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DEVELOPMENT OF A GRAPHITE FURNACE AAS METHOD FOR THE DETERMINATION OF TRACE METALS IN COMMERCIAL BOTTLED DRINKING WATER

By

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ABSTARCT

Determination of the trace heavy metals, Cd^{2+}, Cu^{2+}, Pb^{2+} and Zn^{2+} in commercial bottled drinking water in Malaysian market was carried out the quality of the commercial bottled drinking water from Malaysia and compare it with WHO Standards. The analysis was performed using graphite furnace atomic absorption spectrophotometer (GFAAS). GF parameters were optimizing. The method was calibrated and validated. From the research the concentration of cadmium for five samples are in the range 0.01 – 0.02 µg/l. That for copper is in range 0.04 - 0.70 µg/l. However for lead are in range 0.1 - 0.8 µg/l. Last, for zinc are in range 0.2 - 35.0 µg/l. From the research it could be concluded that the content of copper, cadmium, lead and zinc for all samples of commercial bottled drinking water from Malaysia meet the guide lines set by WHO for drinking water.

ABSTRAK

Kajian terhadap kandungan logam terlarut Cd^{2+}, Cu^{2+}, Pb^{2+} dan Zn^{2+} dalam air minuman botol yang terdapat dalam pasaran di Malaysia. Analisis ini dilakukan dengan menggunakan spektofotometer serapan atom relau grafit (GFAAS) gelombang, suhu dan 'modifier' yang sesuai dipilih untuk menjalani analisis sampel. Daripada kajian menunjukan kepekatan cadmium bagi lima sampel adalah dalam julat 0.01 – 0.02 µg/l. Manakala bagi kuprum adalah dalam julat 0.04 – 0.70 µg/l. Bagi Plumbum adalah dalam julat 0.1 – 0.8 µg/l. Akhirnya bagi zink adalah dalam julat 0.2 – 35.0 µg/l. Secara kesimpulan, kandungan logam terlarut cadmium, kuprum, plumbum dan zink bagi semua sampel air minuman botal yang terdapat dalam pasaran Malaysia adalah lebih rendah daripada tahap keselamatan air minuman yang disarankan oleh Piawaian WHO 1971.