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PART V

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"Formulation of biofungicide from *Jacaranda mimosifolia* to augment chemical fungicide activity"

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The present investigation relates to the formulation of biofungicide from leaves extract of a tree Jacaranda mimosifolia, The formulation of biofungicide comprises aqueous plant extract (0.6%), synthetic fungicide (0.1%) and Tween-80 (0.6% (v/v) as emulsifier. The aqueous plant extract was effective to control Fusarium stalk rot, *Helminthosporium* leaf spot blotch and leaf rust caused by *Fusarium moniliforme*, *Helminthosporium sativum* and *Puccinia triticina* in maize and wheat respectively. The aqueous plant extract also controlled the early and late blight of potato. The in vivo disease inhibition against *Fusarium* stalk rot in maize, spot blotch and leaf rust in wheat was 54%, 82% and 25% due to the application of plant extract, while the biofungicide formulation exhibited 66%, 84% and 95% disease reduction in maize stalk rot, wheat spot blotch and leaf rust respectively as compared to non-treated infected plants. The efficiency of the biofungicide was greater than that of synthetic fungicide in regulating the protein, proline, phenolic and MDA content of leaves and the activities of antioxidant enzymes like SOD and the activity of defense related enzymes e.g. Chitinase, Peroxidase (POD), Polyphenol oxidase (PPO), Phenylalanine ammonia lyase (PAL) and protease.