Eugenija Kupcinskiene Habil Habil, J Plant Biochem Physiol 2018, Volume 6
DOI: 10.4172/2329-9029-C1-001

6th Global Summit on Plant Science

October 29-30, 2018 | Valencia, Spain

Eugenija Kupcinskiene Habil Habil

Vytauto Didžiojo universitetas, Lithuania

Do riparian species like nitrogen?

Statement of the problem: Nitrogen deposition data together with inland water parameters provide message that nitrogen load might affect riparian vegetation of Baltic States. There is much concern about eutrophication of the rivers due to various anthropogenic activities. Depending on species, reaction of plants might encompass a number of different strategies. Plant productivity firstly depends on processes ongoing in the leaves. Studies of riparian plant species usually refer on Ellenberg indicatory values or the other indirect external parameters. Till now data about plant leaf saturation with nitrogen remains poor. Present study is aimed at evaluation of nitrogen concentration among populations of riparian plant species of Lithuania.

Methodology and Theoretical orientation: Both, widely spread native and invasive species were selected (Figure). Depending on frequency of species occurrence, populations were sampled along main river basins in Lithuania: Nemunas, Venta, Lielupe, Baltic Seafront. Material was collected in 230 sites. Only leaf blades were used for analyses. Nitrogen concentration was determined by Kjeldahl method (project sponsored by Lithuania Research Council; SIT-02/2015). Nitrogen concentration data were related to the land use type (employing CORINE classification system), river size, intensity of agriculture, fragments of the rivers differing in their nature (natural or regulated).

Findings: Differencies in leaf nitrogen concentrations between populations were the smallest for Stuckenia pectinata and the largest for *Lythrum salicaria*. Leaf nitrogen concentration of selected species was not influenced by regulations in some rivers also did not depend on river size.

Conclusion and Significance: Among the tested plants the highest concentration was detected for invasive in Lithuania species Echinocystis lobata. It could be concluded that present level of nitrogen amounts, entering riparian ecosystems is big enough to cause spread of nitrophilous species.

Figure 1: Top (left-right): *Phalaris arundinacea*, Phragmites australis, *Lythrum salicaria*, Bidens frondosa; bottom (left-right): Echinocystis lobata, Nuphar lutea, Stuckenia pectinata

Recent Publications

1. Anderson N O, Jocienė L, Krokaitė E, Rekašius T, Paulauskas A and Kupčinskienė (2018) Genetic diversity of *Phalaris arundinacea* populations in relation to river regulation in the Merkys basin, Lithuania. River Research and Applications 34(4):300-309.
2. Vysniauskiene R, Ranceliene V, Naugzemys D, Patamsyte J, Sinkeviciene Z, Butkuviene J and Zvingila D (2018) Genetic diversity of populations of Bidens genera invasive and native species in Lithuania. Zemdirbyste-Agriculture 105(2):183–190.
3. Bernez I, Daniel H, Haury J and Ferreira M T (2004) Combined effects of environmental factors and regulation on macrophyte vegetation along three rivers in western France. River Research and Applications 20(1):43–59.
4. Zgola T (2014) The response of aquatic plants to catchment land use for different types of lowland rivers. Applied Ecology and Environmental Research 12(1):143–162.
5. Pinay G, Bernal S, Abbott B W, Lupon A, Marti E, Sabater F and Krause S (2018) Riparian Corridors: A new conceptual framework for assessing nitrogen buffering across biomes. Frontiers in Environmental Science 6:47.

Biography

Eugenija Kupcinskiene Habil Habil has been working at Lithuanian University of Agriculture. Currently, she is working in the Department of Biology at Vytautas Magnus University (Kaunas, Lithuania), delivering lectures in multiple courses. Her research experience is obtained by the training at East and West European universities. Research interests extend from ecosystems to Molecular biology, starting from enzymatic DNA methylation. Since 1976 she has been participating in the international scientific events. She is the Author of over two hundred publications. Her current research interests include Natural and Anthropogenic Stress, Oxidative Stress, Allelopathy, Climate Change, Heavy Metal Tolerance, Air Pollutants, Industrial Pollution, Bioindication, Plant Surfaces, Nutrition, Secondary Metabolites of Plants, Invasions, Populations, Plant Molecular Biology and Riparian vegetation.

e.kupcinskiene@gmail.com