Bio-ethanol production using solid residue sediments from the waste from beer fermentation broth

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Currently the demand for an environmentally friendly and renewable energy source is increasing due to the environmental pollution and overuse of fossil fuels. Bio-ethanol has been established as a worthy substitute for fossil fuels. Our previous studies proved the waste from beer fermentation broth (WBFB) as a potential source for ethanol production. The original WBFB (liquid with suspended/sedimented particles) was superior to the supernatant which indicated the active role of the sediment in bio-ethanol production. The current study was undertaken to investigate the feasibility of bio-ethanol production from the sediment obtained from the WBFB. Fermentations were carried out using 50 ml vials in static conditions. The results showed a very little increase in ethanol production using 20% (w/v) sediment in distilled water. However, when 20% sediment from 1 day old WBFB in defined medium was used then the increase in ethanol production was more than 2.12% after 2h while this increase was more than 3.4% from the sediments obtained from a 3 days old WBFB.