ABSTRACT

Owing to the land availability, an existing food processing wastewater treatment was planned to increase its capacity without occupying more land. One alternative is to improve the three phase separator of the existing upflow anaerobic sludge blanket reactor (UASB) to trap more anaerobic sludge on the one end, and use the membrane process to remove the suspended solids and colloids from the UASB effluent on the other hand. It is a series of anaerobic and membrane processes to treat food processing wastewater. In this study, the full size existing UASB and modified UASB were tested in the field, and a bench-scale anaerobic sludge blanket without the three phase separator was used to validate the result. Two types of membrane the hollow fiber and the non-woven cloth were used for the membrane process evaluation. In order to prevent scaling (calcium carbonate), the UASB effluent was pre-aerated first, and then went to the membrane process. After evaluation of two months in this study, it can be concluded that the treatment capacity could be doubled by the modified UASB, and while the COD removal efficiency is almost the same for the two types of membrane in the short time, the non-woven cloth is degenerated earlier in the long term.

Keywords: food processing wastewater, anaerobic biological treatment, membrane process