

## INTISARI

### **Aktivitas Antiparasit Probiotik, *Paraprobiotic*, dan *Postbiotic Lysinibacillus sphaericus* terhadap *Haemonchus contortus* Secara In Vitro**

Aulia Khirqah

21/484701/PKH/00756

Infeksi cacing *H. contortus* merupakan salah satu problem utama pada ternak kambing. Skrining jenis antiparasit baru yang efektif menjadi alternatif untuk mengatasi resistensi anthelmintik. *Lysinibacillus sphaericus* menjadi bakteri kandidat anthelmintik karena kemampuannya menghasilkan toksin yang berpotensi sebagai antinematoda. Penelitian ini bertujuan untuk mengetahui efektivitas probiotik, *paraprobiotic*, dan *postbiotic L. sphaericus* terhadap telur dan cacing dewasa *H. contortus*. Bakteri *L. sphaericus* di reidentifikasi dan disiapkan menjadi 3 perlakuan probiotik ( $10^7$ ,  $10^8$ ,  $10^9$ ), *paraprobiotic* (100%, 50%, 25%) dan *postbiotic* (100%, 50%, 25%). *H. contortus* dewasa dikoleksi dari abomasum kambing untuk uji *in vitro adult mortality test*. Telur cacing dikoleksi dengan maserasi cacing betina untuk uji *egg hatch inhibition*. Kontrol positif menggunakan albendazole dan kontrol negatif dengan PBS. Hasil uji dianalisis dengan analisis sidik ragam dilanjutkan uji lanjut beda nyata terkecil. Hasil penelitian menunjukkan ketiga perlakuan memiliki efektivitas yang berbeda signifikan ( $P < 0,05$ ). Hasil rerata *Egg Hatch inhibition* tertinggi pada probiotik 69,48%, disusul *postbiotic* 57,54% dan *paraprobiotic* 33,06%. Hasil rerata *adult mortality test* tertinggi pada *postbiotic* 88,89%, disusul *paraprobiotic* 75,55% dan probiotik 46,66%. Ketiga perlakuan memiliki efek sama pada telur cacing menyebabkan dinding telur terdegradasi total. Perlakuan probiotik dan *paraprobiotic* menyebabkan perubahan struktur annuli kutikula cacing dewasa, sedangkan *postbiotic* menyebabkan pengerutan kutikula. Kesimpulan penelitian ini yaitu probiotik memiliki efektivitas tinggi terhadap telur, namun membutuhkan waktu yang lama untuk menyebabkan mortalitas cacing dewasa, *postbiotic* memiliki efektivitas tinggi terhadap cacing dewasa dan telur, sedangkan *paraprobiotic* memiliki efektivitas tinggi terhadap cacing dewasa namun rendah pada telur.

**Kata Kunci: Anthelmintik, *Lysinibacillus sphaericus*, *Paraprobiotic*, *Postbiotic*, Probiotik**

**Antiparasitic Activity of Probiotic, Paraprobiotic, and Postbiotic  
*Lysinibacillus sphaericus* against *Haemonchus contortus* In vitro**

**ABSTRACT**

Aulia Khirqah  
21/484701/PKH/00756

*Haemonchus contortus* infection is one of the main problems in goat livestock. Screening new effective antiparasitic candidate is an alternative to overcome anthelmintic resistance. *Lysinibacillus sphaericus* has the ability to produce toxins potential as antiparasitic agents. This study aims to determinate the effectiveness between probiotic, paraprobiotic, and postbiotic of *L. sphaericus* against eggs and adult *H. contortus*. *L. sphaericus* were reidentified and prepared into three treatments in three concentration: probiotic ( $10^7, 10^8, 10^9$ ), paraprobiotic (100%, 50%, 25%), and postbiotic (100%, 50%, 25%). Adult *H. contortus* were collected from goat abomasum for in-vitro adult mortality tests. *H. contortus* eggs were collected through female worm maceration for egg hatch inhibition tests. Positive control using albendazole while negative control using PBS. The test results analyzed using oneway Anova followed by Duncan's test. This research showed significant differences among the three treatments ( $P < 0.05$ ). The highest egg hatch inhibition result observed in probiotic 69,48%, followed by postbiotic 57,54% and paraprobiotic 33,06%. The highest adult mortality test result in 12 hours was the postbiotic 88,89%, followed by paraprobiotic 75,55 and probiotic 46,66. All three treatments have similar effect on helminth eggs, causing degradation of the eggshell. Probiotic and paraprobiotic causing annuli cuticle damage in adult worms, while postbiotic causing cuticle shrinkage. These result conclude that probiotics have high effectiveness against eggs, but it takes longer time to cause adult worm mortality, Postbiotics have high effectiveness against adult worms and eggs, while paraprobiotics have high effectiveness against adult worms but low on eggs.

**Keywords : Anthelmintic, *Lysinibacillus sphaericus*, Paraprobiotic, Postbiotic, Probiotic**