

RINGKASAN

Telah dilakukan uji banding metode destruksi basah dan kering untuk penentuan kadar besi dan seng dalam daun kangkung.

Destruksi basah dilaksanakan dengan melarutkan sampel dalam 20 mililiter campuran $\text{HNO}_3 - \text{H}_2\text{SO}_4$ (3 : 1) pada suhu $100\text{ }^\circ\text{C}$ selama 10 menit, kemudian didinginkan selama 10 menit dan ditambahkan 2 mililiter H_2O_2 30% tetes demi tetes. Pemanasan dilanjutkan secara perlahan pada suhu $200\text{ }^\circ\text{C}$ sampai diperoleh larutan jernih. Destruksi kering dilaksanakan dengan mengabukan sampel pada suhu $400\text{ }^\circ\text{C}$ selama 3 jam. Abu yang diperoleh dilarutkan dalam 20 mililiter HNO_3 pekat. Proses pelarutan dipercepat dengan pemanasan pada $200\text{ }^\circ\text{C}$ hingga diperoleh larutan jernih.

Analisis terhadap kandungan besi dan seng dilakukan secara spektroskopi serapan atom nyala (FAAS).

Hasil penelitian menunjukkan bahwa metode destruksi basah menghasilkan kadar besi sebesar $2,102 \pm 0,052\text{ mg}/100\text{ g}$ dengan nilai pungut ulang 105,1% dan kadar seng sebesar $0,101 \pm 0,002\text{ mg}/100\text{ g}$, nilai pungut ulang 67,8%. Metode destruksi kering menghasilkan kadar besi sebesar $2,162 \pm 0,156\text{ mg}/100\text{ g}$ dengan nilai pungut ulang 106,6% dan kadar seng sebesar $0,255 \pm 0,034\text{ mg}/100\text{ g}$, nilai pungut ulang 104,3%.

Hasil uji statistika dengan tingkat keterpercayaan 95%, menyatakan nilai t hitung sebesar 0,606 untuk unsur besi dan 7,700 untuk unsur seng, sedangkan nilai t tabel untuk unsur besi dan seng masing-masing adalah sebesar 2,130. Kedua metode destruksi tidak berbeda secara nyata untuk penentuan besi, sedangkan untuk penentuan seng metode destruksi kering lebih baik daripada metode destruksi basah.

SUMMARY

The comparison test between wet and dry ashing methods for determination of both iron and zinc contained in leaves of ipomoea plant has been done.

Wet ashing was carried out by samples dissolving in 20 milliliters of 3 : 1 HNO_3 - H_2SO_4 mixture at 100 °C for 10 minutes. It was allowed to cool for about 10 minutes, then added 2 milliliters of H_2O_2 30 % hereinafter. Samples heating was continued at 200 °C slowly until clear solution approximately formed. Meanwhile, dry ashing was performed by samples ashing in furnace at 400 °C for 3 hours to yield ash. The ash was dissolved in 20 milliliters of HNO_3 dark concentrate. Dissolving process was accelerated by heating it at 200 °C until clear solution formed.

Determination of iron and zinc's degree released from both of the two ashing methods was analyzed by flame atomic absorption spectroscopy (FAAS).

The experimental research show that wet and dry ashing methods for iron were 2.102 ± 0.052 mg/100 g, with recovery 105.1% and 2.162 ± 0.156 mg/100 g, recovery 106.6%. Meanwhile for zinc were 0.101 ± 0.002 mg/100 g, with recovery 67.8% and 0.255 ± 0.034 mg/100 g, recovery 104.3%.

From t student's test in which confidence level 95%, it was acknowledged that t experiment was 0.606 for iron and 7.700 for zinc. Whereas t table from iron and zinc components are 2.130 respectively. It means that both of ashing methods as the same as good for iron determination. On the other hand, dry ashing method is better than one for iron determination.