

Taxonomic, phylogenetic and functional diversity of leeches (Hirudinea) and their suitability in biological assessment of environmental quality



Different components of biological diversity of leeches (Hirudinea), sampled in lowland watercourses in Poland were compared between sites differed in terms of environmental quality, measured by officially approved procedures. Indices based on taxonomic diversity, rarefied species richness, taxonomic distinctness, phylogenetic diversity and functional diversity were considered in the analysis, for sites belonging to three biocenotic types of watercourses. In most cases values of all indices except Pielou's evenness show unimodal relationships with environmental quality and in any case monotonic increase in diversity was not shown. Median values of diversity were significantly higher and its highest values were significantly more frequent at sites with moderate than with low or high environmental quality. This pattern of relationships was observed both for indices based on presence/absence data and those based on relative abundance of species. The significance of this mode of relationships differed between biocenotic types and between procedures using to measure environmental quality. The results obtained show low and doubtful usefulness of each

component of leech diversity as an element of biological assessment in lowland watercourses.

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