



Supplementary materials

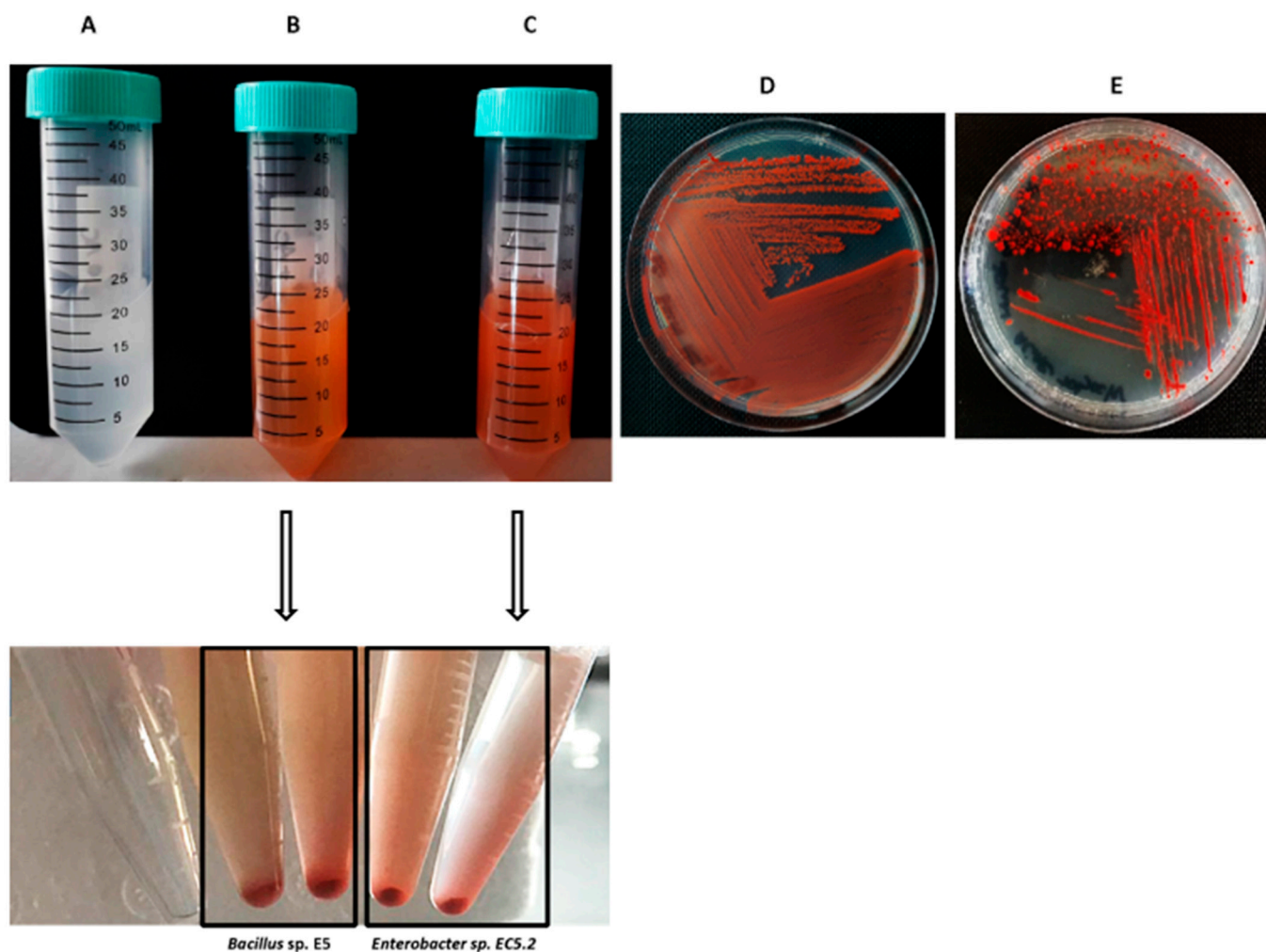


Figure S1. Growth of *Bacillus* sp. E5 and *Enterobacter* sp. EC5.2 in Tris-HCl pH 8 in the presence of selenite (A= without selenite; B= *Bacillus* sp. E5; C= *Enterobacter* sp. EC5.2). Liquid (A, B, C) and solid medium (D= *Enterobacter* sp. EC5.2; E= *Bacillus* sp. E5) turned to red only in the presence of 5 mM selenite. Images were obtained after culturing for 6 h (A, B, C) and 24 h (D, E).

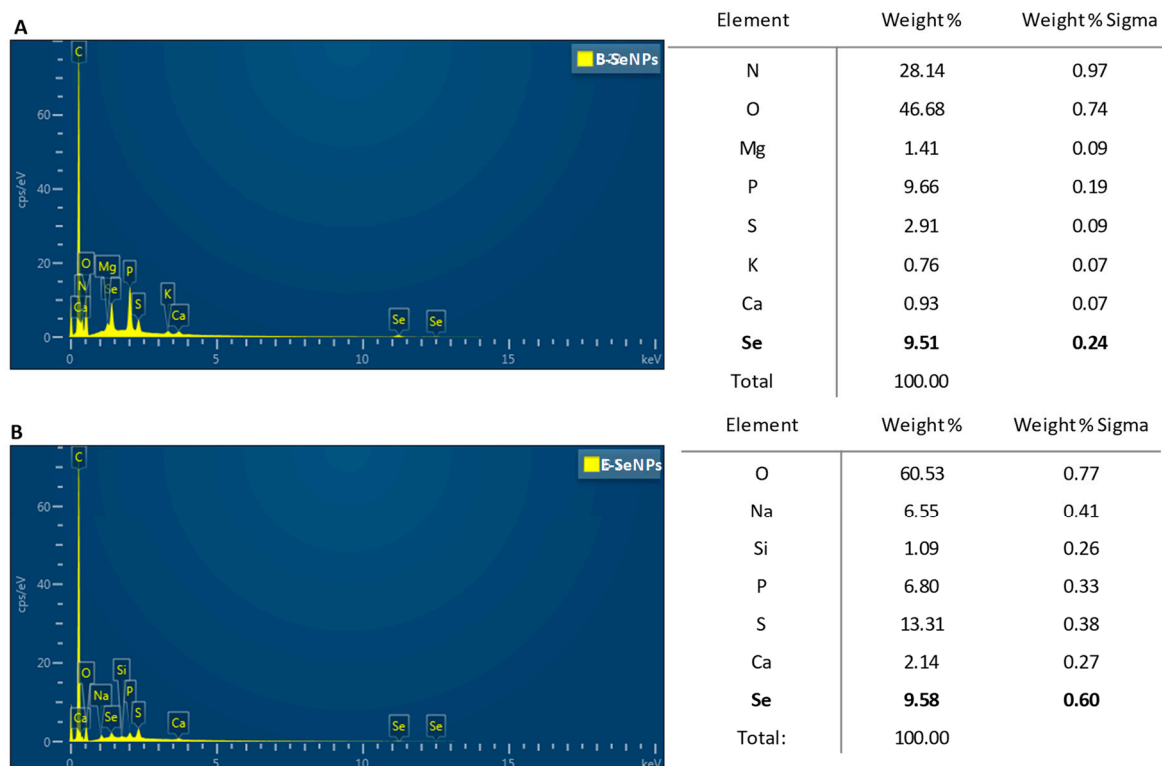


Figure S2. EDS graph of selenium nanoparticles (SeNPs) biosynthesized by *Bacillus* sp. E5 (A) and *Enterobacter* sp. EC5.2 (B) with 5mM of Na_2SeO_3 for 6h.

Table S1. Total Se content in bacterial biomass of two endophytic bacterial strains (*Bacillus* sp. E5 and *Enterobacter* sp. EC5.2) isolated from wheat plants, grown with and without Se supplementation.

Bacterial strain	Se (mM)	Total Se (mg kg ⁻¹)
<i>Bacillus</i> sp. E5	0	40 ± 14
<i>Enterobacter</i> sp. EC5.2	0	9 ± 3
<i>Bacillus</i> sp. E5	5	12016 ± 4205
<i>Enterobacter</i> sp. EC5.2	5	3543 ± 1240

Table S2. FTIR absorption bands and identification of *Bacillus* sp. E5 and *Enterobacter* sp. EC5.2 un-challenged cells, and biogenic samples (B-SeNPs, E-SeNPs).

$\tilde{\nu}$ (cm ⁻¹)	Vibrational modes	Identification
3280	ν (O-H; N-H)	Amide A (Proteins) [79]
2927	ν_{as} (C-H in > CH ₂)	Lipids [79]
1625	ν (N-H)	Amide I (proteins) [80]
1529	ν (C-N)	Amide II (proteins) [79]
1450	δ (-CH ₃)	Proteins, lipids, polyesters, etc. [73]
1390	ν_s (COO ⁻)	Amino acid side chains; lipids; peptides [75]
1233	δ (C-OH)	carboxylic acids [75]
1054	ν (CC); ν (CO)	Polysaccharides [75]

Where ν and δ indicate stretching and bending, respectively; *as* and *s* stand for scissoring and out of phase in plane vibrations.