LASER ABLATION INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY IN ELEMENTAL MAPPING

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Laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) represents efficient analytical tool for direct analysis of solids, particularly if spatially resolved information is required. Elemental imaging and local analysis may provide significant information on biological tissues, geological materials and archaeological findings. This efficient analytical tool is frequently combined with physical methods of surface analysis and imaging.

LA-ICP-MS is reported for study of biominerals (urinary stones, fossil teeth and bones from archaeological excavations), moreover, our attention is paid to soft biological tissues. Selected elemental ratios and elemental contents may yield information on diet and mobility/migration of prehistoric animals or humans. LA-ICP-MS application in biomedical research, e.g. imaging of tumor tissues via distribution of Cu and Zn bound to proteins, may bring information important for a better understanding of processes in living organisms, which might be helpful in medical treatment.

Presented topics constitute applications, investigation of fundamental processes responsible for influence on quality of analytical results, preparation of matrix matched calibration standards, and development of appropriate calibration procedures.

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