

HEMATOLOGICAL PARAMETERS OF ONE YEAR OLD SEA TROUT (*SALMO TRUTTA*) IN SPRING

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INTRODUCTION: Sea trout are salmonid fish which are reared in Latvian hatcheries according to State fish restocking programme. Knowledge about hematology of salmonids can be used as biomarker for establishing a state of the environment, for determination of physiological state of fish and for diagnosis of a disease. The aim of the research was an analysis of one year old sea trout hematological parameters in spring.

MATERIAL AND METHODS: A blood sample was taken from 94 one year old sea trout. Fish were from different hatcheries and caught in river Salaca. A count of erythrocytes was determined by using a photoelectric colorimeter (FEC) MP-plus. For clarifying a blood hemoglobin concentration, cyanmethemoglobin method was used. An optical density was determined by using FEC, transformation solution was used as a benchmark. Hematocrit was determined by the microhematocrit method. To determine a leukocyte formula, blood smears were stained with JorVet stains DipQuick Stain Kit. Microscopic examination was carried out using light microscope Leica DME at magnification 400x and counting 100 leukocytes.

RESULTS: For sea trout smolts from natural watercourses RBC count was $1.22 \cdot 10^{12}/L$, hemoglobin 7.77 g/L, hematocrit 29.40 %; for one year old sea trout from ponds RBC count was $1.01 \cdot 10^{12}/L$, hemoglobin 10.13 g/L, hematocrit 39.75 %; for one year old sea trout reared in flow through system RBC count was $1.10 - 1.17 \cdot 10^{12}/L$, hemoglobin 8.97 – 10.32 g/L, hematocrit 29.21 – 36.94 %; for sea trout reared in recirculation system RBC count was $1.25 - 1.47 \cdot 10^{12}/L$, hemoglobin 8.13 – 8.41 g/L and hematocrit 33.00 – 37.58 %. In sea trout leukocyte formula neutrophils, eosinophils, lymphocytes and monocytes were differentiated.

CONCLUSIONS:

1. There are $1.01 - 1.47 \times 10^{12}/L$ erythrocytes, 7.77 – 10.32 g/dL hemoglobin level, hematocrit 29.21 – 39.75 % in one year old sea trout in spring.
2. Lymphocytes, neutrophils, eosinophils and monocytes can be differentiated in the leukocyte formula of sea trout.
3. When comparing the hematological parameters of one year old sea trout (March) and smolts (April) it can be seen that the RBC count and hemoglobin level doesn't differ significantly but smolts have lower hematocrit. In leukocyte formula of smolts, the proportion of lymphocytes rises but the amount of neutrophils and monocytes decreases.
4. Hematological parameters of sea trout reared in recirculation system are more stable and don't change significantly because rearing conditions in this system is more stable than in flow-through system.
5. Sea trout from natural watercourses have significantly lower hemoglobin level than sea trout reared in ponds.