

ABSTRAK

Bensin yang tersedia di Indonesia adalah bensin jenis Premium dan Pertamina. Bensin Premium mengandung tetra-etil-lead yang terkandung timbal dengan nilai oktan 88 sedangkan Pertamina mengandung metil-tertil-butyl-eter atau etil-tertil-butyl-eter sebagai pengganti timbal dengan nilai oktan 92. Senyawa benzena dan timbal merupakan senyawa berbahaya yang mempengaruhi sistem pernapasan seperti bronkus.

Penelitian ini bertujuan untuk mengetahui pengaruh pendedahan uap bensin jenis Premium dan Pertamina terhadap gambaran histologi bronkus tikus putih (*Rattus norvegicus*).

Subyek penelitian 27 ekor tikus putih (*Rattus norvegicus*) jantan, berumur 8 minggu dengan berat 150-220 gram. Subyek dibagi menjadi tiga kelompok yaitu kelompok kontrol (K), Pertamina (P1) dan Premium (P2). Pada kelompok P1 dan P2 diberikan pendedahan uap bensin 8 jam/hari selama 30 hari dan kelompok K (tidak diberikan perlakuan).

Rata-rata ketebalan epitel bronkus kelompok K ($25,2211 \pm 3,20932$) μm ; P1 ($28,4411 \pm 2,82673$) μm ; dan P2 ($31,5422 \pm 4,11304$) μm . Uji *Tukey* menunjukkan perbedaan ketebalan epitel yang signifikan antara kelompok K dan P2 dengan $p=0,002$.

Rata-rata diameter bronkus kelompok K ($1284,78 \pm 97,778$) μm ; P1 ($1054,67 \pm 159,625$) μm dan P2 ($978,22 \pm 219,136$) μm . Uji *Tukey* menunjukkan perbedaan panjang diameter bronkus yang signifikan antara kelompok K dan P1 dengan $p=0,021$, sedangkan kelompok K dan P2 dengan $p=0,002$.

Rata-rata jumlah sel goblet kelompok K ($6,7778 \pm 0,7362$); P1 ($9,9444 \pm 0,99041$) dan P2 ($11,6356 \pm 0,47276$). Uji *Tukey* menunjukkan perbedaan jumlah sel goblet yang signifikan antara kelompok K, P1 dan P2 dengan $p=0,000$.

Pendedahan uap bensin kelompok P1 dan P2 mempengaruhi gambaran histologi berupa ketebalan epitel, diameter bronkus dan jumlah sel goblet pada tikus putih (*Rattus norvegicus*) jantan.

Kata Kunci: Uap, Bensin, Epitel, Bronkus

ABSTRACT

Premium and pertamax are types of gasoline which are mostly consumed in Indonesia. Premium gasoline contains lead and has an octan number 88 while, Pertamax gasoline containing methyl tertiary butyl ether (MTBE) or ethyl tertiary butyl ether (ETBE) as a substitute for lead with an octane number 92. Benzene and lead compound are the dangerous compound that can affect to respiratory system such as bronchi.

*This study aims to determine the effect of Premium and Pertamax gasoline vapor exposure to bronchial histology of the white rat (*Rattus norvegicus*).*

*Subjects of the experiment were 27 white male rats (*Rattus norvegicus*), 8 weeks old, having weight 150-220 grams. Subjects were divided equally into three groups: control group (K), Pertamax group (P1) and Premium group (P2). The subjects (samples) from Premium group and Pertamax group were exposed to the gasoline vapor for 8 hours per day in 30 days and the control group was exposed to normal environment.*

The results of the average number of bronchial epithelial thickness are $(25.2211 \pm 3.20932)\mu\text{m}$ for K group; $(28.4411 \pm 2.82673)\mu\text{m}$ for P1 group and $(31.5422 \pm 4.11304)\mu\text{m}$ for P2 group. Attractions Tukey test found significant difference in the K group and P2 group with $p=0.002$.

The result of the average number of diameter are $(1284,78 \pm 97,778)\mu\text{m}$ for K group; $(1054,67 \pm 159,625)\mu\text{m}$ for P1 group and $(978,22 \pm 219,136)\mu\text{m}$ for P2 group. Attractions Tukey test found significant difference in the K and P1 group with $p=0,021$, although K dan P2 group with $p=0,002$.

The result of the average number of goblet cell are $(6,7778 \pm 0,7362)$ for K group; $(9,9444 \pm 0,99041)$ for P1 group and $(11,6356 \pm 0,47276)$ for P2 group. Attractions Tukey test found significant difference in the K, P1 and P2 group with $p=0,000$.

*P2 and P1 gasoline vapor exposure have affect on the bronchial histology from the thickness of the bronchial epithelium, diameter sum of bronchus and in white male rats (*Rattus norvegicus*).*

Keywords: *vapor, Gasoline, epithelium, bronchi*