ECONOMICAL METHOD FOR MASS CULTURING OF *PAECILOMYCES LILACINUS* (THOM.) SAMSON

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ATTEMPTS to determine the potential of bicontrol agents in nematode management have picked up momentum over the past several years. Recently nematologists at the International Potato Centre (CIP), Lima (Peru) have discovered a fungus, *Paecilomyces lilacinus*, which efficiently controls the population of *Meloidogyne* spp., a cosmopolitan pest group of many crop plants. The fungus is cultured on cereal grains for field application requiring large amount of grains as high as four quintals/hectare. Obviously, this incurs a high cost for establishing the fungus in the field.

While testing the potential of this fungus against root-knot nematodes in India, the economical methods for its introduction into the field were contemplated and investigated. Numerous waste materials and plant leaves including those reported to be nematicidal plants were experimented with.

Figure 1. *P. lilacinus* growing on left — gram seeds; right — neem leaves.

For this, fresh leaves of various plants were chopped and put into 500 ml Erlenmeyer flasks to which a pinch of $CaCo_3$ or chalk powder was added and mixed thoroughly. The flasks were autoclaved at 121°C and 1.0546 kg/cm^2 pressure for 40 min. Spore suspension of *P. lilacinus* grown on Czapek Dox agar medium plates was collected and inoculated into the flasks in laminar flow. The flasks were incubated at 28°C ± 1 in a B.O.D. incubator. The fungus could grow successfully on Neem (*Azadirachta indica*) leaves. The growth appeared first on the margins of the leaves and spread over the whole leaf surface later. Ten days after inoculation, one gram of fungus - leaf medium was poured into a flask containing a soap mixture (98 ml demineralized sterile water + 2 ml of tween–80). The mixture was vigorously shaken till the spores got suspended in water. Spore count measured with a haemocytometer was found to be 55.5×10^8 spores/g of leaves. Fungus grown on gram seeds served as control which yielded 24.5×10^7 spores/g of gram. Though the gram is an excellent medium for the fungus, the higher count in the case of 'neem' leaves is probably attributable to the higher surface area per gram of medium apart from the intrinsic nutritional suitability factor. Hopefully, this result may be useful for the mass culture of *P. lilacinus* for use by farmers at field level. Neem leaves are available in abundance without any expenditure. *A. indica* leaves have been reported to reduce nematode population and their damage to crop plants. Incorporation of the leaves along with fungus cultured on it may have synergistic or additive effect in reducing the nematode damage.

VESICULAR-ARBUSCULAR MYCORRHIZAL ASSOCIATION IN BANANA

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VESICULAR-ARBUSCULAR Mycorrhizas (VAM) have been reported in a wide range of crops. The fact that these endophytes have been attributed with a number of properties to increase crop production is of great significance to perennial cropping systems involving plantation crops. Banana (*Musa sapientum*) is an important crop in Kerala, grown as a pure and as a mixed crop in coconut and arecanut plantations and at this Institute it forms a compo-