

Reference materials (RM) play important roles in the quality assurance of measurement of physical and chemical properties of products and materials. In chemical analysis laboratories, RMs are indispensable for the validation of analytical methods and results. RMs are often expensive and mostly imported, which makes it unaffordable to many laboratories. This research project investigated the possibility of production of in-house reference materials for local use. The RM produced was rice flour for trace metals analysis.

Rice flour was produced to obtain good homogeneity with respect to its trace element contents. The rice flour was irradiated by γ - ray for long term stability. Homogeneity test and stability test both short-term and long-term were studied. The rice flour was then analysed for 15 trace elements (Na, K, Mg, Ca, Ba, Cu, Zn, Fe, Mn, Cd, Co, V, Pb, Cr and Ni) using spectrometric and electrochemical techniques. The analytical results were statistically evaluated. Certified values for 10 elements (results with more than 1 reliable method) and reference values for 5 elements (results with only 1 reliable method) were obtained.

A seminar was held during 21-22 June 2000 on "Quality assurance in trace metal analysis" to provide background knowledge of the reference material and the importance of quality assurance in chemical analysis and to distribute the in-house RM to 16 laboratories. Feed-backs of usage were obtained. Although the number of user of the RM (6 users) was limited because the type of the RM was not applicable for many laboratories, many comments were useful for future planning of this research and development area.