Bangladesh J. Sci. Res. 24(2): 181-184, 2011 (December) **Short communication**

STUDY OF FUNGI ASSOCIATED WITH SOME SELECTED VEGETABLES OF DHAKA CITY

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The association of fungi with five selected vegetables of Bangladesh namely, *Capsicum fruticans* L. (Chilli), *Cucurbita maxima* Duch. (Pumpkin), *Lablab purpureus* L. (Sweet bean), *Trichosanthes anguina* L. (Snake gourd) and *Trichosanthes dioica* Roxb. (Pointed gourd) were studied and presented in this paper. A total of 16 species of fungi representing 7 genera were of Deuteromycetes and one genus of conidial Phycomycetes were isolated from the vegetables. The isolated fungi were *Alternaria pluriseptata* Karst & Har., *Aspergillus niger* Van Tiegh., *Aspergillus flavus* Link *ex* Fr., *Aspergillus* sp., *Colletotrichum dematium* (Pers. ex Fr.) Grove, *Curvularia brachyspora* Boedijn., *C. eragrstidis* (Henn.) Meyer., *Curvularia fallax* Boedijn, *C. penniseti* (Mitra) Boedijn, *C. prasadii* R.L. & B.L Mathur, *C. stapeliae, Fusarium moniliforme* Sheldon, *Penicillium* sp., *Rhizopus stolonifer* (Ehrenb. ex. Fr.) Lind, *Trichoderma viride* and *Trichoderma* sp.

Vegetables are plants or plants part eaten as food. Vegetables are common and broadly accepted food through out the world. The commonly available vegetables are potato, brinjal, pumpkin, beans, cabbage, snake gourd, pointed gourd, chilli etc. The importance of vegetables in human nutrition is well-known. Vegetables are rich and comparatively cheaper source of vitamins and minerals. Their consumption in sufficient quantities provides taste, palatability and increase appetite. Vegetables provide fair amount of fibers. They play the key role in neutralizing the acids produced during digestion of proteinous and fatty foods and also provide valuable roughage which promotes digestion and helps in preventing constipation (Bose 1993). Vegetables are also source of nutrients for fungi and other microbs. Most of the vegetables are attacked by the fungi in field, transit and storage conditions (Wadhawani and Srivastava 1985).

The above mentioned five vegetables have significant importance in our country because of their nutritive value, easy availability and economically cheaper. People of Bangladesh like vegetables as one of their daily diet, but most of the people are not aware about the association of various fungi with those vegetables due to their lack of knowledge. A survey of the relevant literatures also indicates that insufficient attempt has been made in Bangladesh to study the association of fungi with apparently fresh vegetables (Haque 2006 and Khanom 2002).

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Samples were collected from vegetable markets of Polasy, New market, Kawranbazar and Farmgate areas, Dhaka, Bangladesh. Fifty samples were examined during 2006 to 2007. Fungi were isolated from five samples per vegetable. The fungi were isolated from samples following the "Tissue Planting" method on PDA medium with an addition of 1 drop (Ca. 0.03 ml) of lactic acid which is used for checking the bacterial growth. A total number of 50 inocula 2^2 mm in size was surface sterilized by dipping in 10% chlorox for 3 min then 3 inocula were transferred in each Petri Plates. Ten Petri Plates were inoculated for each sample. Then the inoculated plates were incubated at room temperature (25 ± 2°C) for seven days. The fungi growing out of the inocula were examined and identified. Percentage frequency of the occurrence of the fungal isolates was calculated by the formula adopting Spurr and Welty (1972).

For microscopic observations fungal structures like mycelia, spore bearing structures and spores were scrapped off from the surface with a scalpel or blade or picked up with a needle and was mounted in lactophenol over a clean slide. In case of hyaline structures, a little amount of aniline blue (cotton blue) was added to the mounted fluid. The text figures of microscopic structures were drawn with the aid of a camera lucida. Identities of the isolates were determined following the standard literatures (Gilman 1967, Ellis 1976, 1971, Benoit and Mathur 1970, Booth 1971, Subramanion 1971, Barnet and Hunter 1972).

In the present study, a total number of 50 samples of vegetables were examined which showed the presence of the members of *Alternaria, Aspergillus, Colletotrichum, Curvularia, Fusarium, Penicillium, Rhizopus* and *Trichoderma.* The species determinations of these genera were made with available literatures (Ellis 1971, 1976 and Subramanian 1971). The species belonging to the above mentioned genera have been arranged alphabetically and only the important synonyms were given where applicable.

In total 16 species of fungi were isolated from five selected vegetables. These species belonged to 7 genera of Deuteromycetes and one genus of conidial Phycomycetes. The isolated fungi were *Alternaria pluriseptata, Aspergillus flavus, A. niger, Aspergillus* sp., *Colletotrichum dematium, Curvularia brachyspora, C. eragrostidis, C. fallax, C. penniseti, C. prasadii, C. stapeliae, Fusarium moniliformis, Penicillium* sp., *Rhizopus stolonifer, Trichoderma viride* and *Trichoderma* sp.

In case of *Capsicum frutescens* L., six fungal species were isolated from the sample. Frequency of association of *Aspergillus niger* was higher (32.16%) and *Trichoderma viride* was lower (2.00%, Figure 1).

Seven fungal species were isolated from the *Cucurbita maxima* Duch., Frequency of association of *Rhizopus stolonifer* was higher (81.25%) and *Alternaria pluriseptata* & *Curvularia fallax* were lower (2.00%, Figure 1).

In case of *Lablab purpureus* (L.) Sweet. seven fungal species were isolated from the sample. Frequency of association of *Penicillium* sp. was higher (58.60%) and *Colletotrichum dematium* was lower (2.66%, Figure 1).

Seven fungal species were isolated from *Trichosanthes anguina* L. sample. Frequency of association of *Rhizopus stolonifer* was higher (55.94%) and *Trichoderma* sp. was lower (1.33%, Figure 1).

In case of *Trichosanthes dioica* L. seven fungal species were isolated from the sample. Frequency of association of *Rhizopus stolonifer* was higher (52.61%) and *Trichoderma* sp. was lower (1.33%, Figure 1).

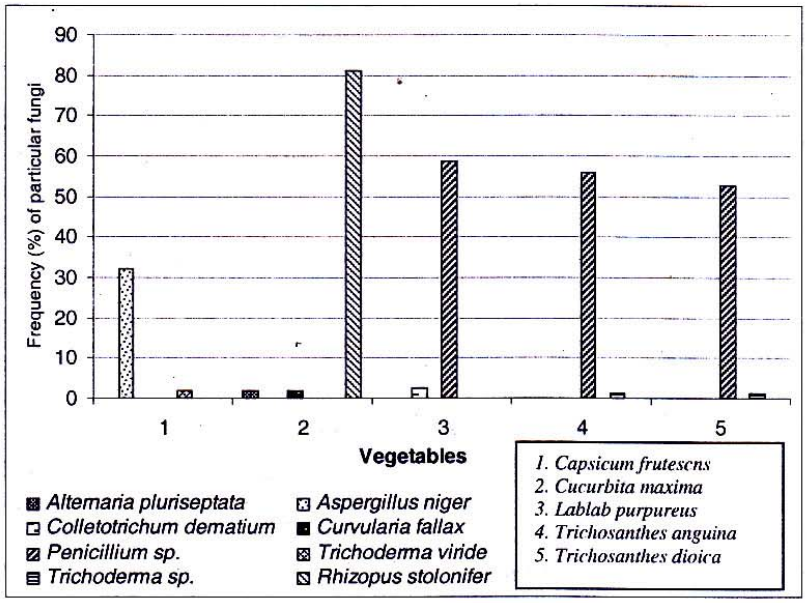

Figure 1. Frequency (%) of association of fungi with five vegetables.

The species of *Colletotrichum dematium, Curvularia brachyspora, C. fallax, C. penniseti, C. prasadii* and *C. stapeliae* are hitherto, recorded for the first time from Bangladesh.

Thus in the present study, an attempt was made to identify the fungi associated with five selected vegetables. Those vegetables were apparently fresh and healthy but the

above mentioned fungi were frequently associated with those. These fungi are disease producing and contain various phytotoxins which are harmful for mankind and animals. These fungi also deteriorate the quality and quantity of vegetables during transit and storage period.

It is expected that the result of this study will be helpful in suggesting the people to be aware of using those vegetables before cooking. Moreover, this study will make a significant contribution in Plant Pathology.

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