IJPPHT International Journal of Processing and Post Harvest Technology
Volume 3 | Issue 2 | December, 2012 | 256-259
RESEARCH PAPER

# Biochemical changes of sugarcane juice during storage in different packaging materials

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**SUMMARY** : Sugarcane juice is commonly used as delicious drink. The different packaging materials selected for the study were glass bottle, polyethylene (400 gauge) and polypropylene (350 gauge). Fresh sugarcane juice was pasteurized at 80$^0$C for 15 minutes and added sodium benzoate preservative and then stored at 5$^0$C and 30$^0$C. The biochemical parameters studied were total soluble solids, total sugars, reducing sugars, pH and titratable acidity. At every 10 days interval, the biochemical parameters were tested until the storage period of 60 days. The fresh sugarcane juice was spoiled within a day when stored at 30$^0$C without addition of preservative. The study concluded that apart from glass bottle, there is a possibility to store sugarcane juice in polyethylene and polypropylene because of high acceptability from the consumer point of view as well as less reduction in biochemical qualities.

**KEY WORDS** : Sugarcane juice, Packaging material, Storage, Quality

**How to cite this paper :** Krishna Kumar, T. and Devadas, C.T. (2012). Biochemical changes of sugarcane juice during storage in different packaging materials. *Internat. J. Proc. & Post Harvest Technol.,* **3** (2) : 256-259.

**Research chronicle : Received :** 23.07.2012; **Revised :** 26.08.2012; **Accepted :** 28.10.2012

Sugarcane (*Saccharum officinarum* L.) is one of the most important cash crops in the world. India is the second largest producer of sugarcane in the world next to Brazil. Sugarcane is mostly used for manufacturing of jaggery and crystallized sugars. Fresh sugarcane juice is popular throughout India as a pleasing, sweet and thirst-quenching beverage. Sugarcane juice is commonly used as a delicious drink in both urban and rural areas. It is served fresh without hygiene at many roadside stalls. The importance of the medicinal properties of sugarcane juice is also well known. Sugarcane juice of 100 ml provides 40 Kcal of energy, 10 mg of iron and 6µg of carotene (Parvathy, 1983). Sugarcane juice is rich in enzymes and has many medicinal properties. The sugarcane juice contains water (75-85%), non reducing sugars (sucrose, 10-21%), reducing sugars (glucose and fructose, 0.3 – 3%), organic substances (0.5-1), inorganic substances (0.2-0.6) and nitrogenous bodies (0.5-1) (Swaminathan, 1995).

In general sugarcane juice is spoiled quickly by the presence of simple sugars. The sugarcane juice can be introduced as a delicious beverage by preventing the spoilage of juice with appropriate methods. Glass bottle is an excellent packaging material for storing liquid foods, which is impermeable to moisture and gases, odour resistance, good transparency and tamper resistance. The flexible packaging materials are also highly suitable for food products due to their versatility and replacing conventional materials like paper, wood, glass, tin and aluminium. The selection of packaging materials for juice varieties depends upon several factors related to the type of package, the product, the environment in which the product is exposed as well as the product-package environment relationship. This study was, therefore, sought to find out the effects of certain packaging materials on various physico-chemical changes of sugarcane juice during storage.

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## EXPERIMENTAL METHODS

**Extraction of sugarcane juice :**

High yielding variety of sugarcane (C0 86032) was