

Determination of Metanil yellow in Chili and Turmeric powder samples available in Jaffna peninsula

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Metanil yellow ($C_{18}H_{14}N_3NaO_3S$) is a synthetic azo dye, not permitted to use in food products in many countries because of their potential carcinogenicity. But they are illegally used to colour food products like turmeric powder and chili powder due to their lower prices. The purpose of this study is to find out the possibility of usage of Metanil yellow in commercial turmeric powder and chili powder samples available in Jaffna peninsula. A total of 48 samples including 28 chili powder and 20 turmeric powder samples were tested qualitatively and quantitatively for the presence of Metanil yellow. All the 48 samples were tested were negative for the qualitative examination of Metanil yellow. A spectrophotometric method was developed for the quantitative determination of Metanil yellow. The point of maximum absorption was selected as 450 nm for this method by a wavelength scanned from 300-600 nm. Centrifuge pretreatment at 5000 rpm for 20 minutes was suitable to reduce the problem of particle interference during absorption measurement. Limit of detection (LOD) and the limit of quantification (LOQ) of the experiment were 0.4653 and 1.41 $\mu\text{g}/\text{ml}$, respectively. This experiment exhibited a good accuracy with a percent of recovery (R %) of 95.74%. In the quantitative estimation the Metanil yellow content of all 48 samples were found below the level of limit of detection (LOD) of 0.4653 $\mu\text{g}/\text{ml}$. Based on the results of this experiment all the chili and turmeric powder samples tested were not contained non permitted colour Metanil yellow. Therefore they are safe for consumption.

Keywords: Chili powder, Jaffna peninsula, Metanil yellow, Turmeric powder.