

Exploitation of Endophytes for the Management of Plant Pathogens

Authors : N. P. Eswara Reddy, S. Thahir Basha

Abstract : Here, we report the success stories of potential leaf, seed and root endophytes against soil borne as well as foliar plant pathogens which are nutritionally adequate and safe for consumption. Endophytes are the microorganisms that reside asymptotically in the tissues of higher plants are a robust source of potential biocontrol agents and it is presumed that the survival ability of endophytes may be better when compared to phylloplane microflora. Of all the 68 putative leaf endophytes, the endophytes viz., EB9 (100%), and EB35 (100%) which were superior in controlling *Colletotrichum gloeosporioides* causing mango anthracnose were identified as *Brevundimonas bullata* (EB09) and *Bacillus thuringiensis* (EB35) and further delayed in ripening of mango fruits up to 21 days. As a part, the seed endophyte GSE-4 was identified as *Archoromobacter* spp. against *Sclerotium rolfsii* causing stem rot of groundnut and the root endophyte REB-8 against *Rhizoctonia bataticola* causing dry root rot of chickpea was identified as *Bacillus subtilis*. Both recorded least percent disease incidence (PDI) and increased plant growth promotion, respectively. Further, the novel *Bacillus subtilis* (SEB-2) against *Macrophomina phaseolina* causing charcoal rot of sunflower provides an ample scope for exploring the endophytes at large scale. The talc-based formulations of these endophytes developed can be commercialized after toxicological studies. At the bottom line these unexplored endophytes are the need of the hour against aggressive plant pathogens and to maintain the quality and abundance of food and feed and also to fetch marginal economy to the farmers will be discussed.

Keywords : endophytes, plant pathogens, commercialization, abundance of food

Conference Title : ICGFS 2015 : International Conference on Global Food Security

Conference Location : Miami, United States

Conference Dates : March 09-10, 2015