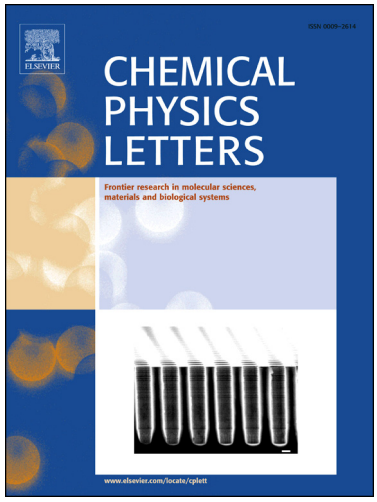

Research paper

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PII: S0009-2614(16)30927-7
DOI: http://dx.doi.org/10.1016/j.cplett.2016.11.037
Reference: CPLETT 34344

To appear in: *Chemical Physics Letters*

Received Date: 28 September 2016
Revised Date: 13 November 2016
Accepted Date: 18 November 2016

Please cite this article as: G. Vanitha, K. Rajavel, G. Boopathy, V. Veeravazhuthi, P. Neelamegam, Physiochemical Charge Stabilization of Silver Nanoparticles and Its Antibacterial Applications, *Chemical Physics Letters* (2016), doi: http://dx.doi.org/10.1016/j.cplett.2016.11.037

Physiochemical Charge Stabilization of Silver Nanoparticles and Its Antibacterial Applications

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Abstract

Environmental standardization and stabilization of surface charges of silver nanoparticles (AgNPs) is important in biological systems and interest in bio-interfacial interaction. Different synthesized AgNPs in chemical reduced ($AgNO_3$ (0.01, 0.1 and 0.5 M); $NaBH_4$ and $Na_3C_6H_5O_7$) garnered for analysis of physico-chemical charge stabilization by means of different pH (1 to 13) and ionic interferences (NaCl, $Ca(NO_3)_2$, Na_2CO_3 and $NaNO_3$). The uniform sized (size: ~22 nm) and highly charged (zeta potential: -37.9 mV) AgNPs with uniform dispersion remains unaltered in high ionic interferences. Highest antifungal activity of AgNPs against *Candida albicans* and moderate activity against *Staphylococcus aureus* are correlated.

Keywords: silver nanoparticle, chemical reduction, zeta potential, ionic stability, antimicrobial activity.

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