S19-8 The role and possibility of new trace element analysis system (ECRIS-MS) in toxico-metallomics

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We have developed a novel new system for trace element analysis with an electron cyclotron resonance (ECR) ion source. As one of the characteristic of this system (ECRIS-MS), it should be notable that the samples introduced into the ion source are resolved into an atom level by ECR plasma of a high temperature. Because the interference by molecules hardly occurs due to this characteristic, all elements can be measured in high sensitivity. We have expected that our system should be applicable to the multidirectional analysis for plural minerals in the scientific study fields of toxico-metallomics effectively. The multidirectional analysis is performed by combining the system with two-dimensional gel electrophoresis. In order to analyze the protein spot sample from electrophoresis, we have customized a liquid sample introduction device for ECR ion source. This device consists of a nebulizer and a differential pumping chamber. The liquid sample is atomized under atmospheric pressure by the device is introduced into an ECR plasma chamber which is set under a high vacuum.

In this symposium, we will present the outline of the developed system and the basic technique mentioned above. Furthermore, we will introduce the possibility and effective role of the system in fields of toxico-metallomics by performing quantitative analysis while making up for results with conventional technique such as HPLC/ICP-MS each other.