

Analisis kandungan logam timbal dan tembaga pada pewarna rambut dan rambut pemakai pewarna rambut secara spektrofotometri serapan atom

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20181444&lokasi=lokal>

Abstrak

Penggunaan timbal dan tembaga pada kosmetik mempunyai resiko yang cukup besar apabila dikonsumsi secara langsung. Efek toksik yang ditimbulkan di antaranya reaksi toksik topikal pada kulit dan kepala, kerusakan pada jaringan rambut, gangguan penyakit kulit seperti gatal-gatal, nyeri, dermatitis serta dapat juga menimbulkan keracunan sistemik (peradangan dan kerusakan organ ginjal dan hati, demam, gangguan syaraf). Penelitian ini bertujuan untuk menganalisa kandungan timbal dan tembaga dalam pewarna rambut serta rambut pemakai pewarna rambut. Sampel pewarna rambut di destruksi dengan asam nitrat 65% dan asam perklorat 60% menggunakan lempeng pemanas (hot plate) pada suhu 100°C. Larutan hasil destruksi dianalisis menggunakan spektrofotometer serapan atom. Sampel rambut dikeringkan dalam oven pada suhu 500C kemudian dilakukan destruksi basah dengan asam nitrat 65% dan asam perklorat 60% menggunakan lempeng pemanas (hot plate) pada suhu 1000C. Larutan hasil destruksi di analisis menggunakan spektrofotometer serapan atom.

Hasil penelitian menunjukkan kadar timbal dan tembaga dalam pewarna rambut merek A dan B masih dalam batas kadar yang diizinkan berdasarkan Surat Keputusan Menteri Kesehatan RI No 376/MenKes/Per/VIII/1990 sebesar 2% dan berdasarkan Food Drugs Administration, maksimum kadar timbal asetat sebesar 0,6% w/v dan kadar tembaga sebesar kurang dari 0,6% w/v. Rata-rata kadar timbal dalam rambut pemakai pewarna rambut merek A dan B masih dalam batas normal yakni sebesar kurang dari 12,00 mg/kg. Pada rambut pemakai pewarna rambut merek A dan B kadar tembaga telah melebihi batas normal yakni sebesar lebih dari 2,30 mg/kg.

<hr>The use of lead and copper in cosmetics have more high risk if consumed directly. Toxic effects including toxic reaction to topical on the skin and head, damage to the hair tissue, skin disorders such as itching, pain, dermatitis and may also cause systemic toxicity (inflammation and organ damage to kidneys and liver, fever, neurological disorders). This study aims to analysis the content of lead and copper in hair and hair of hair dye users. Samples of hair dyes destructed with 65% nitric acid and perchloric acid 60% using hot plate at a temperature of 100oC. After phase of destruction, it was analyzed by atomic absorption spectrophotometer. Hair samples were dried in an oven at a temperature of 50oC and then destructed with 65% nitric acid and perchloric acid 60% using hot plate at a temperature of 100°C. After phase of destruction, it was analyzed by atomic absorption spectrophotometer.

Results showed levels of lead and copper in hair dye brand A and B are still within levels permitted by the Minister of Health Decree No. 376/MenKes/Per/VIII/1990 of 2% and according to the Food and Drugs Administration, the maximum levels of the lead is 0,6% w/v and levels copper metal is less than 0,6% w/v. The average lead content in hair of hair dyes users brand A and B are still within the normal range which is less than 12,00 mg/kg, while the copper content in hair of the hair dye users has exceeded the normal limit of copper content in hair which is more than 2,30 mg/kg.