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BOOK REVIEW

BEGU Adam: ***Bioindication: Premises and Application,*** Editura NooSfera, Chişinău, 2011, 165 pp.

Adam Begu is author of over 150 scientific papers and six university textbooks, and a principal collaborator of the National Report on the environment in the Republic of Moldova.

His recently published book, *Bioindication: Premises and Application*, contains four main chapters: 1. Ecological Bioindication – A Field of Ecology, 2. The Premises of Applying Ecological Bioindication in the Assessment of Environmental Quality in the Republic of Moldova, 3. Passive Biological Monitoring of Environmental Quality in Forest and Urban Ecosystems, 4. Active Biologic Monitoring of Air Quality in Urban Ecosystems.

The book ends with the tables contained in the Appendices (The Lichen Flora of the Republic of Moldova, Lichens' Degree of Tolerance to Atmospheric Pollution, The General Survey of Bioindicator Lichen Flora in the Republic of Moldova, The General Survey of Bioindicator Bryoflora in the Republic of Moldova), as well as photographs of the lichen species used in monitoring air quality.

This monograph is based partly on the results of scientific investigations carried out by the author in 1991–2001 and 2002–2008, partly on an extensive bibliography consisting of 362 titles. The author has successfully synthesized data from the literature, also explaining the basic notions used in bioindication, in ecological monitoring; he enumerates and characterizes the atmospheric air pollutants, and, last but not least, presents the groups of organisms used in ecological bioindication.

Although he has used bryophytes, fungi and molluscs, Begu concludes that lichens are the bioindicators that react in the most eloquent manner to the environmental changes triggered by pollution; therefore they are the most appropriate for monitoring environmental quality.

Considering that the lichen flora of the Republic of Moldova is represented by only *c.* 200 lichen species and, at the same time, the main sources of intense pollution are not present in the country, the author uses a toxi-tolerance scale of lichens with only seven levels. Later he elaborated the Air Quality Assessment Levels in forest and urban ecosystems, which is based on the frequency/real cover of the indicator, on their degree of toxi-tolerance, as well as on the relationship between the different ecological bioindicator species.

High levels of heavy metal pollution have been demonstrated in the forest ecosystems of Central and Southern Moldova, the most noxious metals being mercury, cromium and lead, which exceed the legally accepted level in the Republic of Moldova.

In the urban centre Chişinău, active biological monitoring was used to quantify the pollution, four lichen species having been transplanted to 15 sampling sites in the city. From among the four lichen species used for monitoring, *Parmelia sulcata* has proved the most receptive to the chemical pollutants of the atmosphere, and thus it is proposed as a reference point in monitoring air quality at both national and international level.

This monograph has a concise style and well-balanced chapters. It is aimed at specialists working in the fields of environmental protection, ecology, botany, forestry, and also at undergraduate, MA and PhD students interested in researching the state of the environment, with regard to the fact that atmospheric pollution has a direct impact on the quality of human life.

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