Transformation of sweet sorghum stalk biomass into a functional product

Scientists at DBT's Center of Innovative and Applied Bioprocessing (CIAB), Mohali, has developed a bioprocess for transformation of the caloric sucrose in juice into glucooligosaccharide molecules of prebiotic function and reduced calorie. The treatment of stalk juice with the cells of an Indian strain of *Leuconostoc mesenteroides* caused conversion of 80% or more sucrose into glucooligosaccharides. The treatment of juice with the native dextransucrase enzyme obtained from *L. mesenteroides* was found more efficient for prebiotic molecule production in juice.

The caloric value of the modified juice was reduced by more than 50%. The sensory and antioxidant properties of the modified juice were more or less unchanged. The oligosaccharides in juice were established to be thermotolerant, which endorse its use in food bioprocessing applications. The modified juice, enriched with glucooligosaccharide molecule was able to induce the growth of probiotic cells under in vitro conditions.

Sweet sorghum stalks are rich in sugars. The sugar concentration was examined to be 81 to 107 g/L in different sweet sorghum cultivars. Out of the total sugar, 68 to 81% was found sucrose. The sugar rich talk biomass is used for sugar, syrup, jiggery, alcohol, and fodder, etc. The stalk juice is also rich in phenolics and flavonoids of antioxidant and anti-inflammatory significance.
The research work has been carried out by Dr. Sudhir Pratap Singh and his team. Work has been published in Waste and Biomass Valorization.

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Link: http://www.ciab.res.in/
Link:https://www.researchgate.net/publication/342959816_Development_of_a_Prebiotic_Oligosaccharide_Rich_Functional_Beverage_from_Sweet_Sorghum_Stalk_Biomass

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