biomass

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Identification and Quantification of Hazardous Elements and Compounds in Biomass Originating from Various Sources

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Message from the Guest Editors

Biomass is composed of organic materials originating from plants or animals such as crop waste, forestry residues, agricultural residues, algae, energy crops, and food wastes. Industrialization is one of the major sources of environmental pollution and a worldwide concern. Heavy/toxic metals such as Pb, As, Hg, Cd, and Cr are used in many industrial, urban, and agricultural applications. Therefore, the rapid, sensitive, and cost-effective compositional analysis of these materials is paramount. For a qualitative and quantitative analysis of constituents present in these materials, different analytical techniques such as inductively coupled plasma mass spectrometry (ICP-MS), electron dispersion X-ray fluorescence (EDXRF), atomic absorption spectroscopy (AAS) are commonly used. In the past decade, laser-induced breakdown spectroscopy (LIBS) has emerged as a quick, ecofriendly, efficient, and useful analytical technique for the detection of trace and major constituents present in any type of material. For the identification of the organic/inorganic compounds which have adverse effects on living organisms, PAS, UV-VIS, FTIR, and LIF techniques are in use.