

## A TEST FOR THE DETECTION OF FORMALIN IN MILK AND MILK-PRODUCTS

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Formalin is a chemical preservative suspected to be added to milk and milk-products to increase their shelf-life. Sri Lanka Standards Institute prohibits its use in milk-foods due to its toxicity and thus screening tests need to be done routinely to ensure that the multitude of dairy products in the market are free of formalin. The methods available currently for the detection of formalin are either indicated only for raw liquid-milk, or are much too laborious and expensive to be used routinely. The objective of the study was to determine a simple, accurate, and a cost effective test to detect formalin in 'ready- to- drink' and raw liquid milk, yoghurt and curd (if directly added, or if indirectly applied by a formalin soaked tissue paper). Thirty two samples of curd obtained from Melsiripura in the North-Western province were screened to test the applicability of the method.

There are a number of tests indicated for raw liquid-milk. Of these, Leach test was applied directly and Schiff's test was modified as Schiff's-Indirect and Schiff's-Direct. Measured amounts of formalin were added to liquid milk (both flavoured/coloured and raw), yoghurt and curd to obtain dilutions of 1000, 100, 20, 10, 5 and 2 ppm with a negative sample as the control. For each of these dilutions, the above mentioned three tests were performed repeatedly for 16, 16 and 10 times with samples of liquid milk, yoghurt and curd, respectively. Leach test and Schiff's-Direct test were performed for formalin dipped tissue paper and repeated 10 times.

Leach test gives 100% sensitivity at 1000 ppm for liquid-milk (coloured and raw) at 20 ppm for yoghurt and at 10 ppm for curd. It is not effective for the detection of formalin absorbed into a tissue paper. Schiff's-Direct method gives 100% sensitivity at 10 ppm for liquid-milk and at 20 ppm for both yoghurt and curd. This method can be used with 100% sensitivity for tissue papers dipped in a solution of formalin at a dilution of 1000 ppm. Schiff's-Indirect test can be used with 100% sensitivity at 10 ppm level for all three products tested.

The study indicated that Schiff's-Indirect method is the most suitable and also a simple, cost effective test that can be applied commonly for the detection of formalin in 'ready- to- drink' and raw liquid milk, yoghurt and curd. It may be developed into a quantitative method by spectrophotometry or applied for other food products such as fish and fruits. The cost of this test is approximately Rs 4.50 per sample. Schiff's-Direct test can be applied to detect formalin if absorbed into tissue papers and the cost was found to be approximately Rs 2.00. The samples of curd obtained from Melsiripura did not contain formalin at a level of >10 ppm.