

Acetic acid separation from anaerobically treated palm oil mill effluent by ion exchange resins for the production of polyhydroxyalkanoate by *Alcaligenes eutrophus*

ABSTRACT

Separation of acetic acid from palm oil mill effluent (POME) to increase its concentration by an anion exchange resin was examined as a preliminary study for its recovery from POME that had been anaerobically treated by sludge from a palm oil mill. This paper concerns the acetic acid thus separated for producing bacterial polyhydroxyalkanoate (PHA) by *Alcaligenes eutrophus*. It was found that sludge particles in POME strongly inhibited the adsorption of acetic acid on the anion exchange resin. Removing the sludge particles from the POME facilitated the separation of acetic acid from the POME efficiently. The concentrated acetic acid thus obtained from anaerobically treated POME could be used as a substrate in the fed-batch production of polyhydroxyalkanoate by *Alcaligenes eutrophus*.

Keyword: Acetic acid; Fed-batch culture; Ion-exchange separation; Palm oil mill effluent; Polyhydroxyalkanoates