

Title Impact of storage temperature and duration on sucrose catabolism in harvested sugarcane stalks

Author W. Lontom, M. Kosittrakun, P. Weerathaworn, P. Wangsomnuk and Y. J. Zhu

Citation Sugar Tech, 11, Number 2, 146-153, 2009

Keywords Acid invertase; postharvest storage; storage temperature; sucrose loss; sugarcane

Abstract

Sucrose loss after harvest is one of the serious problems for sugar factories especially when the time lag between harvesting to milling of sugarcane is extended during a period of high ambient temperature. This study was undertaken to test the hypothesis that storage temperature and duration affect acid invertase activities and sugar levels in harvested sugarcane stalks. Weight loss, the activities of soluble acid invertase (SAI) and cell wall acid invertase (CWI), and sugar levels were determined in two commercial sugarcane cultivars, K84-200 and K88-92 during storage at 25 °C and ambient temperature (23-32 °C). The harvested stalks stored at ambient temperature lost more fresh weight and sucrose than those kept at 25 °C. They also had higher reducing sugar content and SAI activity. At ambient temperature, the SAI activity had strong relationship with storage duration, sucrose and reducing sugar levels. These results indicate that storage temperature and duration had significant influence on metabolic changes of sugars and related enzyme activities in harvested sugarcane stalks.

<http://www.springerlink.com/content/67518h218732k86x/fulltext.pdf>