ISOLASI, KARAKTERISASI DAN FERMENTASI BAKTERI PENGHASIL BIOPLASTIK POLI(3HIDROKSIBUTIRAT) DARI SAMPEL TANAH LOBANG JEPANG, BUKITTINGGI MENGGUNAKAN SUMBER KARBON MINYAK KELAPA SAWIT

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ABSTRAK

Penelitian tentang isolasi, karakterisasi, dan fermentasi bakteri penghasil bioplastik Poli(3-Hidroksibutirat) [P(3HB)] dari tanah Lobang Jepang, Bukittinggi yang ditumbuhkan dalam media bakto agar-minyak kelapa telah dilakukan. Penelitian ini bertujuan mendapatkan isolat dan identifikasi bakteri penghasil P(3HB) serta penentuan kadar P(3HB) dalam bakteri tersebut. Metode yang digunakan untuk isolasi bakteri tanah dengan metode seri pengenceran kemudian ditanam dalam campuran media bakto agar-minyak kelapa dan pewarnaan menggunakan *Nile Blue A*. Kadar P(3HB) di dalam sel ditentukan menggunakan kromatografi gas. Hasil penelitian menunjukkan bahwa didapatkan 170 koloni bakteri. Sebanyak 14 isolat menunjukkan terdapatnya P(3HB) di dalam selnya. Identifikasi lanjutan didapatkan lima jenis bakteri, *Bacillus* sp 1, *Bacillus* sp 2, *Bacillu*s sp 3, *Enterbacter sp,* dan *Achromobacter sp.* Kadar bioplastik P(3HB) tertinggi ditemui pada spesies *Bacillus* sp.2 yaitu sebesar 0,303 mg/100 mL medium fermentasi. Sementara itu pada spesies *Bacillus* sp.1 sebesar 0,286 mg/100 mL, *Bacillus* sp.3 0,151 mg/100 mL, *Enterobacter sp* sebesar 0,218 mg/100 mL, dan pada *Achromobacter sp* sebesar 0,135 mg/100 mL.

Kata Kunci: *Isolasi, bioplastik, poli(3-hidroksibutirat). tanah Lobang Jepang*

ABSTRACT

Study on isolation, characterization, and fermentation of bacteria producing bioplastics Poly(3-Hydroxybutyrate) [P(3HB)] from Lobang Jepang soil, Bukittinggi grown in Bacto agar-Palm oil medium has been done. This study is aimed to obtain isolates, to identify bacteria producing P(3HB) and to determine biopolymer contained in bacteria. The bacteria were isolated from the soil by using dillution method with bacto agar-palm oil as a medium and Nile Blue A as bacteria staining. The amount of biopolymer in cells was determine using gas chromatoghraphy. Results showed that 170 bacterial colonies were obtained, 14 bacterial colonies were indicated to have potentials to produce P(3HB) on their cells. Further identification resulted in five types of bacteria, *Bacillus* sp.1, *Bacillus* sp.2, *Bacillus* sp.3, *Enterobacter* sp, and *Achromobacter* sp. The highest amount of P(3HB) was found in *Bacillus* sp.2 (0.3033 mg/100 mL fermentation medium). P(3HB) amount in *Bacillus* sp.1 was 0.286 mg/100 mL, *Bacillus* sp.3 was 0.151 mg/100 mL, *Enterobacter sp* was 0.218 mg/100 mL, and *Achromobacter sp* contained 0.135mg/100 mL fermentation medium.

Keyword: *Isolation, bioplastic, poly(3Hydroxybutyrate), soil of Lobang Jepang*