

**SOME ASPECTS OF FERMENTATION OF COCONUT  
(*COCOS NUCIFERA L.*) SAP.**

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The sap that is obtained from the inflorescence of Coconut palm (*Cocos nucifera L.*) contains about 16-22 percent sugar by weight. This normally undergoes fermentation by different types of yeast and bacteria resulting in coconut toddy. The fully fermented coconut toddy on an average contains about 6.5 percent alcohol by volume. On the basis of sugar present in the sap the amount of alcohol obtained under natural fermentation is rather low. The conversion of sugar into alcohol is in the region of about 60 percent.

Fermentation studies carried out on unfermented coconut sap (sweet toddy) with yeast strains of high fermenting ability previously isolated from kitul (*Caryota urens* L.), coconut (*Cocos nucifera* L.) and palmyrah (*Borassus flabellifer* L.) toddy have shown that nearly 95 percent conversion can be achieved. Our investigations have shown that the fermentation rate depends on the pH of the sap, the initial yeast cell number and the concentration of sugar in the sap. Although most of the yeast strains tested can tolerate a wide range of pH from 3.5 to 7, the optimum pH was about 4.0 to 5.5. The rate of alcohol production increased with the increase in the number of yeast cells. Initial inoculum of  $10^8$  cells per ml. was found to give best results. Sweet toddy samples containing higher percentage of sugar (above 18 percent) took nearly 72 hours for complete fermentation, even with an initial inoculum of  $10^8$  yeast cells per ml. Maximum conversion of sugar in a relatively shorter period (36-48 hours) was achieved by diluting the sap.