SUMMARY

Samples of coconut sap used in this study were collected from coconut trees, tapped at Dalugama (near University). Sap was collected in clay pots previously heated over the fire. Pieces of dried bark of Vateria copallifera (Sinh.Hal) were placed in some of the clay pots and and coconut sap was sampled, for a period of 24 hours in the presence and absence of the bark.

Indicative factors in the coconut sap fermentation, such as variation of pH, accumulation of non-reducing and reducing sugars, formation of ethanol and production of several other metabllic products characteristic of the species found to be present in various stages in the coconut sap were compared, to obtain significant information of anti-fermentative activity of the dried Vateria bark. The growth of the bacteria and yeasts in the two samples were also compared using dilution plate technique. Nutrient agar and Malt-wort agar were as media for bacteria and yeast respectively. The growth of the micro-organisms responsible for the fermentation of coconut sap were found to be suppressed by the components present in the dried bark of Vateria copallifera.

The isolation and identification of bacteria and yeasts responsible for the fermentation of the coconut sap were carried out using established micro-biological technique. Enterobacter aerogenes, Bacillus polymyxa and Saccharomyces chevalieri were found to be the first colonizers in the unfermented coconut sap (pH 7.4). The appearance of various micro-organisms was accompanied.by the decline of pH of the coconut sap. Comparatively very few organisms appeared in the coconut sap collected in the absence of the bark.

Preliminary investigations on the chemical composition of the aqueous extract of dried Vateria bark were carried out. The major chemical constituents present in this extract were polyphenolic

compounds. These polyphenolic compounds present in aqueous extract were extracted with ethyl acetate and chromotographed as silica gel (Mesh size 30-50) using different solvent systems. Three different polyphenolic components were obtained and these separated compounds were denoted as P_I, P_{II} and P_{III}.

The anti-microbial activity of the aqueous extracts of dried Vateria bark was tested with micro-organisms isolated from coconut sap. The growth of Staphylococcus spp, Micrococcus spp and yeast species were inhibited by 5-10% aqueous extracts of dried Vateria bark, but these concentrations were not active on Enterobacter spp and Bacillus spp as anti-bacterial compounds. The effect of the polyphenolic compounds on hydrolysis of sucrose by Enterobacter aerogenes and Saccharomyces chevalieri were also studied. Finally, anti-microbial activity of the separated polyphenolic compounds were also tested on some of the fermentative organisms isolated from coconut sap.