

Effect of phosphate solubilizing bacteria on physico-chemical quality of organically grown spinach crop

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Abstract

Spinach with a scientific name *Spinacia oleracea* belongs to the family Amaranthaceae. Spinach with its delicate texture and jade green color provide more nutrients than any other food. It is low in calories, and is a good source of vitamin C, pro-vitamin A, and minerals, especially iron. Spinach leaves that look fully vibrant and vital have greater concentrations of phytochemicals much of nutritional importance. In order to deliver enhanced nutrition within a food-based system, it is necessary to increase the nutritional value of the food crop itself. By enhancing nutrient dense crops, severe deficiencies can be eliminated in developing countries. Hence, one of the possible ways by which this goal can be achieved is through natural method, possibly with organic farming and biofortification with vegetable crops. In this experiment, spinach crop was given 6 treatments, they were 1. Farmyard Manure (FYM); 2. Farmyard Manure and Phosphate Solubilizing Bacteria (FYM+PSB); 3. Phosphate Solubilizing Bacteria alone (PSB); 4. Farmyard Manure, Phosphate Solubilizing Bacteria and Citrate (FYM+PSB+C); 5. Recommended Dosage of Fertilizers (RDF) and 6. No Chemical (Control). After 5 weeks of cultivation, spinach was harvested and analysed for different physical and phytochemical estimations. Physical parameters include different traits, i.e., total biomass, growth and yield of the crop. Chemical parameters include vitamin C, β -carotene and minerals. In results, FYM + PSB treatment was found to be good for biofortification, as the nutritional value was enhanced with less anti nutrients such as, oxalates and phytates in the crop.

Biography

Sreedevi Shankar K has obtained her Ph.D from Acharya N. G Ranga Agricultural University, Hyderabad, Andhra Pradesh., She is Senior Scientist (Food Science) Division of Crop Science, Central Research Institute for Dryland Agriculture (ICAR), Indian Council of Agricultural Research, Hyderabad. She has published/presented more than 20 papers in reputed journals and seminars. Area of work/ interest, Nutritional quality analysis of edible Dryland crops, biofortification of rain fed crops to improve essential nutrients in the crops and processing of Dryland crops.