

## A SMALL SCALE COLORIMETRIC METHOD FOR IRON DETERMINATION USING PLANT EXTRACTS AS A NATURAL REAGENT

Siriangkhwut W.,<sup>a</sup> Didpinrum P.,<sup>b</sup> Ponghong K.,<sup>a</sup> Grudpan K.<sup>b</sup>

<sup>a</sup> *Creative Chemistry and Innovation Research Unit, Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Mahasarakham University, Maha Sarakham, 44150, Thailand, e-mail: watsaka@hotmail.com*

<sup>b</sup> *Department of Chemistry, Faculty of Science, Center of Excellence for Innovation in Analytical Science and Technology, Chiang Mai University, Chiang Mai, 50200, Thailand*

A cost-effective and environmentally friendly approach using a small scale colorimetric method with non-synthetic reagent from plant extracts as a natural reagent<sup>1</sup> for quantification of iron has been proposed. The method was based on the measurement of a dark brown complex formed by the reaction between Fe(III) and tannic acid contain in crude plant extracts at pH 5.5. The ultrasound-assisted extraction<sup>2</sup> was utilized for extraction of natural reagent from dried plant which offers a rich source of hydrolysable tannins.<sup>3</sup> The optimum conditions for the extraction parameters including type of solvent, mass/volume ratio of solvent, sonication time, temperature, and power were investigated. Under the optimum conditions, a linear calibration graph ranging from 1 to 10 mg L<sup>-1</sup> Fe(III) was obtained from small scale colorimetric determination (at 530 nm) with limit of detection and quantification of 0.31 and 0.78 mg L<sup>-1</sup>, respectively. Reproducibility for 3 mg L<sup>-1</sup> Fe(III) was 3.8% RSD. The developed method was successfully applied to quality control of iron in antianemic drug samples. The results are in good agreement with those obtained by the FAAS method at the 95% confidence level. High percentage recoveries between 97 and 105% were obtained.

### References

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