عنوان مقاله:

Effect of Nanopriming with Zinc Oxide and Silver Nanoparticles on Storage of Chickpea Seeds and Management of Wilt Disease

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خلاصه مقاله:

Chickpea is an important pulse crop of India, but its productivity is quite low due to several biotic and abiotic stresses. Low seed vigor is one of the issues that occur due to changes in different biochemical properties during improper storage condition. To overcome the biochemical activity during storage, seed priming is a promising strategy. In the present study, two nanopriming agents viz., Zinc Oxide Nanoparticles (ZnONPs) and silver Nanoparticles (AgNPs) were evaluated for biochemical activity (Peroxidase activity, alpha amylase activity, total soluble sugar, total protein) of chickpea at ۲, ۴, ۶ and ۹ months storage period after priming for ۱, ۲, and ۶ hours. Result showed increased activity of Peroxidase (POX) with increase of storage time, but the rate of increase was comparatively low when seeds were nanoprimed with ZnONPs. Similarly, alpha amylase activity and protein content were recorded highest and Total Soluble Sugar (TSS) was found lowest in ZnONPs primed seed. Out of the different priming times, ۶ hrs was found to be the best at ۹ months of storage with positive effect on biochemical parameters. Among the biotic stresses, disease caused by Fusarium oxysporum f.sp. ciceri has been considered as a destructive one, which causes yield loss up to ۱۰% every year. To overcome the biotic stress and enhance the storage life, chickpea seeds were primed with ZnONPs and AgNPS at ۱۰۰ ppm alone and in combination with each other. We found positive effect on seed germination (%), plant growth, and yield attributing parameter and negative effect on per disease incidence of F. oxysporum f.sp. ciceri.

کلمات کلیدی:

Biochemical parameters, Cicer arientinum L., F. oxysporum, Storage life.