Research Note :

Effect of various nitrogen sources on growth and sporulation of *Colletotrichum capsici* incitant of anthracnose of yam

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SUMMARY

The result from the *in vitro* study revealed that, out of seven different nitrogenous sources tried, potassium nitrate proved to be the best for the growth (345.33 mg) and sporulation (380.3 spores/LPM) of the pathogen. Ammonium sulphate, sodium nitrate and ammonium nitrate also showed stimulation of growth and sporulation of *C. capsici* as compared to other sources tried.

Key words : Colletotrichum, Growth, Sporulation, Nitrogen, Yam

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Yam (*Dioscorea alata* L.) is an important tuber crop. This perennial vine is cultivated for consumption of starchy tubers. In India, the crop covers 30,000 ha area with 80,000 MT (0.8 million) production and has an average productivity 28 t ha^{-1}. (Abraham *et al.*, 2006). In the year 2007, Yam crop was found to be severely affected by anthracnose disease resulting in severe losses on the Horticulture farm of Navsari Agricultural University, Navsari. Therefore, the present investigation was carried out to study the utilization of different nitrogen sources by C*olletotrichum capsici* (Syd.) Butler and Bisby.

The present *in vitro* study was conducted in the Plant Pathology Laboratory of ASPEE College of Horticulture and Forestry, Navsari, by using completely Randomized Block Design having 3 repetitions. *C.capsici* was repeatedly isolated from naturally infected yam (*D.alata*) leaves on Potato dextrose agar medium in laboratory. The culture was further purified by frequent sub-culturing and maintained on Potato dextrose agar (PDA) slants for further investigation.

Fifty ml of sterilized liquid Richard's medium was poured into 150ml conical flasks, plugged with non-absorbent cotton and autoclaved at 121^{0}C (15 psi pressure) for 20 minutes. Potassium nitrate in the basal medium was replaced by various inorganic and organic sources of nitrogen *viz*., ammonium sulphate, ammonium nitrate, sodium nitrate, calcium nitrate, ammonium chloride, urea and potassium nitrate. Nitrogen sources were added singly to furnish 1.38 g of nitrogen per liter of basal medium and treatment without nitrogen source served as control. Each treatment was replicated four times. The flasks were inoculated under aseptic condition with 5 mm diameter culture block cut from 10 days old actively growing pure culture of *C. capsici* and transferred to each flask by sterilized forcep.Inoculated flasks were incubated at room temperature (27 $\pm$ 2^{0}C). Mycelial mats were collected from three replications in each case after 15 days of incubation on previously weighted Whatman's filter paper no. 42 and dried in an oven at 60^{0}C for 3 consecutive days (uptill constant weight). The average dry weights of the mats obtained from three replication of each treatment were used as quantitative measure for comparing the growth under different treatments.The dry weight of mycelium was expressed in milligrams.

The sporulation of the fungus was also recorded in each nitrogen source. The data obtained were analysed statistically using standard procedure.

The results obtained from the present investigation (Table 1) revealed that, among seven different nitrogenous sources tested for their effects on the growth and sporulation of *C capsici*, significantly superior growth of the