

Research Article

Synthesis and Testing of Rapid Water Dispersible Tablet Formulation of *Trichoderma viride*

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Abstract

The success of a biological control product depends much on its viability, establishment, formulation and delivery system. Commercial formulations of *Trichoderma* sp. available are mostly as wettable powder and few are in liquid form. The concentrations approved and available in the market are 0.5, 1.0, 2.0 and 5.0 per cent. The product contains 2×10^6 cfu g^{-1} in the talc carrier. This implies that one kg of the product will have only 2×10^9 cfu. The recommended doses for most of the biopesticides are 5.0 kg ha^{-1} . Accordingly, in five kg product the cfu of *Trichoderma* sp would be merely 1×10^{10} . Talc based *Trichoderma* sp. formulations are prepared to preserve its viability for the longtime, however, it is very bulky and cumbersome. We synthesized water dispersible tablets of *Trichoderma viride*. Potato starch, gum Arabica and wheat maida *i.e.* wheat white flour (domestic grade) were tried as binder, whereas, sodium starch glycolate (SSG), crospovidone or poly vinyl pyrrolidone (PVP) and carboxymethyl cellulose (CMC) were tried as disintegrator. The best treatment was having tablets made up of 100mg *T. viride* powder, 50mg talc, 25mg wheat maida (white flour) and 25mg PVP. This had 0.2 per cent friability, 4.91 kg cm^2 hardness, 47 seconds water dispersible (disintegration) time and 17.12×10^7 cfu/200mg even at six months after the incubation. The water disintegration time of the tablet was almost similar to the commonly used tablet of human medicine Disprin 325 mg. *In vitro* seedling vigour of mungbean seed and seedling rot caused by the *Sclerotium rolfsii* Sacc. was controlled by the seed treatment with a tablet of 200mg per kg seed. The results were even significantly superior over the seed treatment with 10g per kg seed treatment with the commercial *T. viride* powder. From the best of our knowledge, this is the first report of synthesization and testing of rapidly water dispersible tablet formulation of *Trichoderma viride* Pers. ex Gray.

Key word: Binder, disintegrator, friability, hardness, *Trichoderma viride*, tablet formulation, water disintegrating, water disintegration

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