

Isolation of fungus from Common carp (*Cyprinus carpio*)

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ABSTRACT

Fungal association with common carp (*Cyprinus carpio*) available in the local market has been surveyed. Attempt to culture the fungus from gills and skin of carp has shown that fungus is associated with skin and not with the gill of the fish. The fungus was identified to be *Aspergillus niger*. This is first report of isolation of this fungus from carp available in the local market.

Key words: Common carp; *Aspergillus niger*; Gill; Skin;

Over the past ten years, aquaculture has increased on an average by 11% per year. Production has increased from 13 million tonnes of fish in year 1990 to 37.9 million tonnes in 2001 and 51.65 million tonnes in 2006¹⁰. The majority of global production (58%) comes from freshwater aquaculture¹⁰. Common carp is a common fish found in the lakes of Bhopal².

It is used by the people of the city as a protein rich diet. It is easily available in the local market. The purpose of this study was to isolate fungi from the common carp obtained from local market.

Fish source:

Common carp was obtained from local fish markets located at Bittan market (Arera Colony), Vijay Market (Barkhedi Pathani)

and Nehru Nagar. The fish was carried to the laboratory in a sterilized steel box. It was kept in the refrigerator for further use.

Fungal isolation:

A bit of gill and skin of the fish was taken apart with the help of a sterile forcep and put in the sterile saline water (0.01% NaCl) in a test tube. The test tube was shaken for 6 hours. A 0.01 ml aliquot of this water was inoculated onto PDA (potato, dextrose agar medium) in a Petridish. The inoculated Petridish was incubated at 37°C in an incubator for 72 hours. To avoid growth of bacteria, chloramphenicol was incorporated in the medium @ 200 mg/100ml after cooling the sterilized medium. The isolated fungus was purified by single cell isolation method and maintained on PDA slant at 4°C.

Identification of fungus:

The isolated moulds were identified down to the generic level on the basis of macromorphological and micromorphological characteristics using suitable media, slide cultures and the most updated keys for identification⁹.

Quality control:

The experiments were carried out in triplicates and verified three times.

The fish was obtained from three locations of markets. It was fresh as per the claim of the sellers. The fungus was found in fishes obtained from Vijay Market and Nehru Nagar. The fish obtained from Bittan Market did not yield any fungus.

The fungus obtained was from the skin only. No fungus was found in the gill of the fish. There were seven fungal colonies altogether on the three Petridishes. All the colonies were picked up, purified and maintained under cold condition.

The fungus was identified by micro- and macro-morphological characters. Moulds were stained with lactophenol cotton blue for examination. A thin line of the stain is placed on a microscope slide. A piece of cello tape is then applied to the mould growing on the PDA. And this was then carefully placed on the stain-containing slide, and examined under the microscope.

All the seven fungal isolates grew rapidly on PDA and were visibly white initially but they appeared black and powdery on the second day of incubation. After three days, the

growth rates were determined to be 0.70-0.80 cm/day. Three of these isolates (BEN1, BEN6 and BEN 7) grew more rapidly (0.8 cm/day) and were uniformly distributed and scattered. Meanwhile, the conidial head was brownish black and it split into several irregular and regular columns of conidial chains. The conidiophores were hyaline and brown in colour. Vesicles were hyaline, globose, and also brown in colour with uniseriate sterigmata. The conidia were brown to black, globose and very rough. On the bases of these characteristics all the seven isolates were identified as *Aspergillus niger*^{7,8}.

Common carp is economically important fish, which is used by local people. There is no report of any fungal association with this fish earlier. Earlier fungi have been reported to be associated with fishes, they were solely aquatic ones^{3,4,5}. The fungus *A. niger* seems to have been associated with the fish during transportation/marketing. The open areas used in the two markets *i.e.* Vijay Market and Nehru Nagar may be responsible for the contamination of the fish from fungus.

It is for the first time that association of *A niger* with fish is being reported as a result of present investigation. This is to note that *A. niger* has been reported to be associated with diseased lesions⁶. It is, therefore urgent to further the study so as to find out the implication of this finding.

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