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Development of antifungal formulations and their evaluation against root rot disease of mulberry

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ABSTRACT

Mulberry (*Morus* sp.) cultivated throughout India for rearing of silkworm (*Bombyx mori* L.). Root rot caused by a group of fungi is a severe threat for mulberry (*Morus* spp.) leaf production, especially in southern states of India due to large scale mortality and enormous crop loss. Fungi such as *Fusarium solani*, *Fusarium oxysporum*, *Rhizoctonia bataticola* and *Botryodiplodia theobromae* are frequently isolated from the infected roots. Few control measures recommended could not sustain due to inconsistent results. In this perspective, studies were conducted to develop a broad spectrum formulation to contain the disease. Several plant products, synthetic fungicides and chemicals were screened for antifungal activities *in vitro* in solid and broth media using poisoned food technique. Five formulations were made using selected antifungal components and tested against root rot disease under artificial simulation. All the formulations significantly ($P<0.01$) reduced wilting and rotting compared with untreated control as well as plants treated existing control measure. Highest control of wilting (88.20%) and rotting (88.05%) was showed by formulation F-1, followed by F-2 and F-4 compared with untreated control. The highly effective formulation (F-1) was further tested in the hotspot areas of Karnataka showed revival of plants with range of 67-86 per cent. This eco-friendly formulation could be used for control of root rot disease of mulberry.

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