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Abstract: The rapid development of industry and technology, the increased demand for using fossil fuels and exploitation of primary raw materials in recent years calls into question sustainability of progress in today's society. Air quality in the world has become one of the leading factors that affect human health, and also inevitably, the condition of the entire environment. For quite long, air pollution has not been just a local problem, whose solution requires a multidisciplinary approach. Uncontrolled emitted waste gases, suspended sludge particles and aerosols are the main substances that have a negative impact on air quality. For this reason, the results of research dealing with monitoring the presence and determining the nature and composition of gaseous, solid and liquid pollutants in the air are very important. Depending on the primary sources, chemical composition and size of aerosols differs, and which influences the deposition rate, the transmission and the ability to incorporate aerosols in the land and in living organisms. In addition, the behavior and the harmful impact of aerosols is determined by reactions with gases, moisture, and their mutual interactions in the troposphere, where the primary aerosols turn into secondary aerosols. In this book, the effects of aerosols on global climate change are also presented. Depending on nature, aerosols in the atmosphere also change the amount of energy reflected from the surface of the Earth, which leads to the greenhouse effect. Primary aerosols of anthropogenic origin, emitted from industrial plants, can contain toxic and carcinogenic substances, which tend to accumulate in the environment and enter the food chain of humans and animals. For that reason, this book describes the content of heavy metals and metalloids in plant material. The greatest contribution to this approach is reflected in identifying the plants which can be used for the purpose of biomonitoring air pollution in the vicinity of plants for pyrometallurgical copper production. This approach is justified, given that the concentration of metals and metalloids in the above-ground parts of plants indicate high concentrations of these elements in the surrounding air. Another aspect to be

considered is examining the accumulation and translocation of phytotoxic elements in plants. Also, the content of heavy metals in medicinal plants is shown, in fruits and vegetables sampled in the area of air pollution. The results confirm the ability of pollutants to enter the food chain through plants that people use everyday.
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