MINERAL COMPOSITION OF THE TISSUES AND THE SKELETON OF TWO SPECIES OF FISH

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ABSTRACT

Each year the total fish consumption increases (FAO, 2003; European Comission, 2004). Also, the human awareness increases when it comes to the influence of the environment – the nutrition, pollution and interaction with other organisms – on the health and productivity of the fish. The studies of the fish nutrition started more than 70 years ago. Due to the specific – aquatic environment of life - to evaluate the digestion of the feeds in fish, the procedures appropriate for homeothermic animals: sheep, cattle, chicken – were used. Therefore, the evaluation of the proper digestion, metabolism, requirement of energy and growth was connected with a certain constant mistake. Now the procedures are perfected due to the years of the examinations and the clarity of the result was improved (Belal, E. H. I, 2005). The knowledge on the fish nutrition notably increased (Craig S., Helfrich L.A., 2002), and also the meaning of the individual minerals in various stages of life of fish has been analyzed (Rainuzzo et al. 1997; Rønnestad et al., 1999). Still, there is the need of precising and analyzing acquired information.

Key words: mineral composition, *Oncorhynchus mykiss*, *Barbus barbus*. feeding

AIM OF THE STUDY

The aim of the study is to measure the changes of the chemical composition of the tissues and the skeleton on different stages of fish life.

MATERIAL AND METHODS

Two representative species of fish were chosen for the investigations. One is rainbout trout - *Oncorhynchus mykiss*, representative for the familia *Salmonidae*, second – *barbel (Barbus barbus)*, a species of freshwater fish in the *Cyprinidae* family of minnows and carps. Fish were obtained from the breeding grounds where they were kept in pools with closed water flow and fed feed mixtures. Also total chemical composition, especially the mineral content of the feeds, was examined. The experiment is carried on the animals in successive stages of development.

First stage of the experiment was to obtain data about the natural mineral content of the fish depending on the age of the animals. So far two age groups of salmon were examined. First group consisted of 56 fish at the age of 6 months divided into 28 samples. Second group consisted of 28 fish at the age of 9 months. Also 28 individuals of barbel at the age of 18 months were examined. Two series of the feed examinations were carried.

RESULTS

The mean and standard deviation of the first group of examined fish are presented in Table 1.

Table 1. Average values of the examined parameters in the meat of salmon

	Concentration in salmon meat (g/kg)										
Weight	Dry matter	Protein	Ca	P	Na	K	Mg	Cu	Zn	Mn	Fe
85.71	24.45	17.85	0.698	2.355	0.579	3.444	2.6543	0.4221	0.153	0.042	0.3058

EXPECTED RESULTS

It is expected to verify if it is possible to influence the natural mineral composition of fish by feeding. The obtained data will allow to determine in what degree is mineral composition dependant on nutrition. The second stage of the experiment will consist of the same species of fish kept in the similar conditions. After finishing the first stage of the experiment, the modified composition of the feed will be determined and given to the fish of both species from early stage of life. The experimental groups will be examined at the same age as the control group.

LITERATURE

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