

ABSTRACT

The present study is concerned with the production of cider from the fermented apple juice. The process is conducted in two major steps. Alcoholic yeast fermentation of the apple juice, after adjusting the nutrients and sugar concentration, was carried out anaerobically by *Saccharomyces cerevisiae* GCUY-02 in batch fermentation (1 L) and also on semipilot scale (5 L). The best ethanol yield 18.5 % (v/v) was obtained by employing yeast at 10 % (v/v) inoculum level at 20 °C after 10 days (240 hrs) of fermentation. The study also covers optimization of better production conditions for alcohol and its conversion to vinegar. Ethanol yield was reached to maximum by the addition of 12 % (w/v) sucrose solution at intervals of 0, 48 and 96 hours after inoculation. The centrifuged alcoholic apple wash was subsequently exposed to quick acetous fermentation by *Acetobacter* species that oxidized ethanol to acetic acid providing a cider vinegar of 6.51 % titrable acidity after 24 hours of inoculation with 4 % (v/v) bacterial inoculum at agitation intensity 200 rpm and 25 °C in shake flask.

The aim in the present work is to use low quality apples for the production of cider. This would provide a vision to use such fruits and has great potential for the utilization of indigenous resources into food, feed and fuel.