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Abstract

The current study suggests the utility of ZnO nanoparticles to increase the thermotolerance of phytase enzymes; thereby aiding their effective utilization to provide better phosphate uptake when applied in animal feeds. Microbial isolates with predominant phytase activity were isolated from industrial wastewater to obtain a promising thermotolerant isolate of *Penicillium decumbens*. The purified phytase showed activities at mash preparatory temperature (32.59 ± 0.045 $Uml^{-1}min^{-1}$ at 55°C), animal feed pelletizing temperature (37.83± 0.127 $Uml^{-1}min^{-1}$ at 80°C) and steam sterilization temperature (18.56 ± 0.027 $Uml^{-1}min^{-1}$ at 100°C) of animal feeds as per standard phytase assays. The supplementation of ZnO