

**Title** A rapid biochemical test to assess postharvest deterioration of sugarcane and milled juice  
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### **Abstract**

The delivery of consignments of deteriorated sugarcane to factories can detrimentally affect multiple process units, and even lead to a factory shut-down. An enzymatic factory method was used to measure mannitol, a major degradation product of sugarcane *Leuconostoc* deterioration in the U.S., in press (consignment) and crusher juices collected across the 2004 processing season at a Louisiana factory. Weather conditions varied markedly across the season causing periods of the delivery of deteriorated sugarcane to the factory. A strong polynomial relationship existed between mannitol and haze dextran ( $R^2=0.912$ ) in press and crusher juices. Mannitol concentrations were usually higher than concentrations of monoclonal antibody dextran, which indicates: (i) the usefulness and sensitivity of mannitol to predict sugarcane deterioration from *Leuconostoc* and other bacteria, and (ii) the underestimation by sugar industry personnel of the relatively large amounts of mannitol present in deteriorated sugarcane that can affect processing. Greater than ~250–500 ppm/Brix of mannitol in sugarcane juice predicted downstream processing problems. The enzymatic method is quantitative and could be used in a sugarcane payment formula. Approximately > 300 ppm/Brix of haze dextran in raw sugar indicated that the majority of the crystals were elongated. Approximately > 600 ppm/Brix of antibody dextran indicated when elongated crystals were predominant in the raw sugar. The enzymatic mannitol method underestimates mannitol in raw sugars.

<http://www.springerlink.com/content/q6608u24906p1467/fulltext.pdf>