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Molecular analysis of chilli varieties against anthracnose disease

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Pepper fruit anthracnose caused by *Colletotrichum capsici* is an economically important disease that cause serious yield loss and often post harvesting quality deterioration in many Asian countries. The chilli varieties LCA 235, LCA334 and G-4 characteristically studied and these three varieties are most sustain verities implementation from the present verities by the inoculation methods at various spores suspension level (≈500 spores µl and ≈300 spores µl) chilli anthracnose cause agent *Colletotrichum capsici* sample collect from different area for different chillies treatments. After inoculation period we can justified by Koch's postulates proof of pathogenicity by the PCR detection from agar culture. The results revealed that these isolates could be differentiated in pathogenecity. These three chilli varieties were treated with different spore suspension of Anthracnose. C.capsici at various inoculation methods. Eg: LCA 235IT$_1$ /≈500 spores µl, LCA 235 IT$_2$/≈500 spores µl LCA 235IT$_1$/≈300 spores µl, LCA 235 IT$_2$/≈300 spores µl Continued up to G 4 III T$_5$/≈500 spores µl and G 4 III T$_5$/≈300 spores µl. After inoculation period we can justified by Koch's postulates proof of pathogenicity by the PCR detection from agar culture. The results revealed that these isolates could be differentiated in pathogenicity by the disease score the fruits are scored on 0-10 scale severity for spray inoculation. Although the management and central of Anthrancnose disease are still being extensively researched commercial culture of capsicum annum that are resistant to the pathogen, that cause chilies Anthracnose have not yet been developed. The result of this study revealed that isolates of *Colletotrichum capsici* were differed from physiological character. Most isolates of *C. capsici* were expressed the compatible interaction to G4 and LCA334 variety. It can be suggested that this variety were susceptible to all isolate of *C. capsici*. Other chilli variety LCA235 reacted to most isolates was not distinct. The plant which shows disease resistant or susceptible depends on genotypes of variety. The study on resistance to disease should be based on knowledge of infection, and pathogenicity of the fungus. Even though the result of this study could not be concluded which variety was susceptible or resistant to anthracnose, but it is the basis for further investigation on resistance induction by various plant inducers among these chilli varieties.

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Biofortification of cereal grains with zinc by applying zinc fertilizers

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Zinc is an essential micronutrient having greater physiological roles in protein synthesis and metabolism in our biological system. Any alteration in Zn homeostasis or any decrease in Zn concentration of human body will result in malnutrition that corresponds to 4.4% of the deaths of children less than 5 years of age globally. Under Zn-deficient soil conditions, plants show a high susceptibility to environmental stress. It is estimated that about 50% of the cereal-cultivated soils globally contain low amounts of plant available Zn. It is, therefore, not surprising why a widespread Zn deficiency in human beings generally occurs in the regions where soils have Zn deficiency problem and cereals are major source of daily calorie intake. Currently, increasing Zn concentration of cereal grains is a big global challenge.

Agronomic biofortification of cereal grains through use of Zn fertilizers is required for i) keeping sufficient amount of available Zn in soil solution, ii) maintaining adequate Zn transport to the seeds during reproductive growth stage and iii) optimizing the success of biofortification of staple food crops with Zn. Zinc sulphate (ZnSO4) is the widely applied source of Zn because of its high solubility and low cost. In India applying Zn-coated urea fertilizers (up to 3% Zn) increased both grain yield and grain Zn concentration in rice. Various field tests in China with peanut/maize and chickpea/wheat intercropping systems showed that gramineaceous species are highly beneficial in biofortifying dicots with micronutrients. In the case of chickpea/wheat intercropping, Zn concentration of the wheat grains was 2.8-fold higher than those of wheat under mono cropping. Elevated soil organic matter content of soils up to a certain level improves solubility and root uptake of Zn, especially in alkaline soils. So agronomic biofortification with soil and foliar applications of micronutrient (Zn) not only increase the grain yield but also improve the nutrient quality of the grain for obtaining good economic returns and also nutritional security.

Biography

Partha Debnath has completed BSc (Hon's) Agri and is now doing his PG (Agronomy) in Acharya N. G. Ranga University, Rajendranagar, Hyderabad. He has published papers in some reputed journals and also attended many national and international seminars.

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