A fishy matter: on the formaldehyde contamination of fish

Reports of traces of the chemical formaldehyde in fish in several States highlight both the uncertainties of science, and the importance of clear risk-communication. In June, the Kerala government found formaldehyde-laced fish being transported into the State. Soon after, *The Hindu* carried out a joint investigation with the Tamil Nadu Dr. J. Jayalalithaa Fisheries University to look for formaldehyde in Chennai. The study revealed around 5-20 ppm of the chemical in freshwater and marine fish in two of the city's markets. Next, Goa reported similar findings. But its Food and Drugs Administration later said the levels in Goan samples were on a par with "naturally occurring" formaldehyde in marine fish. This triggered suspicions among residents, who accused the government of playing down the health risk. The Food Safety and Standards Authority of India has banned formaldehyde in fresh fish, while the International Agency for Research on Cancer labelled the chemical a carcinogen in 2004. The evidence the IARC relied on mainly consists of studies on workers in industries such as printing, textiles and embalming. Such workers inhale formaldehyde fumes, and the studies show high rates of nasopharyngeal and other cancers among them. But there is little evidence that formaldehyde causes cancer when ingested orally. A 1990 study by U.S. researchers estimated that humans consume 11 mg of the chemical through dietary sources every day.

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So, why is formaldehyde in fish a problem? For one thing, fresh fish should not have preservatives, and the presence of formaldehyde points to unscrupulous vendors trying to pass off stale catch as recent. Two, the lack of evidence linking ingested formaldehyde with cancer doesn't necessarily make the chemical safe. At high doses, it causes gastric irritation. Plus, the lack of data could merely mean that not enough people are consuming formaldehyde regularly enough for its carcinogenic effects to show — the absence of evidence is not evidence of absence. There is a third complication. When certain marine fish are improperly frozen during transit, formaldehyde forms in them naturally. But this formaldehyde binds to the tissue, unlike added formaldehyde, which remains free. And so, measuring free formaldehyde versus bound formaldehyde can be one way of distinguishing a contaminant from a naturally occurring chemical. In this context, the Goan government must clarify its claim. Did the Goan FDA measure free formaldehyde or bound formaldehyde? If it measured the sum of both, on what basis did it conclude that the chemical came from natural sources? Some formaldehyde consumption may be unavoidable for fish-lovers, and it may not be a health risk either. But the line between safe and unsafe consumption should be drawn by experts, in a transparent manner. The Goan claim doesn't meet this criterion. This is why, instead of allaying the fears of consumers, it is stoking them.

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