OASE: THE APPLICATION OF *MICROBUBBLE* AS AN EFFORTS TO OPTIMALIZE CRUDE OIL EXTRACTION USING BACTERIA CONSORTIUM

Safina Amelia Khansa[1], Hafidza Fatma Yona[2]

Science and Math Program, MAN 2 Malang City, Malang, Jawa Timur 65113, Tel/Fax: (0341)551357, e-mail: sfn.amelia.k@gmail.com

ABSTRACT

Petroleum is one of the main sources of energy for society, including the Indonesian people. Unfortunately, over time, petroleum continues to deplete and is getting closer to scarcity. To prevent this, oil extraction is carried out outside the conventional process, namely using MEOR (Microbial Enhanced Oil Recovery) technology to reach and obtain more oil in oil wells, especially old oil wells. In previous research, it has been proven that the use of Microbial Enhanced Oil Recovery, using a consortium of bacteria with molasses as medium by utilizing microbubbles technology can take up 47% of the remaining oil in old wells. Meanwhile, in other research, researchers developed a tool called ASIN which is an implementation of the ferro-fluid concept in salt washing machine innovation to minimize microplastics in salt, by utilizing iron sand as a substitute for magnetic powder, where this iron sand will mix with oil. vegetable, which can be used to reduce microplastics in the oceans resulting in a 99.28% effectiveness level in reducing microplastics. With the same concept, researchers have conducted a preliminary study, by conducting experiments using a combination of iron sand, surfactants and seawater coupled with microbubbles technology which is formulated into 100 variations of enhanced oil recovery sample treatment. Based on the series of experiments, it was found that the composition ratio of 2 grams of iron sand: 0.5 ml of surfactant and 60 ml of sea water and microbubbles treatment for 1 minute had the highest level of removal of petroleum, namely 53.33%. In this study, the results obtained were the consortium injection of DE bacteria including Pseudomonas aeruginosa K8 and Pseudomonas aeruginosa N3 grown on molasses medium with 2 grams of LDPE microplastic and the addition of microbubbles, as well as iron sand, which can increase oil recovery by 75% of the remaining oil in old well.

Keywords: ***iron sand, bacterial consortium, microbubbless, oil***