ABSTRAK

Pencemaran udara dapat berasal dari aktivitas menusia seperti penggunaan obat anti nyamuk bakar. Asap obat anti nyamuk bakar berbahan baku utama turunan senyawa *pyrethroid* berupa *allethrin* menjadi sumber pembentuk radikal bebas yang dapat merusak struktur alveolus paru. Penelitian ini bertujuan untuk mengetahui pengaruh variasi lama pemaparan asap obat anti nyamuk bakar terhadap gambaran histopatologi paru tikus (*Rattus norvegicus*) jantan galur wistar. Metode penelitian yang digunakan adalah *True Experimental* dengan desain *Post-Test Only Control Group Design*. Sampel tikus wistar jantan berjumlah 24 ekor yang dibagi menjadi 4 kelompok, yaitu kelompok normal tanpa perlakuan, kelompok perlakuan 1, 2, dan 3 yang dipaparkan asap obat anti nyamuk bakar 5 jam/hari, 7 jam/hari, dan 9 jam/ hari selama 21 hari. Penilaian histopatologi paru dinilai menggunakan *Modified Manja Roegnik Score*. Hasil uji *Kruskal – Wallis* terdapat pengaruh asap obat anti nyamuk bakar terhadap perbedaan kerusakan pada kelompok normal dan perlakuan ($p < 0,001$). Uji *post hoc Mann - Whitney* menunjukkan perbedaan signifikan antar kelompok ($P < 0,05$). Kesimpulan penelitian ini adalah terdapat perbedaan kerusakan histopatologi paru tikus yang dipaparkan asap obat anti nyamuk bakar dengan waktu yang bervariasi, dengan kerusakan terberat terjadi pada kelompok yang dipaparkan asap obat anti nyamuk bakar selama 9 jam/hari.

Kata Kunci : obat anti nyamuk bakar, Allethrin, histopatologi paru, tikus wistar

ABSTRACT

Air pollution can come from human activities such as using anti-mosquito coils. Smoke from anti-mosquito burns is made from compound derivatives as the main raw material *pyrethroid* form *allethrin* becomes a source of free radical formation which can damage the structure of the lung alveoli. This study aims to determine the effect of variations in the length of exposure to anti-mosquito fuel smoke on the histopathological picture of rat lungs (*Rattus norvegicus*) Wistar strain male. The research method used is *True Experimental* by design *Post-Test Only Control Group Design*. The sample of 24 male Wistar rats were divided into 4 groups, namely the normal group without treatment, treatment groups 1, 2, and 3 which were exposed to anti-mosquito burnt smoke for 5 hours/day, 7 hours/day, and 9 hours/day for 21 days. Lung histopathological assessment was assessed using *Modified Manja Roegnik Score*. Test results *Kruskal – Wallis* There was an effect of anti-mosquito coil smoke on the difference in damage between the normal and treatment groups ($p < 0.001$). Test *post hoc Mann - Whitney* showed significant differences between groups ($P < 0.05$). The conclusion of this study was that there were differences in the histopathological damage to the lungs of mice exposed to anti-mosquito smoke for varying times, with the heaviest damage occurring in the group exposed to anti-mosquito smoke for 9 hours/day.

Keywords: anti-mosquito coils, Allethrin, lung histopathology, Wistar rats