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EFFECT OF WASTE BIOMASS (WBM) OF VEGETABLE ON SPORE GERMINATION, GROWTH AND SPORULATION

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ABSTRACT:

Vegetable as a part of their daily diet have a reduce risk of chronic disease.It provide a source of many nutrient, antioxidants, potassiumfibre, folate, Vitamin A.E,C.and also protect against infection. In Marathwada region of the Maharashtra state many vegetable plants are very common easily cultivated. They produce a huge waste biomass (WBM). The waste biomass of the vegetable plants may be utilized as the source of fungicides.On utilization of waste biomass (WBM) of plants in relation to spore germination; growth and sporulation have been studied. By taken borosil conical flask containing 25ml of liquid GN medium supplemented separately with 1gm of powder of WBM of tested common vegetable plants were autoclaved at 15 lbs pressure for 15 minutes. The flasks were inoculated with 1ml of spore suspension of Fusarium moniliforme Sheldonand were incubated at room temperature. The spore germination of Fusarium moniliforme Sheldonstudied after 24 hours while growth and sporulation were studied after seven days of incubation period. The tested WBM of Daucuscarota L. and Allium cepa L. was found to be more inhibitory for the spore germination (10%). growth (20mg) and sporulation (++)of Fusarium moniliforme Sheldon

KeyWords: Spore suspension, Spore germination, Sporulation, Waste biomass.

INTRODUCTION:

The Vegetables are vital to the general good health of human being, providing essentialvitamins, minerals, dietary fibre, phytochemicals and reducing risk from dangerous disease. A world vegetables survey indicated 392 vegetables crop cultivated worldwide.(Joasilva Dias. 2011). Vegetable are also in significant value as a source of protein and amino acids. All vegetables contains digestive cellulose fiber (M.Akmal khan and, Tabssum Hamid,1986). It is evident from the literature that the vegetables and their seeds carry large number of mycoflora both in field and during storage. Most of the fungi cause decay and rots (Kunte and Yawalkar , 1991).The vegetables associated with the fungi found to be useless. The vegetable seeds associated with the fungi found to be enable to germinate. The vegetable plants can produce an enormous amount of waste biomass (WBM). The waste leaves, stem and roots of some common and easily available plants like Carrot (Daucuscarota L.), Radish (Raphanussativus L.), Onion (Allium cepa L.), Methi (Trigonellafoenum-graecum L.), Palak (Spinaciaoleracea L.), Cabbage (Brassica oleracea var.capitata L.), Cauliflower (Brassica oleracea var. botrytis L.), Tomato (Lycopersicon esculentum L.) and Bhendi (Abelmoschuse sculentus L.) were referred as waste biomass material (WBM) of vegetable plants. This WBM can be utilized against spore germination, growth and sporulation of vegetable mycoflora. Considering these aspects the present research paper has been selected.

MATERIALS AND METHODS:

Collection of sample:

The WBM of common vegetable plants

were collected from the fields as well as local vegetable markets. In order to study effect of waste biomass (WBM) of some common vegetable plants on spore germination, growth and sporulation of.Fusarium moniliforme Sheldon taken borosil conical Flasks containing 25 ml of liquid GN medium supplemented separately with 1gm powder of WBM of common vegetable plants like Carrot (Daucuscarota L.), Radish (Raphanussativus L.), Onion (Allium cepa L.), Methi (Trigonellafoenum-graecum L.), Palak (Spinaciaoleracea L.), Cabbage (Brassica oleracea var.capitata L.), Cauliflower (Brassica oleracea var. botrytis L.), Tomato (Lycopersicon esculentum L.) and Bhendi (Abelmoschusesculentus L.) were autoclaved at 15 lbs pressure for 15 minutes on automatically cooling ,the flask were inoculated with 1ml of spore suspension of.Fusarium moniliforme Sheldon prepared from seven days old cultures grown on PDA slants. The flasks were incubated at room temperature. The spore germination of Fusarium moniliforme Sheldonwas studied after 24 hours of incubation period. The growths in terms of the fungus were studied after seven days of incubation period .The liquid GN medium without the supplementation of power of WBM served as control.

RESULT AND DISCUSSION:

Table: Effect of waste biomass (WBM) of vegetables on spore germination, growth and sporulation of FusariummoniliformeSheldonby food poisoning method.

Sr. No.	Name of the Vegetable	WBM of Vege- tables	Fusarium moniliforme Sheldon		
			Spore Gemina- tion (%)	Dry Mycelial Weight (mg)	Sporu- lation
1.	Daucuscarota L.	Leaf	10	20	+
2.	Raphanussativus L.	Leaf	60	35	+++
3.	Allium cepa L.	Leaf	10	20	++
4.	Trigonellafoenum-graecum L.	Stem	32	03	+
5.	Spinaciaoleracea L.	Stem	50	06	+
6.	Brassica oleracea var.capitata L.	Leaf	20	15	++
7.	Brassica oleracea var. botrytis L.	Leaf	24	10	++
8.	Lycopersicon esculentum L.	Root	20	03	+
9.	Abelmoschusesculentus L.	Root	45	25	+++
		Control	70	40	+++

+= Low, ++=Medium, +++= High

It is clear from the results presented in Table 1 that the WBM of all the test vegetable plants was found to be inhibitory for spore germination, growth and sporulation of FusariummoniliformeSheldon. It is also evident from the results that the test WBM of Daucuscarota L. and Allium cepa L. was found to be more inhibitory for the spore germination (10%). The test WBM of Trigonellafoenum-graecum L. and Lycopersicon esculentum L. was found to be more inhibitory growth (03mg) and sporulation (++) of Fusarium moniliforme Sheldon.Where as the WBM of Raphanussativus L. was found to be very less inhibitory for the same as compared to the WBM of other test vegetable plants.

Similar Studies were carried out by, Agarwal, v.k. And o.v. Singh (1974).Bhowmik B.N. and Choudhary (1982),Burapadaja, S. and A. Bunchoo (1995), Chary, M.A.S. and S.M. Reddy (1982), Deo, P.P. and J.S. Gupta (1980),Deena, E.and K.C. Basuchaudhary (1984).Gomati, V.H., Chitra and B. Kannabiran (2000),Joasilva Dias.(2011),Mishra, M., Y.N. Shukla and S. Kumar (2002),Rati, E. and A. Ramlingam (1974).Singh, B.K. and T. Prasad (1988).Varaprasad, B., K.K. Prasanth, C.K. Naidu and P. Somasekhar (2009).

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