ISSN: 2157-7439
Journal of Nanomedicine & Nanotechnology
OPEN ACCESS Freely available online
Short Communication

Silver Nano Particles Synthesis from Cissus Quadrangularis and in Vitro Testing

Xuping Steven*

Department of Analytical Chemistry, University of Science and Technology, China

INTRODUCTION

Nanotechnology has emerged as a modern potentiality throughout the world by fabricating nanomaterials of appropriate size and shape for various applications such as medicine and agriculture Because of their physicochemical properties, nanoparticle synthesis has gained global attention. Nanoparticles are synthesised using a variety of methods. Toxic, expensive, and environmentally hazardous methods are among the physical and chemically mediated methods. This issue can be solved by employing a nontoxic, cost-effective, and environmentally friendly greener method As a result, the green synthesis method was chosen for the synthesis of nanomaterials by plants and microorganisms. Because of the presence of various biomolecules, the synthesis of nanoparticles from plants has a distinct advantage over microorganisms. Plant-based nanoparticle synthesis has a distinct advantage over microorganism-based nanoparticle synthesis due to the presence of various biomolecules in plants that are responsible for stabilization and act as capping agents for nanoparticle synthesis [1].

Silver nanoparticle synthesis Cissus quadrangularis stem extracts were used in the green synthesis of silver nanoparticles. To make the extract, young stems of Cissus quadrangularis were washed and crushed in 100 ml of deionised water. Cissus quadrangularis extract was treated with a 5 mm silver nitrate solution. The solution was stirred in a magnetic stirrer at room temperature for 10 hours. The silver nanoparticles were collected by centrifugation [2].

Shimadzu X-ray 7000 XRD analysis was used to confirm the amorphous/crystalline nature of the materials. Cu, K-alpha radiation was used to measure diffraction patterns at 30 kV and 30 mA in, with a 2 range of 0° to 80°. Shimadzu FTIR spectrometer was used to characterise the synthesised nanoparticle. From 4000 to 400 cm1, the diffuse reflectance FTIR spectrum of silver nanoparticles was measured. Scanning electron microscopy was used to determine the surface morphology of nanoparticles (SEM). SEM analysis was carried out with a JEOL JM 5600 equipped with a voltage of 20 kV and a wavelength range of 5–6 nm. The UV–Vis spectrum was obtained using a Jasco V650 Vis spectrophotometer with a wavelength range of 200–600 nm [3].

Denaturation of albumin Except for the blank, eggs albumin and phosphate buffered saline (PBS, pH6.4) were added to 1 ml of different concentrations of samples (100–500 g). It was incubated and heated to 70 degrees Celsius. The solution's absorbance was then measured at 660 nm. The sample's protein denaturation (percent inhibition) was calculated.

Denaturation of BSA In the test tubes, different concentrations of samples (100–500 g), phosphate buffer, and 0.5 percent BSA were added and incubated at 37 °C for 20 minutes. At 255 nm, absorbance was measured [4].

DISCUSSION

findings XRd the XRD patterns for silver nanoparticles from Cissus quadrangularis extract are shown in Fig. 1. The XRD pattern revealed that the silver nanoparticles were crystalline, with Bragg reflection 2 values of 38.18°, 44.37°, 66.46°, and 77.44°, which could be indexed in the (1 1 1), (2 0 0), (2 2 0), and (3 1 1) planes, respectively. This proved that silver nanoparticles are crystalline. Nalvothu et al. reported the same experimental results (2014). The data was compared to JCPDS file no. 87-0720, and it was found to be in good agreement with standard values. The crystalline silver nanoparticles were identified by a high intensity diffraction peak at 38°, which was indexed as plane. Bio organic molecules were associated with non-indexed peaks at 32° and 46° [5].

CONCLUSION

The nanoparticles are calculated by Debye- Scherer formula. D=0.9λβcosθ\ Represents the X-ray wavelength, represents the diffraction peak of full width at half maximum (FWHM), and represents the Braggs reflection peak. The particle size of the silver nanoparticles was calculated and tabulated. The average crystallite size of silver nanoparticles was 24 nm.

Acknowledgement

None

***Correspondence to**: Xuping Steven, Department of Analytical Chemistry, University of Science and Technology, China, E-mail: xuping.s23@gmail.com

Received: 3-Mar-2022, Manuscript No: jnmnt-22-15819, **Editor assigned:** 6-Mar-2022, PreQC No: jnmnt-22-15819 (PQ), **Reviewed:** 11-Mar-2022, QC No: jnmnt-22-15819, **Revised:** 17-Mar-2022, Manuscript No jnmnt-22-15819 (R), **Published:** 25-Mar-2022, DOI: 10.35248/2157-7439.22.13.608.

Citation: Steven X (2022) Silver Nano Particles Synthesis from Cissus Quadrangularis and in Vitro Testing. J Nanomed Nanotech. 13: 608.

Conflict of Interest

None

REFERENCES

1. Siew-Moi P, Emienour MM, RangaRao A, Sulaiman NMN, Lim PE, majid NA. Checklist of microalgae collected from different habitats in peninsular Malaysia for selection of algal biofuel feed stocks. Malaysian J Sc.2015; 34(2):148-174.
2. Charpy L, Casareto BE, Langlade MJ, Yoshimi S. Cyanobacteria in Coral Reef Ecosystems. J Mar Biol. 2012; 76(9):1687-9481.
3. Thajuddin N, Subramanian G. Cyanobacterial biodiversity and potential application in biotechnology. Curr Sci.2005;89(1): 47-57.
4. Nedumaran T, Manokaran S. Cyanobacterial flora in some salt pans of Pudukkottai District, Tamilnadu, India. J Phytol. 2004; 1:169-171.
5. Jordan KM, Tayel EH, Samer A, Kamal Momani. Heavy Metals Distribution in the Dead Sea Black Mud. JJEES. 2009;1(2):50- 59