

Extraction and analytical methods for determination of sunset yellow (E110)—a review

Abstract

Sunset Yellow (E110) is a water-soluble, orange-red coloured powder and synthetic azo-dye that has been used widely in food industries for aesthetic purpose. Sensitivity reaction, hyperactivity and depressing effect on cellular immune responses are the example of adverse health effects resulting from overconsumption of Sunset Yellow. Due to the concern on these possible health defects, World Health Organization (WHO) with Food and Agriculture Organization (FAO) have established the internationally recognized standard of maximum permitted level for this dye in Codex Alimentarius based on the food and beverage types. The acceptable daily intake (ADI) of Sunset Yellow set by European Food Safety Authority (EFSA) is 4 mg/kg bw/day. Recently, there are several analytical methods that have been reported for determination of Sunset Yellow. Herein, we critically reviewed those existing methods applied for the analysis of Sunset Yellow such as high-performance liquid chromatography, electrochemical sensor, spectrophotometric, liquid chromatography–tandem mass spectrometry, capillary electrophoresis, thin-layer chromatography and immunological method. A brief description on the use of different extraction methods such as solid-phase, liquid-liquid, ultrasound-assisted and cloud-point extractions has been presented. Thus, this review paper is intended as a guideline or idea in choosing a suitable and effective extraction and analytical methods for detection of Sunset Yellow in commercial food and beverage products.