THE ESTIMATION OF THE ECOLOGICAL CONDITION
OF DRUZHBY NARODOV PARK

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The paper estimates the ecological condition of Druzhby Narodov Park in Minsk.

Keywords: city park, bioindication, assessment, ecological status.

Green plantations are an integral part of urban area. They fulfill very important functions. Green plantations are the main means of city air renewal. They also have recreactional functions. The main issue is the connection between Minsk parks and air pollution. As it's commonly known, green plantations clean the air from harmful emmisions, gases and aerosols and make the technological method of air protection more efficient.

Druzhby Narodov Park has attracted our attention as it is located near our school.

The relevance of our research is in the estimation of the ecological condition of this recreational area.

As it was mentioned before the aim of our research is our personal estimation of the greenery and trees based on publick ecological monitoring of environmental condition in Minsk Druzhby Narodov Park.

For accomplishment of our aim we have set the following tasks:

• To estimate the ecological condition of green plantations in Druzhby Narodov Park using botanical methods.

• To study the species of green plantations in Druzhby Narodov Park and to make the lists of general and most frequent species.

• To identify the index of anthropogenic load.

• To identify the level of air pollution in Minsk Druzhby Narodov Park using bioindicational method.

For solving these problems we have used the methodologies and tasks from the self-guided practicum for first year students of the faculty of ecological medicine of Minsk State ecological university by E.U.Zhuk, O.V.Kolesnikova, A.V. Kamornikova.

Used methods:

• Routing method of research.

• the medthod of green plantation estimation.

Routing method of research was used for revealing the presence of life forms of organisms, ecological groups, phytocenosis, their diversity and occurrence on the researched territory. The main techniques were: direct observation, estimation of condition, description, mapping.

As the result of our research we have identified that Druzhby Narodov Park in its condition has 2 out of 3 possible points. We also have estimated the ecological condition of the park, and have given the ecological assessment of the park as a recreational area. It's nesessary to improve the infrastructure of the park as a recreational area, that will protect trees plantations and reduce the level of anthropolgenic load on the park biotypes.

THE MEASUREMENT SYSTEM OF NUTRIENTS IN THE SYSTEM FOR MONITORING
AND CONTROL OF THE CLOSED WATER ENVIRONMENT

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Aquarium fish are extremely sensitive to the change in the composition of mineral substances in the water, and therefore it should be carefully observed, otherwise it can lead to deterioration of their health or even death. The nutrient measurement system in the closed water environment monitoring and control system will allow the measurement of the amount of nutrients and, if necessary, adding them.

Keywords: test strip, computer vision, single-board computer, nutrients.

After analyzing some of the methods, namely: test strips, drip method, special instruments, it was decided to use the test strip method as the most effective and affordable way of measuring nutrients in a closed water environment.

Using the library of computer vision algorithms, image processing and numerical algorithms of OpenCV implemented in Python, the test strip will be taken before immersion, after immersion, and directly comparing the results. OpenCV 3.0 with Python 3 support was chosen for this project. in this version of the library was added a huge number of new features, improving performance and stability in comparison with previous versions.

The camera installed under the aquarium lid will shoot the test strip before dipping into the water. The test strip will be secured using a holding mechanism driven by a stepping motor. At the end of sixty minutes, the camera will re-shoot and send data to the computer, where the results will be compared, the difference in the colors of the test strip before diving and after, and the calculation of the required amount of nutrients.

The system is based on Raspberry Pi 3B +. Raspberry Pi is a single-board computer on the architecture of a 64-bit ARM processor. The microcomputer is part of the managed system. The managed system, being a part of the remote control and access system, provides a higher speed of data acquisition and reaction to changes. A plus is the local configuration of both systems at once.

Advantages such as compactness, stability, a large number of documentation and compatible components, price and cross-platform make Raspberry Pi an ideal candidate for the platform of the management system.

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STUDYING THE INFLUENCE OF FOOD FRAGRANCES ON CELL CULTURE NEK 2937

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The topic of food additives is very relevant in our time. Today, almost no food, no matter where food additives are used. They surround us in everyday life, we consume foods, but do not know what impact they can have on the body. In my term paper, experimentally, I wanted to show the effect of flavoring on the cells.

Keywords: food additives, food safety, flavors, dyes, cell cultures, culture media.

The topic of food additives is very relevant in our time. Today, almost no food, no matter where food additives are used. They surround us in everyday life, we consume foods, but do not know what impact they can have on the body.

Tasks to be solved:
– choose the method of staining the cell culture after removing the experience;
– determine the viability during cultivation;
– determine the mitosis-inducing ability of food flavoring.

Materials and methods

The study material was food flavoring (AROMA: PINEAPPLE 31524A). To study the action of food flavoring used cell culture HEK 2937.

As a result of the studies, an appropriate protocol of experiments was selected, including reseeding, cultivation, staining and fixing the cells and establishing cell viability when cultured on a nutrient medium with the addition of flavoring (AROMA: PINEAPPLE 31524A) in concentrations of 0.5 μl, 1 μl, 1, 5 μl. Cell counting at the stage of mitosis was performed using a Nikon 50-i fluorescence microscope.

Results

The first stage of our work was the establishment of cell viability, when cultivated on a nutrient medium with three concentrations of flavors 0.5 μl, 1 μl and 1.5 μl of flavoring. The results obtained after counting in the