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Development of Electrospin Nano Fiber Formulation of *Chaetomium globosum* Against *Phytophthora infestans*

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Abstract

The biocontrol agent *Chaetomium globosum* is ubiquitous in nature, inhabiting soil, air and plant residues. The formulation of *C. globosum* has been published only in very limited form using talc and liquid formulation with low shelf-life. In order to increase the shelf-life, an advanced nano carrier based formulation of *C. globosum* isolate TNAU-Cg 101 (MK587669) was developed using electrospin nano fiber for the management of *Phytophthora infestans*. Poly Vinyl Alcohol (PVA) synthetic biopolymer was used for fiber development and was synthesized at 7 per cent concentration. Ascospore concentration percentage was highest at 1.0 per cent, for every 5µm length of nano fiber, a single ascospore was encapsulated. Ascospores of *C.globosum* entrapped electrospin nanofiber was confirmed through Scanning Electron Microscope (SEM) image. The loaded ascospores into the nanofiber was observed as oval or lemon shaped structures. The diameter of fiber after encapsulation varied from 332.2 nm to 9.764 µm. The ascospore population of 195×10^{15} cfu/0.25mg was observed immediately after encapsulation. Combined application of nano fiber through tuber + soil + foliar treatment reduces the late blight of potato to 46 per cent disease index (PDI) when compared with control.

Key words: *Chaetomium globosum*, electrospin, nano fiber, grid, SEM

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