Risk assessment by the exposure to saccharin and cyclamate through the consumption of liquid tabletop sweeteners in Brazil

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The aim of this study was to evaluate the intake of saccharin and sodium cyclamate through the consumption of liquid tabletop sweeteners in Brazil, and assess the possibility of consuming quantities exceeding the Acceptable Daily Intake (ADI) values established by the FAO/WHO Joint Expert Committee on Food Additives (JECFA) (ADI 0-5 mg/kg bw and 0-11 mg/kg bw for saccharin and cyclamate, respectively). Initially, a field survey was undertaken to review which liquid tabletop sweetener brand had the largest retail market share in Brazil, and characteristics of usage. The brand contains saccharin and cyclamate. A sample of this brand was provided to 100 adult volunteers to estimate the level of consumption of those artificial sweeteners, for a 30-day period. Sixty-eight volunteers finalized adequately the study. The concentration of saccharin and cyclamate in the tabletop sweetener was determined by validated HPLC-DAD and spectrophotometric UV/VIS methods, respectively. The data obtained from the population sample indicated that the average intake of saccharin and cyclamate corresponds to 38.7% and 19.8% of the ADI value of each sweetener, respectively. For individuals with a higher consumption of sweeteners these values correspond to 92% and 47% of the respective ADI values. Thus, the data obtained indicate that the intake of saccharin and cyclamate, through the consumption of liquid tabletop sweeteners, is close to the toxicological limits considered safe (ADI values), and point out that the consumers from this population sample present a high health risk as a result of exposure to these artificial sweeteners.