Abstract

Wasted vegetable oils released from wastewater of food processing industries, restaurant and kitchens are substances that cause water problem due to their physical properties. One method to solve this problem is the use of bio-extract. Bio-extract derived from the fermentation of vegetable and fruits residues with sugar. It contain organic substances and microorganisms that can degrade oils. The isolation and identification of bacteria from bio-extract which can degrade palm oil and soybean oil is the aim of this research. The isolation of bacteria was carried out, using M9 liquid media enriched with 1% (v/v) soybean or 1% (v/v) palm oil added with 2 ml bio-extract. The samples were screened for lipid degrading bacteria using serial dilution and spread onto the M9 agar plates enriched by 0.2% (v/v) soybean oil or palm oil and 0.5x PCA media enriched by 0.2% (v/v) palm oil or soybean oil. Thirty microorganisms were isolated from bio-extract that showed ability to degrade palm oil and/or soybean oil. The bacteria categories in three groups, the first groups including Pcp3y, Pcp16y, M9p10yy, M9p5y, M9p16y, M9p15y, M9p8y, in palm oil, and M9p16y, Pcp16y, Pcp17y M9p5y and M9p8y in soybean oil. The second groups of bacteria including M9p10yy, M9p15y in soybean, and Pcp17y in palm oil. The first group and second group degrade oils so, these group select as good bacteria due to degrade palm oil and soybean oil. The third groups of bacteria did not degrade oils. So, seven strains of bacteria were selected according to the size of clear zone in soybean and palm oil containing agar plate. The selected bacteria strains were identified using, morphological and physiological characteristics according to the method of “Bergey’s manual of determinative bacteriology”. The bacteria can be categorized in to three groups. The first group consisting of three strains, they are Gram-positive, rod shape, oxidase negative. The second group consisting two strains they are Gram-negative, rod shape and fermented glucose. The third group consisting two strains, they are Gram-negative, rod shape, and did not fermented glucose.

Keywords: Bio-extract, palm oil, soybean oil, degrade, wastewater