

ISOLATION OF CELLULASE-PRODUCING BACTERIA FROM SOLID WASTE PALM OIL INDUSTRY

Hamka*, Mujibu Rahman, Khusnul Khotimah, Theresia Atli Susanti

Study Program of Plantation Product Processing Technology — Samarinda State Polytechnic
of Agriculture, Indonesia

*Email: hamka_nurkaya@yahoo.com

Abstract

Indonesia as one of the country's largest producer and supplier of palm oil, as in it also as a producer of solid waste in the form of oil palm empty fruit bunch that is not used optimally. Here is needed the most attention in the utilization of cellulosic waste as a raw material that has a low cost value if utilized through a fermentation process to produce high-value products. Oil palm empty fruit bunch as a source of cellulose can be degraded by specific organisms, including fungi, bacteria, actinomycetes, and the lower animals (insects). In this study used on isolating the cellulase-producing bacteria of oil palm empty fruit bunch and determine the potential activity of cellulase enzymes to degrade cellulose using carboxy methyl cellulose (CMC) as a carbon source enrichment media in the form of mineral salts. There are eight (8) isolates of bacteria were obtained and identified by the Gram staining method and morphology hology of bacterial cells. Two (2) of bacteria isolates were shown cellulase activity by clearing zone marked on surface of CMC agar medium with a use Congo red solution (1% v/v) and destained by NaOH solution of 1 M.

Keywords: *Carboxy Methyl Cellulose, Bacteria, Cellulase, Oil Palm Empty Fruit Bunch, Clear Zone*