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A preliminary study on identification of Thai rice samples by INAA and statistical analysis

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This study aims to investigate the elemental compositions in 50 Thai rice samples using instrumental neutron activation analysis (INAA) and to identify rice according to their types and rice cultivars using statistical analysis. As, Mg, Cl, Al, Br, Mn, K, Rb and Zn in Thai jasmine rice and Sung Yod rice samples were successfully determined by INAA. The accuracy and precision of the INAA method were verified by SRM 1568a Rice Flour. All elements were found to be in a good agreement with the certified values. The precisions in term of %RSD were lower than 7%. The LODs were obtained in range of 0.01 to 29 mg kg-1. The concentration of 9 elements distributed in Thai rice samples was evaluated and used as chemical indicator to identify the type of rice samples. The result found that Cl, Al, As, Br, K and Rb concentrations in Thai jasmine rice samples are significantly different but there was no evidence that Mg, Mn and Zn are significantly different from concentration in Sung Yod rice samples at 95% confidence interval. Our results may provide preliminary information for discrimination of rice samples and may be useful database of Thai rice.

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