MONITORING OF THE ATMOSPHERE CONDITION BY USING SNOW AS AN ACCUMULATOR OF POLLUTANTS

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Topicality. Prevention of diseases is a key direction in modern medicine. Undoubtedly, it is easier to prevent an illness than to cure it. Human organism is dependent on many things: genetics, nutrition, stresses, environment etc. As we can control the environmental condition, we must do our best to create the most comfortable habitat for ourselves. Impurities from industry destroy not only nature, but our body as well. Heavy metals can cause problems with respiratory system, irritating the mucous membrane. Nonmetal anions, transformed into acids can change the ph and disturb the metabolism. Chemical factories, power stations and high traffic roads located in Kalush region, so the air may be polluted. The problem needs the solution.

Aim: Monitoring of atmosphere conditions in Kalush (Ivano-Frankivsk region, Ukraine) using snow; looking for the most appropriate ways of its improvement.

Objective:

1. Choose the methods of investigations.
2. Took the samples. (List 1)
3. Explore the content of Pb^{4+}, Fe^{3+}, SO_3^{2-}, NO_3^-, CO_3^{2-}, HCOH in samples pH and mechanical contamination.
4. Carry out the bioindication using garden cress.
5. Compare the data with threshold limit value and conclude about atmosphere contamination in the experimental area.
6. Look for methods of snow utilization.

Materials and methods: The snow is a material for researches, we used theoretical (literature analysis), experimental and empirical (results analysis) methods. We used redox

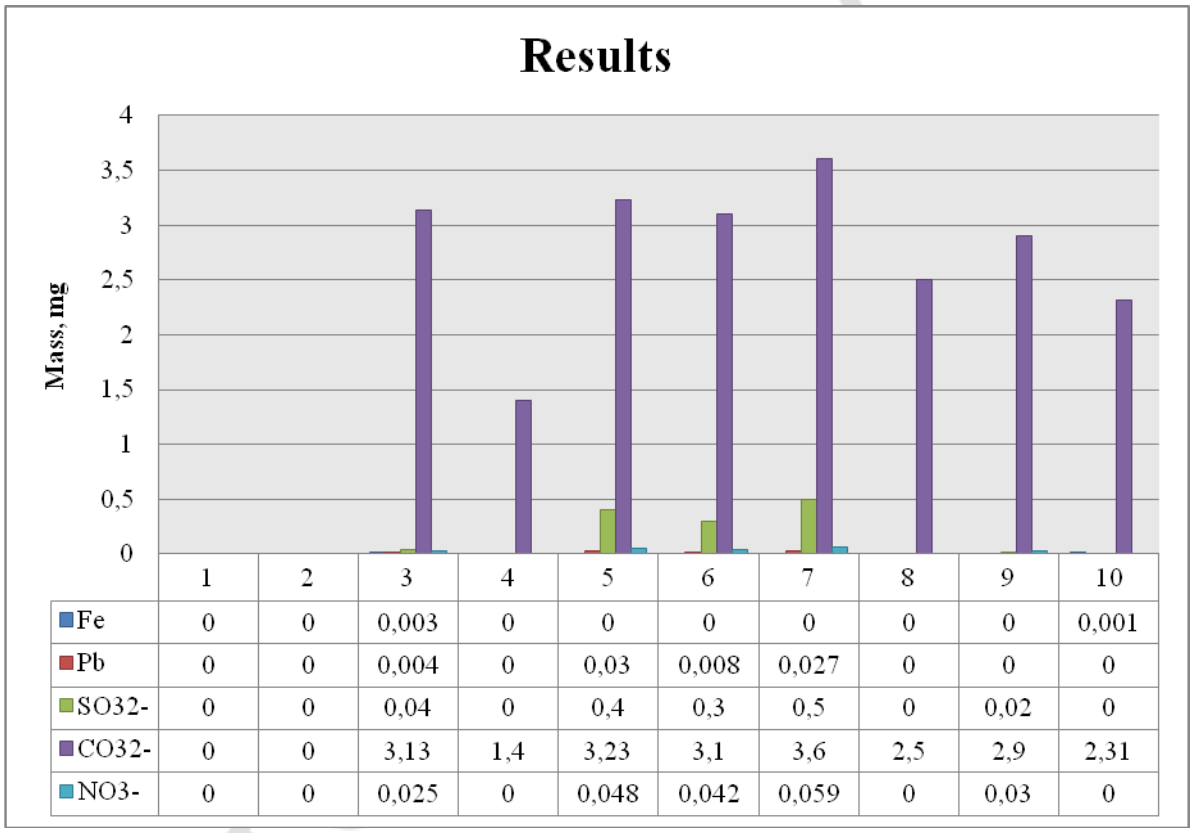
titration to investigate the content of ions in samples, universal indicators to define the pH rate and filtration to investigate the mechanical contamination. Bioindication was carried out by examination how melt water influences on germination of seeds.

Results and discussion: We designate that snow can collect the impurities from atmosphere. The indexes were out of norm in samples taken near factories, power stations and high traffic roads (chart 1). The polluted water is dangerous for living systems, because it slows down the germination of garden cress. The best solution of the problem is an eradication of its source, but we cannot completely forbid the factories to use some kinds of fuel or compel drivers and gas stations to exploit the other type of petrol. There is the way to solve this problem, we consider being appropriate. It is introduction of the snowmelters, which clean the snow before taking it out. Also we think it is pertinently to modernize them by using carbon filters, which purify the snow from Pb. (pic.1)

Conclusion: The idea will give scientists the modern way to monitor conditions of atmosphere, which is easy to perform and doesn't need extra outlays. It also may be introduced into school program in chemistry or biology lessons. Using the above recommendations we can improve the environment, we are living in. The nature is our home, so we must not only save it but also improve it.

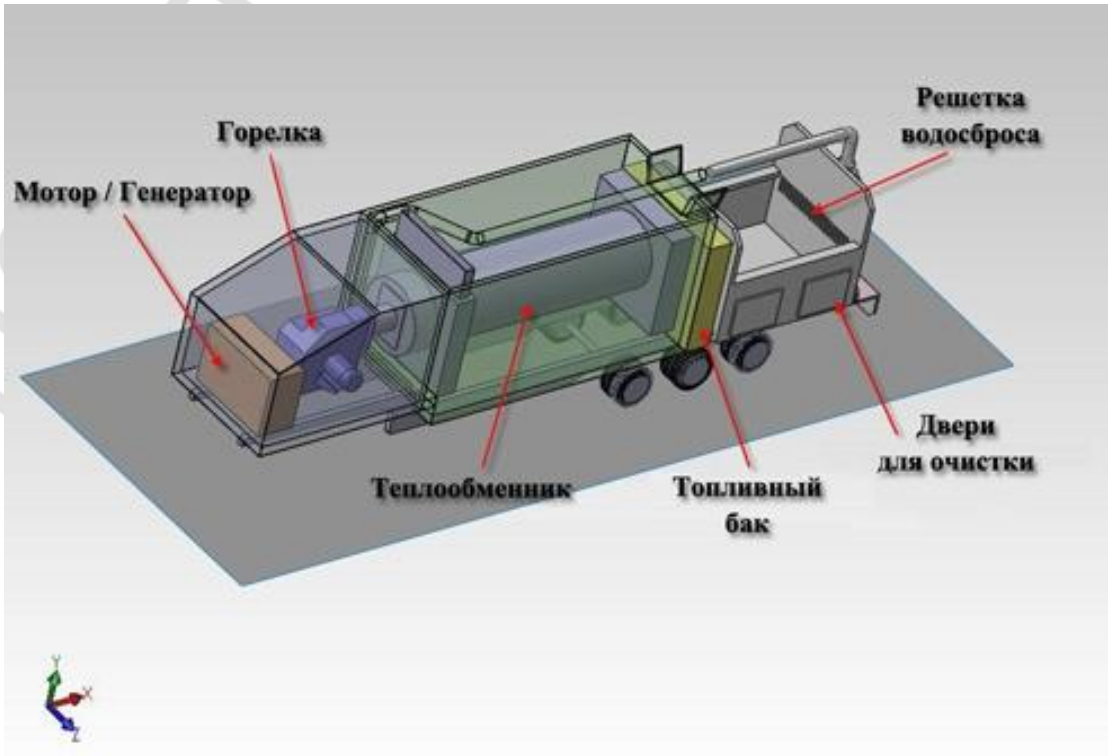
Table 1.

№ model	**Coordinates**
1	Kalush Grammar school territory
2	Forest near Vistova village (control)
3	Power station territory
4	Area near railway
5	Automobile road, Lesia Ukrainka str.
6	Automobile road, Eushana str.
7	Automobile road, Bandery str
8	"Karpatnaftokhim" Ltd. teritory
9	"Krono-Ukraine" Ltd. teritory
10	Parkova str



	1	2	3	4	5	6	7	8	9	10
Fe	0	0	0,003	0	0	0	0	0	0	0,001
Pb	0	0	0,004	0	0,03	0,008	0,027	0	0	0
SO32-	0	0	0,04	0	0,4	0,3	0,5	0	0,02	0
CO32-	0	0	3,13	1,4	3,23	3,1	3,6	2,5	2,9	2,31
NO3-	0	0	0,025	0	0,048	0,042	0,059	0	0,03	0

Chart 1



Pic. 1

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