

Abstract

Tryptic digest of sprouts from two Nigerian sorghum cultivars were evaluated for their effects on very – high – gravity – fermentation using *Saccharomyces cerevisiae* WY 1006. Yeast growth, fermentation vigor, and ethanol production were considerably ($P < 0.05$) enhanced by small amounts (1.25 to 6.25 g/L) of digests. CO₂ emission rates after 24 hr were 48.3 to 69.2 mg/hr (Local White (TDSS-LW1 digest) and 67.1 to 89.2 mg/hr (Local Red (TDSS-LR1 digest) compared with 41.3 mg/hr in the un-supplemented control. Yeast growth increased 1.6 to 2.0 and 1.7 to 2.2 folds respectively with TDSS LW and TDSSLR. At 83.7 to 105.0 and 102.0 to 128.8 g/L respectively, TDSS-LW and TDSS-LR supported significantly ($P < 0.05$) higher ethanol production than did the control (64.0 g/L). Final ethanol values with TDSS-LR were always ($P < 0.05$) higher than those with TDSS-LW, but very comparable with values from yeast extract supplemented media (105.9 to 137.5 g/L). Sprout digest concentration supporting maximum ethanol production were 5.0 and 3.75 g/L respectively for TDSS-LW and TDSSLR. At 3.75 g/L or below, more ethanol was produced by yeast in media with TDSS-LR than was observed in corresponding yeast extract containing media. Results suggest that tryptic digests of sorghum sprouts can serve as viable alternatives to expensive yeast extract in ethanolic fermentation. Key words: Ethanol production, Fermentation vigor, Supplementation, Yeast growth

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