

Analisis pajanan benzena melalui pengukuran biomarker (S-phenylmercapturic acid) dengan kadar hemoglobin pekerja bengkel sandal/sepatu di Desa Sukajaya, Kecamatan Tamansari, Kabupaten Bogor = Analysis of benzene exposure through biomarker (S-phenylmercapturic acid) and hemoglobin level of shoes worker in Sukajaya Village, Tamansari Sub-District, Bogor Regency

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Abstrak

Industri sepatu merupakan salah satu industri informal yang semakin berkembang di Indonesia. Proses pembuatan sandal/sepatu menggunakan bahan kimia yaitu benzena pada proses pengeleman. Pajanan benzena akan mengakibatkan masalah pada sistem hematopoetik yang menyebabkan penurunan kadar hemoglobin.

Penelitian ini bertujuan mengidentifikasi hubungan benzena di dalam tubuh melalui pengukuran biomarker SPhenylmercapturic Acid (S-PMA) terhadap kadar hemoglobin pekerja bengkel sandal/sepatu di Desa Sukajaya. Penelitian ini menggunakan studi cross-sectional yang dilaksanakan pada Maret-Mei 2018.

Jumlah sampel sebanyak 73 pekerja dengan metode total sampling.

Hasil analisis menunjukkan bahwa pekerja dengan umur >29 tahun berisiko 1,76 kali, memiliki riwayat infeksi berisiko 1,51 kali, IMT tidak normal berisiko 1,51 kali, masa kerja >5 tahun berisiko 1,01 kali, dan durasi >11 jam berisiko 1,04 kali memiliki kadar hemoglobin <14 g/dL.

Hasil analisis juga menunjukkan bahwa pekerja dengan konsentrasi S-PMA tinggi (>1,53 µg/g kreatinin) berisiko 1,84 kali lebih besar memiliki kadar hemoglobin <14 g/dL dibandingkan pekerja dengan konsentrasi S-PMA rendah (< 1,53 µg/g kreatinin) setelah dikontrol variabel umur, kebiasaan olahraga, dan jenis pekerjaan. Perlu dilakukan pengendalian risiko di tempat kerja dengan membatasi jam kerja, pengaturan ruang kerja, dan menerapkan pelarangan merokok di ruang kerja.

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The shoe industry is one of the growing informal industries in Indonesia. The process of making sandals/shoes used a chemical benzene in the process of sizing. Benzene exposure will caused problems in the hematopoetic system that caused a decrease in hemoglobin levels.

This study aimed to identify benzene relationship in the body through measurement of S Phenylmercapturic Acid (S-PMA) biomarker on hemoglobin level of sandals/shoes workshop workers in Sukajaya Village.

This study used crosssectional study conducted in March-May 2018. The number of sample was 73 workers with total sampling method.

The results of the analysis showed that workers with age > 29 years were at risk 1.76 times, had a history of infection at risk 1.51 times, Body Mass Indices (BMI) was not normal at risk 1.51 times, working period > 5 years at risk 1.01 times, and working hours > 11 hours at risk of 1.04 times having hemoglobin <14 g/dL.

The results also showed that workers with high S-PMA concentrations (> 1.53 g / g creatinine) were 1.84 times more likely to have hemoglobin <14 g/dL than those who had low S-PMA concentrations (<1.53 g/g creatinine) after controlled by age, exercise, and type of work variables. Risk control in the workplace is required by limiting of working hours, arranging working space, and applying smoking ban in the

workplace.