



BIOSYNTHESIS OF SILVER NANOPARTICLES TO CONTROL BACTERIAL LEAF BLIGHT OF RICE

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In Pakistan rice is the second major staple food after wheat and is cultivated over an area of 2.6 million hectares. Currently, rice crop is threatened by serious biotic and abiotic factors. Among the biotic factors, the most significant pathogen of rice is *Xanthomonas oryzae* pv. *oryzae* (XOO), which causes Bacterial Leaf Blight (BLB) disease. Damage associated with this pathogen is about 80-100% due to favorable ecological conditions. Numerous chemicals and broad-spectrum antibiotics have been tested for the management of BLB. Chemical control has many disadvantages e.g., expensive, ecologically detrimental, and potential threats to human and animals. Recently, targeted use of nanoparticles (NPs) in agriculture has outstanding results to improve the quality of food and plant protection due to antibacterial properties of NPs. Microbe-based biosynthesis of NPs is beneficial as compared to chemical and physical methods due to their non-toxicity, environmental safety and stability. Silver nanoparticles (AgNPs) have a significant attention due to their antimicrobial activity as well as unique biological, physical, and chemical properties to control plant pathogens. The objective of proposed research will be synthesis of AgNPs from bacteria isolated from metal contaminated sites and application of characterized AgNPs to rice plants infested with BLB disease.

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