

**EFFECT OF BLACK SOLDIER FLY (*Hermetia illucens*) LARVA OIL ON
BLOOD PROFILE AND LUNG HISTOPATHOLOGY IN MICE EXPOSED TO
CIGARETTE SMOKE**

UNDERGRADUATE THESIS



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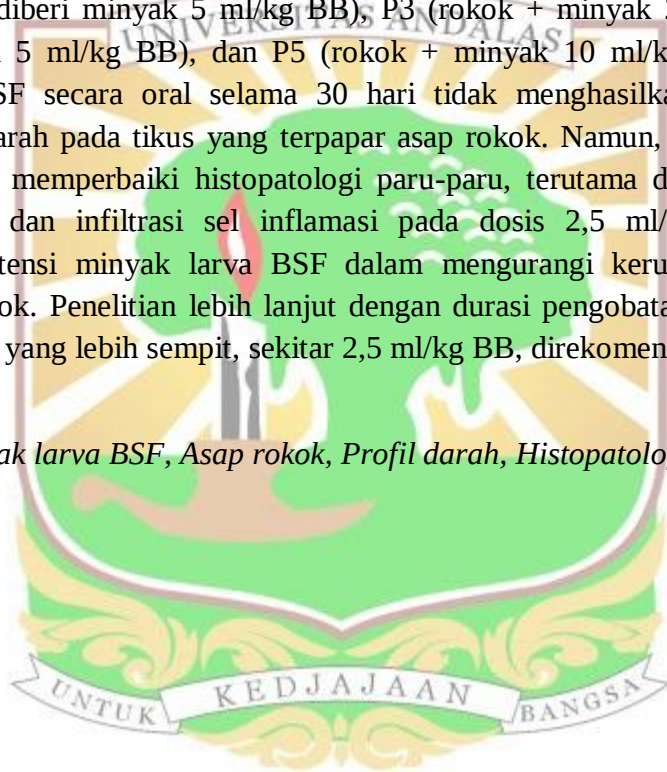
ANDALAS UNIVERSITY

PADANG, 2025

ABSTRAK

Paparan asap rokok dilaporkan dapat memicu stres oksidatif dan respons inflamasi, yang mana berkontribusi terhadap berbagai penyakit kronis dan degeneratif. Penelitian ini bertujuan untuk menguji efek minyak larva Lalat Tentara Hitam (*Hermetia illucens*) terhadap profil darah dan histopatologi paru-paru tikus yang terpapar asap rokok secara in vivo. Sebanyak 30 tikus jantan dewasa secara acak dibagi menjadi enam kelompok perlakuan selama 30 hari: P0 tanpa perlakuan (kontrol), P1 (diberi paparan 2 batang rokok/hari), P2 (diberi minyak 5 ml/kg BB), P3 (rokok + minyak 2,5 ml/kg BB), P4 (rokok + minyak 5 ml/kg BB), dan P5 (rokok + minyak 10 ml/kg BB). Pemberian minyak larva BSF secara oral selama 30 hari tidak menghasilkan efek signifikan terhadap profil darah pada tikus yang terpapar asap rokok. Namun, minyak larva BSF secara signifikan memperbaiki histopatologi paru-paru, terutama dengan mengurangi penebalan septa dan infiltrasi sel inflamasi pada dosis 2,5 ml/kg BB. Hasil ini menunjukkan potensi minyak larva BSF dalam mengurangi kerusakan paru akibat paparan asap rokok. Penelitian lebih lanjut dengan durasi pengobatan yang lebih lama dan rentang dosis yang lebih sempit, sekitar 2,5 ml/kg BB, direkomendasikan.

Kata kunci: *Minyak larva BSF, Asap rokok, Profil darah, Histopatologi paru*



ABSTRACT

Exposure to cigarette smoke has been reported to trigger oxidative stress and inflammatory responses, which contribute to various chronic and degenerative diseases. This study aimed to examine the effect of Black Soldier Fly (*Hermetia illucens*) larval oil on the blood profile and lung histopathology of mice exposed to cigarette smoke in vivo. A total of 30 adult male mice were randomly assigned to six treatment groups for 30 days: P0 without treatment (control), P1 (exposure to 2 cigarettes/day), P2 (oil 5 ml/kg BW), P3 (cigarette + oil 2.5 ml/kg BW), P4 (cigarette + oil 5 ml/kg BW), and P5 (cigarette + oil 10 ml/kg BW). Oral administration of BSF larval oil for 30 days did not produce a significant effect on the blood profile of mice exposed cigarette smoke. However, BSF larval oil significantly improved lung histopathology, particularly by reducing septal thickening and inflammatory cell infiltration at a dose of 2.5 ml/kg BW. These results suggest the potential of BSF larval oil in mitigating lung damage induced by cigarette smoke exposure. Further studies with longer treatment durations and a narrower dose range around 2.5 ml/kg BW are recommended.

Keywords : *BSF larvae oil, Cigarette smoke, Blood profile, Lung histopathology*

