Universitas Ngudi Waluyo
Program Studi S1 Farmasi, Fakultas Kesehatan
Skripsi, Februari 2022
Martha DiahAyu
050118A104

KAJIAN VALIDASI PENETAPAN KADAR TIMBAL (Pb) PADA RAMBUT PEKERJA STASIUN PENGISIAN BAHAN BAKAR UMUM (SPBU)

ABSTRAK

Latar Belakang: Timbal (Pb) adalah senyawa logam yang ditemukan pada campuran bahan bakar kendaraan bermotor. Pekerja SPBU beresiko terpapar timbal (Pb) sehingga berbahaya pada kesehatan seperti sakit kepala, lesu, gangguan tidur serta berdampak adanya partikulat udara (PM_{10}) menyebabkan pencemaran udara. Akumulasi timbal (Pb) pada tubuh dapat dideteksi melalui darah, dan rambut. Metode yang digunakan untuk menetapkan kadar timbal dilakukan validasi untuk mengetahui kesesuain metode yang digunakan.Tujuan Penelitian adalah mengetahui validasi metode spektrofotometri serapan atom, kadar timbal (Pb) pada rambut pekerja SPBU tertinggi terendah dan mengetahui hubungan lama masa kerja terhadap kadar Pb .

Metode:Penelitian ini merupakan jenis penelitian non eksperimental yaitu menggunakan kajian sebanyak 5 artikel dengan melihat data sekunder yang terpublikasi di jurnal internasional (Scimago) dan jurnal nasional (Sinta).

Hasil: Berdasarkan validasi metode diperoleh uji akurasi dengan nilai *recovery* 96,23% mendekati 100%, Uji presisi 4,01% <5%,linearitas (r) mendekati 1, konsentrasi LOD 0,2680 mg/L melebihi konsenttrasi LOQ 0,0804. Kadar timbal (Pb) dalam rambut pekerja SPBU yaitu kadar (Pb) sebesar 31,64 µg/g, 22 µg/g , 0,8131 µg/g, 0,8175 µg/g, 0.2648 µg/g dengan lama masa kerja 1-12 tahun.

Kesimpulan: Validasi metode penetapan kadar (Pb) dalam rambut dengan spektrofotometri serapan atom memenuhi persyaratan meliputi akurasi, presisi, linearitas, LOD dan LOQ. Kadar timbal tertinggi 31,64 µg/g sampel di Kota Basrah Irak dan terendah 0.2648 µg/g sampel di Kota Pekanbaru. Tidak ada hubungan lama masa kerja pada kadar Pb pada rambut pekerja SPBU. Faktor pengaruh lama masa kerja pada kadar (Pb) yaitu usia, merokok, alat pelindung diri tidak lengkap , dan perbedaan luas wilayah.

Kata kunci: Rambut, kadar timbal (Pb), validasi, faktor.

Ngudi Waluyo University
Study Program of Pharmacy, Faculty of Health
Final Project, February 2022
Martha DiahAyu
050118A104

STUDY OF VALIDATION OF DETERMINATION LEVELS OF LEAD (Pb) IN THE HAIR OF WORKERS OF PUBLIC FUEL CHARGING STATIONS

ABSTRACT

Background*: Lead (Pb) is a metal compound found in motor vehicle fuel mixtures. Gas station workers are at risk of being exposed to lead (Pb) so that it is dangerous to health such as headaches, lethargy, sleep disturbances and the impact of air particulates (PM10) causing air pollution. Accumulation of lead (Pb) in the body can be detected through blood and hair. The method used to determine the lead content was validated to determine the suitability of the method used. The objectives of the study were to determine the validation of the atomic absorption spectrophotometry method, the highest lead (Pb) content in the hair of gas station workers was the lowest and to determine the relationship between length of service and Pb levels.*

Methods*: This research is a non-experimental type of research that uses a study of 5 articles by looking at secondary data published in international journals (Scimago) and national journals (Sinta).*

Results*: Based on the validation method, the accuracy test was obtained with a recovery value of 96.23% approaching 100%, precision test 4.01% <5%, linearity (r) approaching 1, LOD concentration 0.2680 mg/L exceeding LOQ concentration 0.0804 . The levels of lead (Pb) in the hair of gas station workers are levels (Pb) of 31.64* µg/g*, 22 µg/g , 0,8131 µg/g, 0,8175 µg/g, 0.2648* µg/g *with a working period of 1-12 years.*

Conclusion*: Validation of assay method (Pb) in hair with atomic absorption spectrophotometry met the requirements including accuracy, precision, linearity, LOD and LOQ. The highest lead content was 31.64 g/g sample in Basrah City, Iraq and the lowest 0.2648 g/g sample in Pekanbaru City. There is no relationship between length of service and Pb levels in gas station workers' hair. Factors influencing the length of work on the levels of (Pb) are age, smoking, incomplete personal protective equipment, and differences in area.*

Keywords: Hair, lead (Pb) content, validation, factors.