(POPs) and inorganic pollutions, and they accumulate in the organism of soil, surface water, air, sea and in the bottom sediments of rivers. These pollutions are drifted everywhere with circulation and joined the food chain, and cause many disorders on endocrine system of alive organism.
In this study, temperature, pH, conductivity, dissolved oxygen, inorganic nutrients (NO_3-N, NO_2-N, NH_3-N, PO_4-P), COD analysis were performed in accord with EPA Methods in aqueous phase. Two parallel samples were analyzed. 6 sampling points were chosen accordance with recommendation of Yalova Water and Sewage Works, and sampling was repeated for 12 months. The results are given below as minimum and maximum values of obtained data for each station per month beyond 12 months;
pHs of samples are varied between pH 7.61 and 9.28, conductivity varies from 3.1 to 2751.5 µS/cm, dissolve oxygene is from 14.20 to 98.95%, alkalinity 41.0-291.4 mg/L $CaCO_3$, COD 5-500 ppm, NO_3-N 0.49-16.80 ppm, NO_2-N 4.16-45.69 ppm, NH_3-N 0.4-10.0 ppm and PO_4-P is nearly 1.54 ppm. Just for one station's PO_4-P data are under the LOD values beyond whole study. The values for same quality parameters (i.e. COD) significantly changed depending on collection points of samples.

Keywords: water quality, conductivity, COD, nitrite, nitrate, phosphate.
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The Role of Plants in Supporting The Level of Nitrogen in Freshwater Ecosystems

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ABSTRACT

Toxic levels of nitrogen compounds in hydroecosystems are formed under the influence of hydrochemical factors and due to enzymatic conversion of aquatic plants in glutamate dehydrogenase (GDH, EC 1.4.1.2), 2-oxoglutarate dehydrogenase (α-oxo-GDH, EC 1.2.4.2), glutamine synthetase (GS , EC 6.3.1.2) reactions. The enzyme activity was determined during May-September in bryophytes *(Brachythecium mildeanum)* from wells and higher aquatic plants *(Elodea canadensis Mich., Tupha angustifolia L., Sagittaria saggitifolia L.)* of small rivers on anthropogenically loaded areas in Carpathians and Polessye (Ukraine).
In *Brachythecium mildeanum* in summer NADH-GDH-activity was $(0.05\pm0.003)\cdot10^{-3}$, NADPH-GDH-activity – $(0.17\pm0.02)\cdot10^{-3}$, α-oxo-GDH-activity – 4.393±0.124, GS-activity – 1.516±0.010 $\mu mol\cdot min^{-1}\cdot mg^{-1}$. Autumn showed increased activity: NADH-GDH – 11.6 fold, NADPH-GDH – 2.3 fold, α-oxo-GDH – 1.36 fold, GS – 2.0 fold.

In river plants in June NADH-GDH-activity - (0.60±0.061)·10^{-3} *(Sagittaria),* (4.30±0.028)·10^{-3} *(Elodea),* (0.95±0.056)·10^{-3} μmol·min^{-1}·mg^{-1} *(Tupha);* in autumn – increased 8.5 fold *(Sagittaria),* 1.2 fold *(Tupha),* decreased 1.21 fold in *Elodea*; in June NADRH-GDH-activity for *Sagittaria*, *Elodea, Tupha* was, respectively, (3.55±0.33)·10^{-3}, (0.30±0.02)·10^{-3}, (1.87±0.13)·10^{-3} μmol·min^{-1}·mg^{-1}, in September – slightly decreased for *Sagittaria* and *Elodea*, but increased 1.57 fold for *Tupha,* in June α-oxo-GDH-activity for *Sagittaria, Elodea, Tupha* amounted 1.795±0.078, 1.340±0.026, 3.336±0,099 μmol·min^{-1}·mg^{-1}, in autumn - increased 14.7, 20.0 and 3.0 fold, in June the GS-activity – 0.567±0.024 *(Sagittaria),* 0.334±0.023 *(Elodea),* 0.786±0.034 *(Tupha),* in autumn – increased 8.3, 3.7, 4.5 fold, respectively.
Vegetation plants in hydroecosystems helps to maintain homeostasis due to activation of linking of nitrogen compounds by enzyme systems.

Keywords: freshwater ecosystem, glutamate dehydrogenase, glutamine synthetase, nitrogen, 2-oxoglutarate dehydrogenase, water plants.

Hexabromocyclododecane (HBCDD) - A Brominated Flame Retardant Now Regulated in The Stockholm Convention

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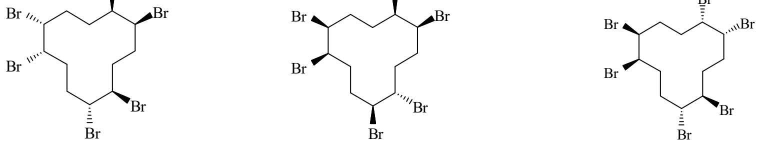
ABSTRACT

Hexabromocyclododecane (HBCDD or HBCD) is an emerging chemical with POP-properties used in large quantities as a flame retardant in polystyrene-based building materials made of expanded- and extruded polystyrene (EPS/XPS), especially in insulation materials. In addition, HBCDD is increasingly used as a flame retardant in electronics as a substitute for the banned flame retardants: Polybrominated diphenyl ethers (PBDEs).
The chemical structure of HBCDD is a 12-carbon ring, and there are theoretical 64 possible isomers, of which only 16 exist and 3 (α, β, γ) dominate in commercial products (see Figure 1):



α-HBCDD 10-13% β-HBCDD 1-12 % γ-HBCDD 75-89 %

Figure 1. Structures of the 3 most abundant HBCDD isomers and their typical range of % content in commercial products.