Estimation of Benzoic Acid in Commercially Available Fruit Juices and Nectars in Anuradhapura City Area

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Benzoic acid is a commonly used chemical preservative for processed foods in the form of benzoate. In the presence of sunlight, benzoate reacts with ascorbic acid and can produce benzene which is a known carcinogen. In most retail outlets in Sri Lanka, fruit beverages are stored exposing to sunlight. Considering the importance of this subject, this study was aimed to estimate the benzoic acid content in selected commercially available fruit juices and nectars stored exposed to sunlight and without exposure to sunlight. Through a pre-validated questionnaire, commonly available brands of fruit juices [Mixed Fruit Juice (MFJ) and Mango Juice (MJ)] and nectars [Mixed Fruit Nectar (MFN) and Mango Nectar (MN)] in Anuradhapura city were selected. The amount of benzoic acid was estimated according to the method described by Williams *et al.,* (1998). Benzoic acid was detected in 3 brands of MFN and MN and 2 brands of MFJ and MJ, although it was not indicated on the labels. The maximum permitted level of benzoic acid in fruit nectars is 120mg/L and benzoic acid is not permitted to be used in fruit juices (SLS 1328: 2008). Mean benzoic acid concentration in MFN and MN without exposing to sunlight were 88.33±68.93mg/L and 72.56±50.06 mg/L while samples exposed to sunlight showed mean benzoic acid levels of 16.41±12.60 mg/L and 20.35±17.93 mg/L respectively. Mean level of benzoic acid in MFJ and MJ without exposed to sunlight were 44.95±1.64 mg/L and 36.04±5.07 mg/L while samples exposed to sunlight showed mean benzoic acid levels of 5.66±7.81 mg/L and 1.80±8.63 mg/L respectively. Therefore, there was a significant difference ($p<0.05$) in the reduction of benzoic acid in MFN, MN, MJ, and MFJ samples exposed to sunlight. It can be concluded that the effect of sunlight during storage has a relationship with the marked reduction of benzoic acid contents in fruit juices and nectars. Further studies needed to be conducted to identify the presence of benzene in fruit drink samples.

Keywords: Benzoic acid, Fruit juices, Fruit nectar, Sunlight