



## Advisory on Seafood Adulteration and rapid detection using CIFTTest kits



Seafood adulteration - The addition or subtraction of any substance to or from food, so that the natural composition and quality of food substance affected is known as adulteration. A food item is said to be adulterated if substance added is injurious for human consumption, an inferior substitutes wholly or partly and a valuable ingredient abstracted from the food product wholly or in part. It can be a *Substandard Food, Unsafe Food or Food containing the extraneous matter*. According to the provisions of Food Safety and Standards Authority of India (FSSAI), if any person imports or manufactures for sale, or stores or distribute any adulterant, by himself or by any other person on his behalf, shall be liable to penalty. According to Indian and International regulations, the fresh fish and shellfish should be preserved only by means of ice. Use of substance other than ice to extend the keeping quality is a fraudulent practice. Inadequate preservation facilities and lengthy transport from distant places considerably reduces fish quality by the time it reaches consumers. Lack of strict regulatory controls, inadequate cold storage facility, refrigeration, transport and increased demand from consumers has created the opportunity for fraudulent practices for long term preservation. Adulteration of fishes due to formaldehyde and ammonia can cause health problems to consumers. Formaldehyde is classified as Group-I carcinogen to humans.

Even though, formaldehyde and ammonia are generated in very low levels in most living beings through normal metabolic activities, ingestion in large amount through food can cause minor to serious health problems such as stomach pain, vomiting, coma, and even death. Formaldehyde is a potential cancer inducing chemical which is a major health concern.

Although ammonia is not so far reported to have carcinogenic effect, continuous ingestion of ammonia can lead to many health issues including injuries to mucous membrane of mouth, throat, esophagus and stomach. Ammonia readily dissolves in water and forms ammonium hydroxide, an alkaline solution. Ingestion of ammonium hydroxide also can result in corrosive damage to mouth, throat and stomach. The surreptitious use of undesirable substances in fresh fish can only be avoided by ensuring proper use of cold chain for fish and fish products during processing, storage, transportation and display for sale.

## Rapid detection methods/ CIFTTest

The increasing consumer concern on food quality and safety issues has raised urgent demand for rapid, sensitive and portable screening methods. Taking these aspects into consideration, ICAR-CIFT has developed two rapid detection kits for checking adulteration of fresh fish with formaldehyde and ammonia. It is a non-destructive, simple and consumer friendly method, to make its use easy for the domestic markets, and the general public. The kits consist of simple paper strips, reagent solution and standard chart for comparison of results. The paper strip is to be rubbed on the surface of fish to be tested, and a drop of reagent solution is to be added to that. If the targeted contaminant is present in the fish, the paper strip gives colour change as per the colour chart provided. The technology is transferred to Himedia company, Mumbai. Validated instrumental methods based on HPLC and GCMSMS can be used for confirmation of results.

**K137 -1KT**

**HiRapid Formalin Test Kit (For Fish)**

Kit Contains 3 Reagent Bottles Sufficient for 25 Tests



25 Tests

ICAR - CIFT  
Cochin  
Technology

For rapid detection of Toxic Formaldehyde in fish

**HIMEDIA**  
For Life is Precious

**K136 -1KT**

**HiRapid Ammonia Test Kit (For Fish)**

Kit Contains 2 Reagent Bottles Sufficient for 25 Tests



25 Tests

ICAR - CIFT  
Cochin  
Technology

For rapid detection of Toxic Ammonia in fish

**HIMEDIA**  
For Life is Precious



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