

The Effect of *Centella asiatica* Leaves Extract to Reduce the Number of Bacteria in Blood of Balb/c Mice Infected by *Salmonella typhimurium*

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ABSTRACT

Typhoid fever was often found in tropical area, especially the one with poor hygiene. In human, it was mostly caused by *Salmonella typhi*, meanwhile in Balb/c mice, it was caused by *Salmonella typhimurium*. Study in vitro showed that *Centella asiatica*, a herb that was very abundant in Indonesia, had bacteriostatical and bactericidal effect towards *Salmonella typhi*. This study aimed to determine the effect of oral administration of *Centella asiatica* leaves extract to the number of bacteria in blood of Balb/c mice infected by *Salmonella typhimurium*.

This study was in vivo experiment with posttest-only group design. This study was conducted in microbiology laboratory of Muhammadiyah University of Yogyakarta for 8 weeks during May-June 2012. The subjects of this study were 21 Balb/c mice which divided into 7 groups (n=3). They were negative control, positive control, given 125, 250, and 500 mg/kgBW of *Centella asiatica* leaves extract, given 1.3 mg of chloramphenicol, and given combination of 125 mg/kgBW *Centella asiatica* leaves extract and 0.975 mg of chloramphenicol. The number of bacteria in blood was obtained using streak plate count method in Mc Conkey media.

The lowest average number of bacteria in blood was 33 ± 58 , which belonged to group 7. The p value of group 7 compared to group 2 as positive control was 0.046 ($p < 0.05$). The highest average number of bacteria in blood was 34244 ± 59022 , which belonged to group 3. The p value for various doses was 0.461 ($p > 0.05$).

There was no significant effect of *Centella asiatica* leaves extract towards the number of bacteria in blood of Balb/c mice infected by *Salmonella typhimurium*. Also, there was resistance of chloramphenicol against *Salmonella typhimurium*. Combination of *Centella asiatica* leaves extract and chloramphenicol was significant to reduce the number of bacteria in blood of Balb/c mice infected by *Salmonella typhimurium*.

Pengaruh Pemberian Ekstrak Daun *Centella asiatica* L. Urb terhadap Angka Kuman Darah pada Mencit Balb/c yang Diinfeksi *Salmonella typhimurium*

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ABSTRAK

Demam *typhoid* merupakan penyakit infeksi yang sering dijumpai di daerah tropis terutama daerah dengan tingkat sanitasi yang buruk. Pada manusia, demam *typhoid* biasanya disebabkan oleh *Salmonella typhi*. Penelitian in vitro menemukan bahwa *Centella asiatica* memiliki efek bakteriostatik dan bakterisid terhadap *Salmonella typhi*. Penelitian ini bertujuan untuk menentukan efektivitas pemberian ekstrak daun pegagan (*Centella asiatica*) terhadap angka kuman darah pada mencit balb/c yang diinfeksi *Salmonella typhimurium*.

Desain penelitian ini adalah eksperimental murni dengan *posttest-only control group design*. Penelitian ini dilakukan di Laboratorium Mikrobiologi Universitas Muhammadiyah Yogyakarta selama 8 minggu pada bulan Mei-Juni 2012. Subjek penelitian ini adalah mencit balb/c sebanyak 21 ekor, yang terbagi menjadi 7 kelompok (n=3), kelompok K1 kontrol negatif (tidak diinfeksi), kelompok K2 kontrol positif (diinfeksi *Salmonella typhimurium* tanpa diberi ekstrak), kelompok P1-P5 kelompok perlakuan (diberi ekstrak daun pegagan 125 mg/kgBB, 250 mg/kgBB, 500 mg/kgBB, kloramfenikol 1,3 mg, kloramfenikol 0,975 mg dan ekstrak daun pegagan 125 mg/kgBB).

Rata-rata angka kuman darah terendah sebesar 33 ± 58 (kelompok P5). Nilai p dari kelompok P5 dengan kelompok K2 adalah 0.046 ($p < 0.05$). Rata-rata angka kuman darah tertinggi adalah 34244 ± 59022 (kelompok P1). Uji Kruskal Wallis menemukan nilai p sebesar 0.461 ($p > 0.05$).

Penelitian ini menunjukkan bahwa pemberian ekstrak daun pegagan (*Centella asiatica*) tidak berpengaruh terhadap angka kuman darah pada mencit balb/c yang diinfeksi *Salmonella typhimurium*. Kelompok P5 (kombinasi kloramfenikol 0,975 mg + ekstrak daun pegagan (*Centella asiatica*) 125 mg/kgBB) terdapat perbedaan yang signifikan terhadap kelompok K2 (diinfeksi *Salmonella typhimurium*).