar, M.R., Mariadhas, V. A., Naif, A. A., Vinoth, K., Ponnusamy, D., and Agastian, P. Green synthesis of silver nanoparticles using aqueous rhizome extract of *Zingiber officinale* and *Curcuma longa*: In-vitro anti-cancer potential on human colon carcinoma HT-29 cells. *Saudi Journal of Biological Sciences* 27, 2020, 2980–2986.