

Supplementary files

Synthesis of Bioactive Silver Nanoparticles by a *Pseudomonas* Strain Associated with the Antarctic Psychrophilic Protozoon *Euplotes focardii*

Maria Sindhura John ¹, Joseph Amruthraj Nagoth ¹, Kesava Priyan Ramasamy ¹, Alessio Mancini ¹, Gabriele Giuli ², Antonino Natalello ³, Patrizia Ballarini ¹, Cristina Miceli ¹ and Sandra Pucciarelli ^{1,*}

¹ School of Biosciences and Veterinary Medicine, University of Camerino, Camerino, 62032, Italy; sindhuramaria@gmail.com (M.S.J.); amruthjon@gmail.com (J.A.N.); kesavanlife@gmail.com (K.P.R.); alessio.mancini@unicam.it (A.M.); patrizia.ballarini@unicam.it (P.B.); cristina.miceli@unicam.it (C.M.)

² School of Sciences and Technology, University of Camerino, Camerino 62032, Italy; gabriele.giuli@unicam.it

³ Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milano 20126, Italy; antonino.natalello@unimib.it

* Correspondence: sandra.pucciarelli@unicam.it; Tel.: +39-0737-403231

Received: 30 November 2019; Accepted: 31 December 2019; Published: date

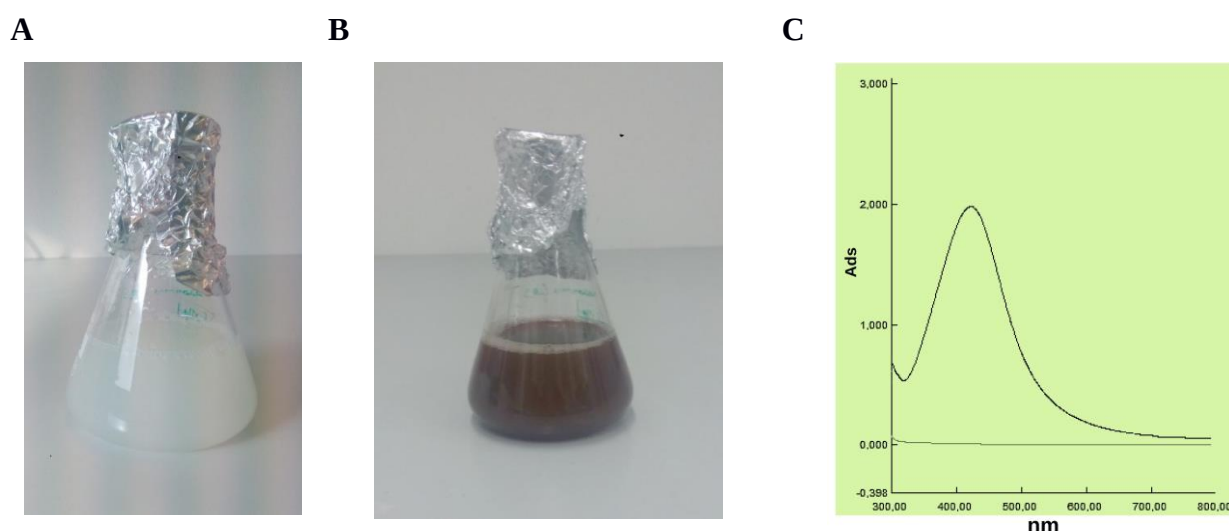


Figure S1: AgNP synthesis by *Pseudomonas* sp ef1. A and B: Visual observation of AgNP synthesis by medium colour change of a *Pseudomonas* sp ef1 culture from with (A) to dark brown (B) during 24 hrs of incubation with 1mM of AgNO₃. (C) UV–vis spectrum of *Pseudomonas* sp ef1 AgNPs. A small aliquot (0.1 ml) of the 24 h *Pseudomonas* sp ef1 culture was diluted with ddH₂O and UV–visible spectra was recorded from 300 to 800 nm wavelength at room temperature.

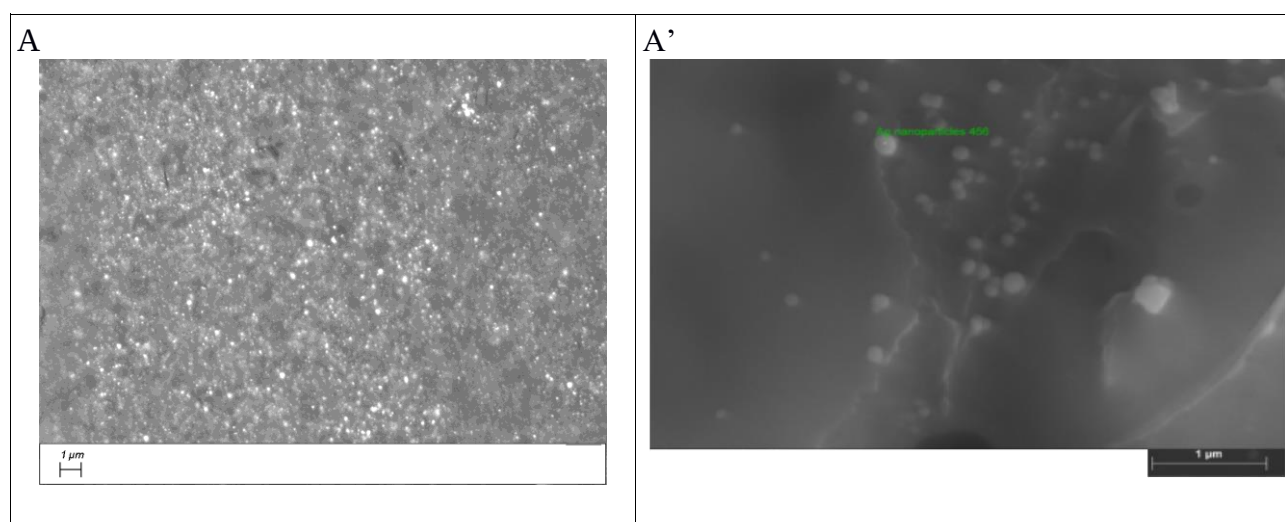


Figure 2. Scanning electron microscopic (SEM) images of the *Pseudomonas sp ef1* AgNPs at different magnification. Bars: 1 μ M.

Table S1. Antimicrobial activity of AgNPs synthesized by *Pseudomonas sp* against various pathogenic organisms. R* Resistance.

No	Microorganism	Bio-AgNps (A) (mm)	Chemical AgNps (B) (mm)	Increased zone size b/w A&B (A-B) (mm)	AgNO ₃ (C) (mm)	Increased zone size b/w A&C (A-C) (mm)	Dist.Water (mm)
Gram positive bacteria							
1	<i>Staphylococcus aureus</i>	15	12	3	9	6	R
2	<i>Staphylococcus epidermidis</i>	13	10	3	9	4	R
3	<i>Streptococcus agalactie</i>	13	10	3	8	5	R
Gram negative bacteria							
4	<i>Escherichia coli</i>	17	14	3	10	7	R
5	<i>Klebsiella pneumoniae</i>	16	13	3	9	7	R
6	<i>Pseudomonas sp</i>	14	11	3	9	5	R
7	<i>Proteus mirabilis</i>	14	11	3	8	6	R
8	<i>Citrobacter koseri</i>	15	12	3	9	6	R
9	<i>Acinetobacter baumanii</i>	15	13	2	10	5	R
10	<i>Serratia marcescens</i>	14	11	3	8	6	R
Fungi							
11	<i>Candida albicans</i>	15	12	3	7	8	R
12	<i>Candida parapsilosis</i>	12	10	2	8	4	R