

**Morphological analysis of the antimicrobial action of silver and gold nanoparticles stabilized with ceftriaxone on *Escherichia coli* using atomic force microscopy**

Muhammad Raza Shah<sup>1\*</sup>, Shujat Ali<sup>1, 2</sup>, Muhammad Ateeq<sup>1</sup>, Samina Perveen<sup>1</sup>, Shakil Ahmed<sup>1</sup>, Massimo F. Bertino<sup>3</sup>, Mumtaz Ali<sup>2</sup>

<sup>1</sup>H.E.J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-75270, Pakistan.

<sup>2</sup>Department of Chemistry, University of Malakand, Khyber Pakhtunkhwa, Pakistan.

<sup>3</sup>Department of Physics, Virginia Commonwealth University, Richmond, VA 28234, USA.

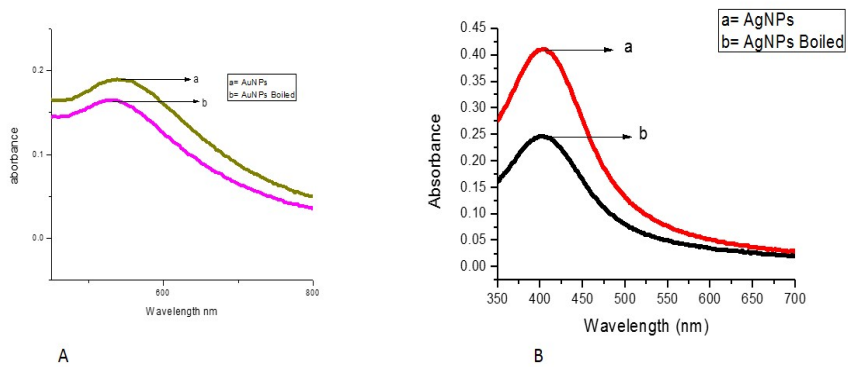
**Supplementary Information**

**List of Figures**

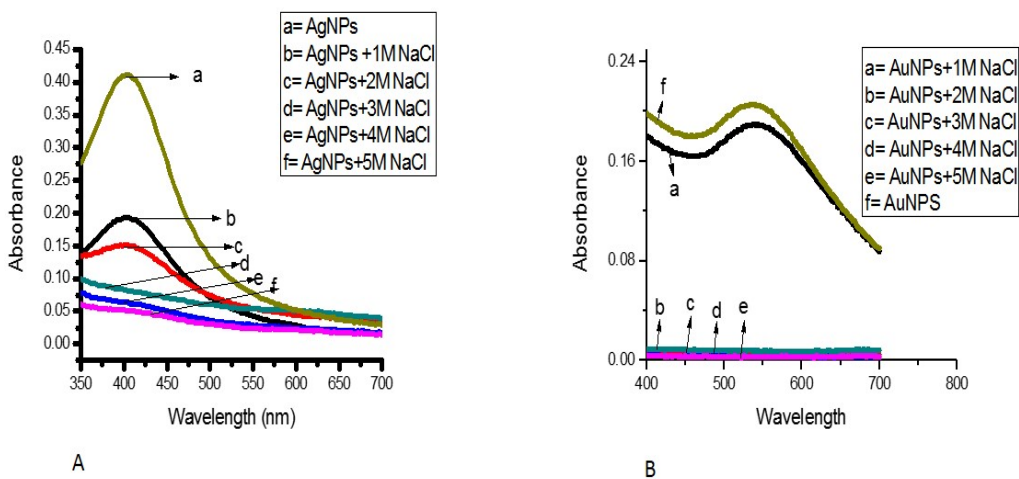
**Figure S.1:** Heat stability of AgNPs (A) and AuNPs (B).

**Figure S.2:** Salt stability of AgNPs (A) and AuNPs (B).

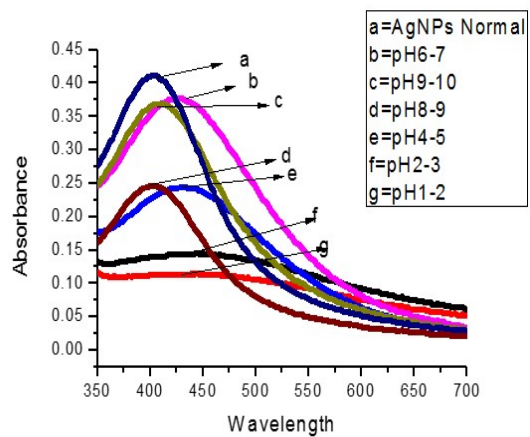
**Figure S.3 :** pH Stability of AgNPs (A) and AuNPs (B).



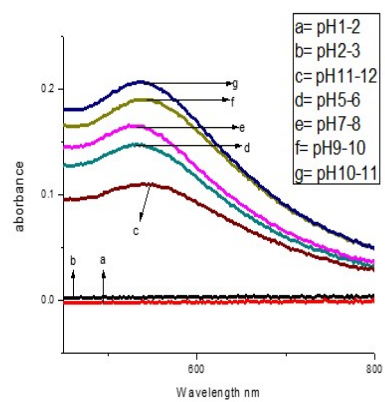
**Figure S.1:** Heat stability of AgNPs (A) and AuNPs (B).



**Figure S.2:** Salt stability of AgNPs (A) and AuNPs (B).



A



B

**Figure S.3:** pH Stability of AgNPs (A) and AuNPs (B).