THE EFFICACY OF PLANTS USED AS GREEN MANURES IN SUPPRESSING THE GROWTH AND DEVELOPMENT OF SOIL FUNGAL PATHOGENS

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Selecting a specific plant to be used as a green manure for a particular cultivated crop was a traditional practice adopted by the farmers of this country before the advent of inorganic fertilizers. The use of different plants for manuring different crops indicates that enrichment of the soil nutritional status was not the sole purpose of this practice farmers were aware of certain beneficial effects of such green manures for specific crops.

The effect of crude leaf extracts of various plants used as green manures on the growth and development of some soil-borne pathogens of cultivated crops was investigated in vitro. Autoclaved leaf extracts of Adhatoda vasica (Adathoda) completely inhibited mycelial growth of Phytophthora vignae and suppressed sexual and asexual reproduction in Pythium butleri, a common damping-off pathogen. Adathoda extract had little effect on the growth of Rhizoctonia solani or Sclerotium rolfsii although the growth rate was slightly reduced in the case of the latter. The leaf extract of Azadiracta indica (Margosa) had no effect on Phytophthora vignae but greatly enhanced oospore production in Pythium butleri. Oospore production in Phytophthora vignae was enhanced by the extract of cowpea plant which is its specific host.

These results indicate that different green manures could selectively suppress or enhance microbial populations in the soil. The selection of a particular green manure for a specific crop was probably made by a farmer based on his experience with green manures, some of which helped to check the incidence of pests and diseases in crops.