Paola Duran, J Biotechnol Biomater 2015, 5:2
http://dx.doi.org/10.4172/2155-9597.C1.014

9th Biotechnology Congress

Biofertilizer based in endophytic bacteria for selenium biofortification and *Gaeumannomyces graminis* biocontrol

Paola Duran
Universidad de La Frontera, Chile

In the last few years we showed that some microorganisms as bacteria and arbuscular mycorrhizal fungi can be used as biotechnological tools to enhance the Se content in plants. Here, endophytic bacteria (Acinetobacter sp. E6.2 and *Bacillus* sp. E5) were isolated from selenium-supplemented wheat plants and were characterized in terms of Se accumulation and capacity of biocontrol of *Gaeumannomyces graminis* vartritici (Ggt), the main soil borne pathogen of southern Chile. Both strains were highly tolerant to elevated selenium concentration (ranged from 60 to 120 mM respectively) and showed potential plant-growth-promoting capabilities (auxin and siderophore production, phytate mineralization and tri-calcium phosphate solubilization). In terms of Se species we found that mainly *Acinetobacter* sp. E6.2 produced elevated amounts of SeMet and SeMeSeCys (10 and 3.77 mg kg-1 respectively), however highly stable NanoSe (Z potential around -40 mV) was the main Se form found in both inoculums. The size of NanoSe from *Acinetobacter* sp. was major than *Bacillus* sp. along the time (i.e., 213±3.4 nm and 169±0.92 nm respectively at 24 hours). In addition, Se supplementation in bacteria no produced an oxidative stress measured by antioxidant activity (SOD and CAT) and neither affected the tolerance to water deficit due to similar proline and IAA production. Respect to pathogen biocontrol *Acinetobacter* sp. was able to inhibit 100% pathogen development, whereas 30% was inhibited by *Bacillus* strains. Our results validate the potential use of these endophytic bacteria inoculums for Se biofortification and Ggt biocontrol.

Biography

Paola Durán is a Post-doctoral Researcher in la Frontera University She has completed her PhD from the University of Barcelona obtaining "Cum Laude" distinction. She is a Professor of Microbiology in Plant-Soil System. She has published 9 papers in the last 5 years in *ISI journal* and has been serving as an Editorial Board Member of repute.

paola.duran@ufrontera.cl

Notes: