

**Title of Technology:**

Fluorescence based Formaldehyde/Formalin Tester

**Need:**

Food adulteration is a major concern, not only for the end-users but also the concerned industry. The food we consume is considered adulterated if

- ✓ A substance is added which depreciates or injuriously affects it,
- ✓ Cheaper or inferior substances are substituted wholly or in part.
- ✓ Any valuable or necessary constituent has been wholly or in part abstracted.
- ✓ It is an imitation.
- ✓ It is coloured or otherwise treated, to improve its appearance or if it contains any added substance injurious to health.
- ✓ For whatever reasons its quality is below the Standard

Adulterated food may pose serious health problems as it may be toxic and can affect health and it could deprive nutrients essential for proper growth and development.

Though Formaldehyde is forbidden to be used (as a preservative) in foods as per Food Safety and Standards Regulations, 2011, Formalin (formaldehyde in water) is a common adulterant in fish. Although, the amount of formalin in fish decreases overtime during storage, it cannot be removed completely. Consumption of fish adulterated with formalin can cause health conditions such as abdominal discomfort, vomiting, renal injury, etc.

Therefore, a quick, easy and low-cost solution for detecting Formaldehyde in fish is needed. The present systems being developed aims at detecting Formaldehyde in fish in 5 to 10 min time. These systems have been designed and developed to detect formaldehyde in fish on real time basis.

**Specific features of Technology Envisaged/Developed** (Benchmarking USP) (in bullets):

**Fluorescence based Formaldehyde/Formalin Tester:**

- ✓ On-the-spot adulteration check
- ✓ Easy to operate
- ✓ Battery Operated

Measurement Principle: Fluorescence

Measurement time : 5 to 10 min

Measurement range: 1ppb – 100ppm (>100 ppm )

Limit of detection: 1ppb

### Applications of Technology:

The developed system finds application of quality check in

- ✓ Fisheries
- ✓ Domestic usage
- ✓ Food inspection agencies

### Photograph:



Fig: A schematic of prototype of Fluorescence based HCHO tester