

Separation of Volatile Fatty Acids: Determining a Plausible Method Through Distillation Using Various Solvents

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Reliance of fossil fuels, having been widely used as the main source of energy, has suffused worldwide consequently leading to its scarcity. For its alternative, biomass has become an ever growing subject of commercial and environmental interest. Volatile fatty acid (VFA), one of many methods derived from biomass, is mainly composed of acetic, propionic and butyric acids and when separated into its fractions may be used as a precursor to biofuels. However, due its azeotropic nature the control of pH levels between 2 to 9 with NH₃ and using various solvents (DMF, CaCO₃, MgO, and etc.) for extraction is necessary. The purpose of this study is to achieve knowledge of which method can effectively separate VFAs into its fractions. Once separation is accomplished, acetic acid, propionic acid, and butyric acid can be used to produce ethyl acetate, cellulose acetate propionate, and ethyl butyrate, respectively, which can be used as biofuels or thermoplastics in the case of cellulose acetate propionate.