

was increased by 1.2, 1.5 and 1.4 times in the Dubrovensky district, and 1.3, 1.3 and 1.2 times in the Ushachsky district, respectively. At *Planorbarius corneus*, there were other patterns of changes in the indicators, as in the Dubrovensky district, the content of total cholesterol decreased by 1.2 times, HDL cholesterol levels by 2.1 times, and the TG increased by 1.7 times, and in Ushachi district, the content of total cholesterol was 1.2 times, TG 1.2 times, HDL cholesterol decreases by 1.7 times compared with the Vitebsk region.

In *Lymnaea stagnalis*, the content of cholesterol, HDL cholesterol and TG is the lowest in the Gomel region (table 2). Compared with individuals collected in Lake Lubenskoye, the content of total cholesterol and thyroid is increased by 1.2 times in the Mozyr district, and by 1.3 and 1.2 times in the Rogachev district, respectively. At *Planorbarius corneus*, the changes in the indicators had other patterns, as in the Rogachev district the content of total cholesterol increased by 1.2 times, TG by 1.3 times, and HDL cholesterol decreased by 1.3 times, and in the Mozyr district, the content of TG increased by 1.3 times, HDL cholesterol decreases by 1.4 times compared with the Gomel region.

Conclusion. Differences in total cholesterol, high-density lipoprotein cholesterol and triglycerides were found in *Lymnaea stagnalis* and *Planorbarius corneus*, depending on the habitat and type of oxygen transport.

Thus, anthropogenic changes in the indices of carbohydrate and lipid exchanges can serve as monitoring parameters for the ecological well-being of aquatic habitats of pulmonary freshwater mollusks.

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JUNIPERUS STROBILES SEASONAL CHANGES

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In our days representatives of the *Cupressaceae* Bartl family especially the *Juniperus* genus *Sabina* subgenus are widely used in the green buildings. The biology of these introduced subgenus has not been studied yet. It is known that the strobiles laid in the year preceding the pollination. Usually the strobiles' laying phenological phase is visualized with difficulty. That is why the study of the strobiles initial stages' ontogeny is interesting and important.

Purpose: to study color and size peculiarities of *Cupressaceae* plants generative organs.

Material and methods: theoretical analysis, comparative and description methods, study and generalization of data. From 27.12.2017 to 20.04.2018 male and female specimens of *Juniperus* were studied on freshly collected, living, unpainted material using a binocular microscope MBS – 10 with a micrometer scale (8x2 magnification). Samples were taken every ten days, from the 2nd and the 3rd orders shoots, triple repeating. The strobiles color was determined by A. Bondarcev color scale [1]: A7 – *Palido-callainus*, Б3 – *Flavo-virens*, Б4 – *Fuscatus*, Б5 – *Flavo-fuscus*, Б7 – *Olivaceo-flavus* , Д2 – *Flavo-aurantiacus*, Д4 – *Flavido-buscatus*, Е7 – *Pomaceus*, Ж2 – *Rufuscens*, Ж4 – *Pallido-tesaceus*, З3 – *Canescens*, И1 – *Sulphureus*, И2 – *Flavido-viridis*, К6 – *Mellinus*, К7 – *Bistraceus*, М6 – *Rubro-argillaceus*, О2 – *Testaceus*, О3 – *Aurantiacus*.

Findings and their discussion. At the end of December 2017 the 3rd decade it was windy, -2 °C. 3 generative buds were found out among 10 male plant prepared buds. The strobiles color was: the 1st: the top – Б7, the base – И2; the 2nd: И2; the 3rd : the top - И2, the base - Б5. The predominant color is И2. The strobiles sizes are variated from 1-1.5 mm in length and 1-1.5 mm in wide.

At the beginning of January 2018 the 1st decade the temperature was +2 °C, thaw, snow melted. 8 buds were prepared from male plant. 4 strobiles were founded. The strobiles color was: the 1st: the top - А7, the base - И2; the 2nd: the top - Б7, the base-Б7 and М6; the 3rd: the top - Б7, the base - Е7; the 4th: И1 and Б7. The predominant color is Б7.

At the end of January 2018 the 3rd decade was thaw, +1 °C, on the eve of the study it was frosty and windy. The strobiles color was: the 1st: the top - Б3, the base - Б7; the 2nd: З3 and Е7 (figure).



Figure. Male (1) and female (2) strobiles Strobiles size: lengt - 1.3 mm and wide - 1 mm. It was frost, -9 °C in the middle of March 2018 the 2nd decade. It was thaw during the day before. It was 1 generative bud among 5 had been prepared. Elite color of it was Б4, at the base – Е7; length – 1.5 mm, wide - 1 mm. In the middle of April 2018 the 3rd decade temperature was + 10 °C. It was cloudy. Only 1 bud was generative among 15. Microsporophylls weren't

situated tightly, pollen was absent. Pollination was probably a week before because of favorable conditions and warmth. 2 neighbouring buds were prepared. The first top had pointed form with needles primordiums. The second rounded bud contained primordial strobile.

At the beginning of April 2018 the 1st decade was rain +13 °C 12 buds from the female plant were prepared. Only 4 buds were generative. The strobiles color was: the 1st: the top – Б7, the base – О3; the 2nd: the top – 33, the base: Ж2 and А2; the 3rd: the top – И1, the base – Ж2; the 4th: the top – И1, the base – Д2. Strobiles dimensions were: 1 mm in length and 0.7-0.8 mm in width. Female strobiles were smaller in width than male ones.

At the beginning of April 2018 the 3rd decade the temperature was +17 °C, gradual increase of temperature. 4 generative buds were founded among 10 buds. The strobiles color was: the 1st: the top – И1, the base – К6; the 2nd: the top – Е7, the base – В7; the 3rd bud had an interesting combination from two colors: Ж4 and Д2; the 4th: strobile (figure) also had a mixed coloration: В7 and 33. The size of the strobiles were ranged from 1.2 – 1.3 mm long and 0.7 - 0.8 mm wide.

At the end of April 2018 the 3rd decade the temperature was +13 °C, warm after cold weather. There were 3 generative buds. The strobiles color was: the 1st: the top – К7, the base – 33; the 2nd: the strobile had a very beautiful and unusual mixed color: В7 and Д4. The 3rd strobile had even more beautiful and fascinating color combination from 3 colors: 33, Ж4 and Д4.

Thus more than 200 buds were prepared. Experimentally was proved that *Juniperus* was a dioecious plant. It was founded that the strobiles color was closed to light green in winter and had a yellow-orange color with temperature increasing. It might be the additional buds heating. It was established that female strobiles were slightly smaller in width than male.

Conclusion. Juniper is a dioecious plant. Female strobiles are smaller in width than male ones. Male strobiles have more diverse charged colors than female. At the top and the base of male buds olive-yellow color is prevail. Apple-green is marked in the 1st decade of January, at the end of the 3rd decade and in the middle of the 2nd decade of March. Olive-yellow and yellow-orange female strobiles color is fixed during the whole period of observation. Both plants' strobiles have olive-yellow, whitish-gray and sulfur-yellow colors. The green part of the spectrum optical range is dominated at the male strobiles base. Orange part of the spectrum belongs to female buds. The colors combination was founded for male strobiles in January, for female – during the whole period of observation. At the end of the 3rd decade of April 3 colors combination for female strobiles was marked. The strobiles color is connected with temperature environment.

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