



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research

Vol. 14, Issue, 07, pp.21844-21845, July, 2022

DOI: <https://doi.org/10.24941/ijcr.43736.07.2022>

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

RESEARCH ARTICLE

MICROBIAL QUALITY ASSESSMENT OF FISH

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ARTICLE INFO

Article History:

Received 29th April, 2022

Received in revised form

25th May, 2022

Accepted 04th June, 2022

Published online 26th July, 2022

ABSTRACT

Fresh fish is very perishable product & is spoiled due to microbial activity as the microorganisms grow they utilize the nutrients and bring about various chemical reaction one of the reason for spoilage is its high protein content many microorganisms can bring its spoilage including aerobic & anaerobic microorganisms in the present study an attempt was made to analyse fish for different aerobic & anaerobic microorganisms it was found all the different types of microorganisms like salmonell spp and vibreo were present in exceeding counts.

Key words:

Seed Priming, Germination, Mungbean, Membrane Integrity, Enzyme activity.

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Citation: **Quazi Saleemoddin Habeeboddin**. 2022. "Microbial Quality Assessment of Fish". *International Journal of Current Research*, 14, (07), 21844-21845.

INTRODUCTION

Fish originated over 600 million years ago over three billion people around the world depend on fish for their protein intake approximately 20 kg of fish is consumed per capita per annum ,wild caught fish can no longer support the worlds sea food consumption thus aquaculture has contributed 43.1% of global fish production Sian *et al* (2018) fish is considered to be a safe food in general & it is well accepted that microorganisms are commonly present on fish surfaces such as skin and gills as well as in the digestive tract marine fish is source of muscle development fish raw and uncooked products have been involved in outbreaks associated with bacterial pathogens ,& biotoxins Lina shang (2020). Microorganisms play a crucial & unique role in fish life the presence of human pathogens & formation of different toxins by them is very critical for fish product safety thus better knowledge of microbiological control may help to optimize product quality many organisms like Escherichia coli, Salmonella spp, Clostridium vibrio listeria monocytogens are the major threat to fish .Loannis (2014) A complex & dynamic community of microorganisms colonizing in the gastrointestinal tract of fishes is Lactic acid bacteria (LAB) some investigations have revealed the presence of Lactobacillus Lactococcus Enterococcus , Streptococcus pediococcus in gut of fish several complex mechanisms are involved by these gutflora like immune development, improved growth & development hence it is crucial to

understand the beneficial role of gut flora fish spoilage is a complex process in which environmental chemical & microbiological mechanisms are involved iron is the limiting nutrient in fish which favours the growth of Pseudomonads that produce siderophores by binding to iron, thus spoilage is a series of event involved which starts as soon as the fish is caught if the temperature is high it is spoiled in 12-15 hrs . the consumption of contaminated fish may lead to foodborne infections raising public health concerns , especially regarding the spread of zoonotic food borne pathogens .Hossein *et al* (2011)

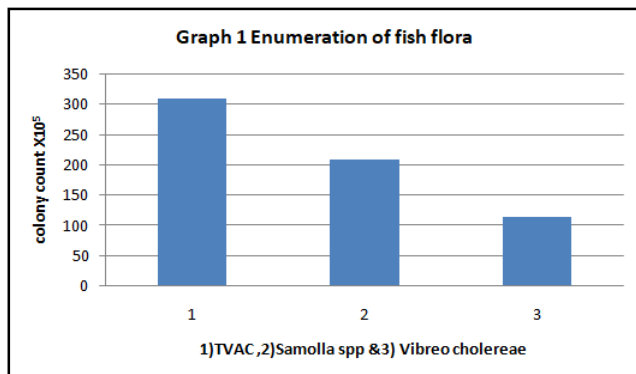
MATERIALS AND METHODS

Different fish samples from fish market of beed were collected on every Sunday for continuously two months and microbial flora of skin was done Microbial culture from the body of fish was collected using swab culture , the suspension was prepared in saline distilled water and the serial dilutions were prepared the total viable count was enumerated on standard plate count agar the triplates of each dilution was inoculated on standard plate count agar and incubated at 30 °C for 12-24 hrs the colony count was taken and the culture was identified. Also enumeration of total fecal coliforms was done on BGLBB media enumeration of Salmonella spp and Vibrio

cholerae was also done Bismuthsulphite agar & TCBS agar respectively

RESULTS

Fish and sea foods hold an important place as food component the results showed that total viable aerobic count was quite high in all the fish collected for total coliforms also the acceptable limits was crossed Which indicates contamination from sewage also salmonella Spp & vibrio cholerae was also Detected (Graph 1).



DISCUSSION

Microflora is a significant part of aquatic ecosystem the aquaculture species are prone to several diseases the presence of enteric bacteria in fishes serve as an indicator of fecal contamination & water pollution the association of fecal flora also suggests potential health hazards nearly 27% of fish has been estimated to be lost due to spoilage & microbial spoilage of fish is a considerable cause of sea food loss & may be reduced by improved hygiene food preservation & packaging svanevik *et al* (2015) many food-borne outbreaks are unrecognized & uninvestigated hence outbreak must be properly identified ashie *et al* (1995) pathogens can be introduced into fish at any point etiology of fish associated outbreaks is mainly due to toxin histamine & ciguatera .scombroid poisoning is a food intoxication caused by consumption of scombroid marine fish like tuna, mahi & blue fish consuming of such fishes produce decarboxylase enzyme & convert histidine to large quantities of histamine Colombo *et al*. (2018).

Clostridium botulinum produces a highly toxic neurotoxin & is responsible for 50% deaths in fish associated outbreaks about 97% of outbreak is by tuna fish the main reasons of spoilage is either by enzyme or by production of toxins oxidative spoilage is the major cause of deterioration of fish which contain high fat or oil in their flesh oxidation typically involves reaction of oxygen with double bonds of fatty acids, several proteolytic enzymes are found in fish that contribute to degradation of fish muscle Sohana *et al* (2016) the storage of fish during transportation is also an important factor in fish spoilage the poor sanitary conditions during transportation makes it more susceptible for spoilage hence fish must be iced during transportation. Finally it can be concluded that overall microbial quality of fish sample collected is not that good for consumption increased load of organisms is seen from market to retailers there is a need for introduction of good aquaculture techniques with better practices for maintaining cold storage conditions.

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