



Utilizations of green extracts for determination of ferrous ion

Abdulnaser Hajjisamoh^{1*}, Aeesoh Binhawan¹, Rohani Beraheng¹, Nazofah Dareesor¹, Mohd Nur E Alam Siddique² and Pawan Raj Shakya³

¹*Chemistry Program, Faculty of Science Technology and Agriculture, Yala Rajabhat University, Yala, 95000, Thailand*

²*Department of Chemistry, Dhaka Women's College under National University, Dhaka, Bangladesh*

³*Department of Chemistry, Padma Kanya multiple Campus, Tribhuvan University, Bagbazar, Kathmandu, Nepal*

*E-mail: abdulnaser.haj@yru.ac.th

This study was carried out to determine the crude extracts from local fresh vegetables, namely Petai shell (*Parkia speciosa*) and banana peel as natural reagents in Analytical Chemistry Laboratories. The samples were extracted with distilled water at room temperature, followed by vacuum filtration. The aqueous solutions were then reacted with ferrous standard solutions (Fe^{2+}). The conditions of colored complex formations were studied and determined by UV spectrophotometer at the wavelength of 560 nm. The results showed that crude extracts of banana peels provided blue-purple in neutral and base solution, whereas crude extracts of Petai shells showed difference colors in acid, base and neutral solutions. These findings revealed that these extract solutions can be utilized as natural reagents for determining Fe^{2+} in aqueous solution at the lowest concentration level of 0.1 ppm. This study also found that crude extract of Petai shells showed good results for determining Fe^{2+} in aqueous solution as compared with crude extract of banana peel. The procedures of samples extractions were carried out using the apparatus and simple glassware which available in general laboratories. The use of green reagents in experimental can reduce chemical wastes exposed to the environments.

Keywords: Natural reagent; Complex compound; Green chemistry
