HIDROLISIS BULU BURUNG DARA DENGAN ENZIM KERATINASE DARI *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, dan *Pseudomonas* sp. PK-4

Alit Diah Melani

18/428027/PT/07681

INTISARI

Bulu mengandung protein keratin yang tinggi menyebabkan bulu memiliki struktur yang stabil. Enzim keratinase adalah enzim yang mampu mendegradasi keratin sehingga menjadi komponen yang lebih sederhana. Bakteri yang mengandung enzim keratinase diantaranya yaitu *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, dan *Pseudomonas* sp. PK-4. Penelitian ini menggunakan keratin bulu burung dara sebagai substrat dan dibagi menjadi 6 kelompok perlakuan dengan 3 kali pengulangan. Perlakuan tersebut antara lain P01: kontrol *Bacillus cereus* TD5B, P02: kontrol *Bacillus cereus* LS2B, P03: kontrol *Pseudomonas* PK-4, P1: keratin dan *Bacillus cereus* TD5B, P2: keratin dan *Bacillus cereus* LS2B, P3: keratin dan *Pseudomonas* PK-4. Hasil yang diperoleh menunjukkan bahwa bakteri *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, dan *Pseudomonas* sp. PK-4 memiliki enzim keratinase yang dibuktikan dengan adanya zona bening. Aktivitas keratinase bakteri *Bacillus cereus* TD5B optimum sebesar 45.927 U/mL, bakteri *Bacillus cereus* LS2B 41.075 U/mL, dan bakteri *Pseudomonas* sp. PK-4 50.433 U/mL. Kemampuan dalam mendegradasi bulu burung dara paling tinggi dihasilkan oleh *Bacillus cereus* TD5B sebesar 12.667%. Kesimpulan dari penelitian ini adalah bakteri *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, dan *Pseudomonas* sp. PK-4 dapat menghasilkan enzim keratinase yang mampu mendegradasi substrat bulu unggas.

(Kata kunci: bulu burung dara, enzim keratinase, *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, *Pseudomonas* sp. PK-4)

A HIDROLYSIS OF DOVE FEATHERS USING KERATINASE ENZYMES FROM *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, and *Pseudomonas* sp. PK-4

Alit Diah Melani

18/428027/PT/07681

ABSTRACT

Feathers contain high protein keratin, which cause them to have a stable structure. Keratinase is an enzyme that has capability to degrade keratin being a simpler component. Bacteria that contain keratinase enzymes include *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, and *Pseudomonas* sp. PK-4. This study used the keratin of dove feathers as a substrate and was divided into 6 treatment groups with 3 repetitions. These treatments included P01: control of *Bacillus cereus* TD5B, P02: control of *Bacillus cereus* LS2B, P03: control of *Pseudomonas* PK-4, P1: keratin and *Bacillus cereus* TD5B, P2: keratin and *Bacillus cereus* LS2B, P3: keratin and *Pseudomonas* PK-4.The results showed that the *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, and *Pseudomonas* sp. PK-4 have the keratinase enzymes as evidenced by the presence of a clear zone. The optimum keratinase activity of *Bacillus cereus* TD5B was 45,927 U/mL, that of *Bacillus cereus* LS2B was 41,075 U/mL, and that of *Pseudomonas* sp. PK-4 was 50,433 U/mL. The highest ability to degrade dove feathers was produced by *Bacillus cereus* TD5B with 12.667%. The conclusion of this study is that *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, and *Pseudomonas* sp. PK-4 can produce keratinase enzymes that are capable of degrading poultry feather substrates.

(Keywords: dove feathers, keratinase enzymes, *Bacillus cereus* TD5B, *Bacillus cereus* LS2B, *Pseudomonas* sp. PK-4)