Research is ongoing into finding more suitable bio-fuel crops and improving the oil yields of these crops. Scientists, having also discovered that sweet potato is an effective substrate for fermentation, have carried out various researches on this study. A few of which includes;

Bioethanol production from sweet potato flour using co-culture of *Trichoderma sp.* and *Saccharomyces cerevisiae* in solid-state fermentation. This work was carried out by Manas *et.al.* [10] with the aim of studying the optimization of co-culturing of *Trichoderma sp.* and *Saccharomyces cerevisiae* (1:4 ratio) on sweet potato flour (SPF) for the production of bio-ethanol in solid-state fermentation (SSF). Maximum ethanol (172g/kg substrate) was produced in a medium containing 80% moisture, ammonium sulphate 0.2%, pH 5.0, inoculated with 10% inoculums size and fermented at 30°C for 72hours.[10]

Also, Claudia *et.al.* [11] worked on the evaluation of sweet potato for bio-ethanol production: hydrolysis and fermentation. The enzymatic starch hydrolysis and bio-ethanol production from a variety of sweet potato developed for bio-energy purposes on the basis of its high starch yields was studied. From this study, it was established that drying of sweet potato neither affected the sugar content nor the starch enzymatic hydrolysis efficiency.[11]

Aside sweet potatoes, the use of various crops such as sugarcane, sorghum, millet, cocoyam and many others for the production of bio-ethanol have been under research over the years. In 2010, Wong and Sanggari worked on bio-ethanol production from sugarcane bagasse using fermentation process. The aim of this study was to produce bio-ethanol from sugarcane bagasse using fermentation process and to determine the effect of pH and temperature on bioethanol yield. Enzymes such as alpha- amylase and glucoamylase were used to breakdown the cellulose in sugarcane bagasse. *Saccharomyces cerevisie*a, (yeast) also was used in the experiment for fermentation. Five samples were prepared at different pH was varied to determine the effects of pH on ethanol yield at 37^0 C and another five samples were prepared to determine the effect of temperature on ethanol yield, the pH was kept constant at 4.5. The ethanol concentrations were determined by running the samples in High Performance Liquid Chromatography (HPLC). The results showed that at highest ethanol concentration was obtained pH 4.5 and temperature 35^0C. This indicated that pH 4.5 and 35^0C was the optimum parameter for the yeast to produce ethanol.

1.3 CHEMISTRY OF FERMENTATION

Fermentation is a metabolic process which involves the microbial degradation of sugars, resulting to the conversion of sugar to acids, gases and/or