Biofertilizer effect of *Chlorella sorokiniana* suspensions on wheat growth

Rajaa Kholssi[1,2], Abderrahmane Debdoubi[1], Evan A.N. Marks[2], Jorge Minón[2], Olimpio Montero[3], Carlos Rad[2]

[1]Laboratory of Materials-Catalysis, Morocco
[2]University of Burgos, Spain
[3]Centre for Biotechnology & Development, Spain

The potential of microalgae as a biofertilizer in agriculture is increasingly recognized. We studied the effect of applications of *Chlorella* on the growth of wheat in terms of its phyto-stimulating capacity and its potential for substituting chemical fertilizers. Four biofertilizer treatments were used in this experiment: (i) Biomass of *Chlorella sorokiniana* harvested by centrifugation from cultures in exponential growth phase and re-suspended in spent growth medium (Solution 1); (ii) filtered BG11 medium used for algae culture after the algae biomass was harvested (Solution 2); (iii) harvested algae that were re-suspended in fresh BG11 medium (Solution 3); and (iv) fresh BG11 medium (Control). Seeds of *Triticum aestivum* were germinated in pots containing a growing substrate (peat vermiculite 1:1 (v/v) mixture) and grown for 15 days with applications of the four treatments solutions. In general, plant length was increased by 30% with Solution 2; total dry biomass of aboveground and belowground parts was improved by 22%, and 51% respectively in treatments with filtrate of *Chlorella sorokiniana* (Solution 2), as compared to the control, indicating that nutrients and extracellular substances excreted by algae in the filtrate were pertinent to the beneficial effects on plant growth.

Biography: Rajaa Kholssi is doing Ph.D in Abd Elmalek Essadi university "Faculty of Sciences" under the direction of Professor A. Debdoubi in Morocco, with the same teacher, she made final career project "Culture of some marine microalgae species in the northern region of Morocco with a view to upgrading their lipids in biofuels" to obtain "Master of Biotechnology-Food - health." Currently, she is in a laboratory of agriculture chemistry at the faculty of science of Burgos (UBU) in Spain with UBUCOMPOST team as a Ph.D. student till now she had 2 publications accepted about biofertilizers based on microalgae, PGPR and cyanobacteria.

rajae.kholsi@gmail.com