

This study was conducted to isolate actinomycetes from thirteen wastewater samples in Chiang Mai and Lampun Provinces. The results showed that seventy-eight actinomycetes were obtained from wastewater samples. Blood haemolysis was used as an initial selection criterion for the primary isolation of surfactant-producing actinomycetes. Which twelve actinomycetes isolates show this characteristic. After that twelve haemolytic isolates were cultured in mineral salt medium containing three different carbon sources (glucose, glycerol and hexadecane) and their screened for biosurfactant production by xylene emulsification assay. The results demonstrate that two isolates (BW_9A_4 and $BW_{11}A_{10}$) had a high emulsification activity in glucose and hexadecane, while $BW_{11}A_{20}$ had a high emulsification in glucose, glycerol and hexadecane. All three isolates can reduce the surface tension of mineral salt medium but they gave the best result in medium containing hexadecane. Furthermore, three isolates were cultured in olive oil which is cheaper than 3 above carbon sources. All three isolates had a high emulsification activity and were also good at reducing surface tension. They were identified as *Streptomyces*. When studying the relationship between growth and biomass production, using hexadecane and olive oil as carbon sources, all three isolates released biosurfactant well during stationary phase. While cultivated all three isolates in olive oil, their biomass was higher than in hexadecane. BW_9A_4 and $BW_{11}A_{10}$ produced biosurfactant composing of protein and sugar while $BW_{11}A_{20}$ produced biosurfactant composing of protein, sugar and phosphorus, when analyzed the chemical components of culture broth.