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Is your fish adulterated? Here's a two-rupee test

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Very soon, your knowledge of high school science, especially the litmus test, could come handy to ascertain the quality of the fish you purchase. A few scientists of Central Institute of Fisheries Technology (CIFT) have devised an "easy, efficient and inexpensive method" to test if the fish have been adulterated.

The CIFT team, which was spearheaded by scientists SJ Laly and ER Priya, developed a rapid detection kit which consists of a paper strip and a reagent that helps the user detect if the fish has been smeared by formaldehyde or ammonia.

"Fish is a highly perishable commodity and also much in demand," says Priya. "So, if it isn't maintained at the proper temperature of 5 degree Celsius, it will get spoilt. To avoid that and increase its shelf-life, the sellers now use chemicals such as formaldehyde and ammonia."

If the point of sale is far from the place of catch, formaldehyde is used as a preservative, she says. Meanwhile, ammonia is mixed with the water that is frozen to keep to



Paper strip rubbed on the fish



Reagent added to it



Paper changes colour, depending on the adulterant

fish fresh. "Formaldehyde is carcinogenic and is used to preserve dead bodies or scientific specimens. This chemical as well as ammonia, which when consumed even in small quantities for a long duration, can cause severe health problems," she says.

The reason for the group, which also includes Satyen Kumar Panda, A A Zynudheen, K Ashok and CN Ravishankar, to take up the project is the request of Minister of Fisheries J Mercykutty Amma. "When she had visited CIFT, she had asked our director to come up with a quick solution for the escalating problem of fish being adulterated. When there are many processes that can be done in the laboratories, all of them take time. So, our challenge was to develop a quick and simple fix that people can use," says Laly.

The working principle is similar to a litmus test. "A paper strip is rubbed on the fish's surface and then a drop of reagent, which contains several chemicals, is added to it. The paper will change colour depending on the adulterant," explains Priya.

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Blue and green means adulteration

The CIFT team — Priya ER, Laly SJ, Ashok Kumar K and Sainudeen



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"If formaldehyde is detected, the white paper strip will change to blue in 30 seconds and depending on the content of ammonia, it will change to green or blue in two minutes."

Currently, the two scientists say that each test would cost ₹2 and the kit containing 25

strips and reagent would cost ₹50. "We will be transferring the technology for commercial production and in that case, the cost per test would be even lower," says Laly, adding that as it's not a destructive process, even the fish sellers could use the kit to show the quality of the items they are selling to the consumers.