Chemical composition of the Rotifer (*Brachionus plicatilis*, Muller) fed on *Brachiomonas* sp. and *Eunotia* sp.

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As a live food, rotifer (Brachionus plicatilis Muller) is well-suited to the purpose of rearing the larvae of most marine fish, due to its appropriate size, rapid production rate and capability to be fed on a variety of live unicellular algae or baker's yeast. Nutritional quality of the rotifer is very important in the survival of fish larvae (Howell, 1977). This study aims at investigating the nutritional effects of phytoplankton monocultures Brachiomonas sp. and Eunotia sp., which were isolated in Biological Institute in Dubrovnik, on the chemical composition of the rotifer. The rotifer's samples were taken at exponential, stationary and death phases in order to determine water, ash, total lipids, proteins and carbohydrates contents.

Algae were cultured in the pasteurized natural sea-water enriched with nutrient and in their late exponential phase of growth, the rotifer was added. The rotifers were separated on 53 µm aperture naylon mesh. In the samples the moisture were determined by drying at 60° C and ash content by ashing at 800° C (Lovergrove,1966). Lipids were extracted with a chloroform-methanol mixture and estimated by the sulphophospho-vanillin method (Barnes and Blackstock,1973). To the lipid free pellets TCA was added. In supernatant total carbohydrates determinations were done using a phenol sulfuric acid method reported by Kochert (1978). In precipitate protein was assayed as described by Bradford (1976). Three experimental series were performed.

Table I shows the values of water, ash, lipids, carbohydrates and proteins content in rotifers fed on the green algae Brachiomonas sp. and the diatoms Eunotia sp. at exponential, stationary and death phases. In the both samples water content reached its lowest value at the stationary phase of growth. Ash levels were highest at the death phase, probably due to a decline in organic matter. Its highest value was found in Eunotia sp.-fed rotifer and probably was consistent with siliceous nature of cell walls of diatoms. Lipids and carbohydrates were observed to decline from the exponential to the death phases. Protein levels increased at the stationary phase and reached the highest value in Eunotia sp.-fed rotifers. At the last growth phase a marked and fast decline in lipids, carbohydrates and proteins was observed along with an increase in ash and water contents. The above results indicate that the rotifer should be maintained at the late exponential phase when it was observed to be most suitable to the feeding purposes.

In our further research rotifers at the late exponential phase of growth fed on Brachiomonas sp. and Eunotia sp. should be used as a diet for fish larvae. The chemical composition and the survival rate of fish larvae would be observed.

TABLE I: Moisture (%wet weight), ash, lipid, carbohydrat, protein (%dry weight). Growthcycle: I-exponential, II-stationary and III-death phases. Means at the same phase of growth followed by different superscripts are significantly different (P<0,05, Student's t-test) Inoculum on Day 0 contained 89,7% moisture, 6,9% ash, 12,4% lipid, 2,1% carbohydrat and 38,4% protein.

		ROTIFERS FED ON				
	PHASES OF GROWTH	BRACHIOMONAS sp.	EUNOTIA sp.	BRACHIOMONAS sp.	EUNOTIA sp.	PHASES OF GROWTH
LIPID	I	13,9^{a}	14,5^{a}	87,5^{a}	89,7^{a}	I
	II	11,5^{a}	13,3^{a}	86,9^{a}	88,3^{a}	II MOISTURE
	III	10,3^{a}	12,2^{a}	90,0^{a}	91,7^{a}	III
CARBO-HYDRAT	I	3,5^{a}	4,1^{a}	6,1^{a}	10,2^{b}	I
	II	2,9^{a}	3,8^{a}	7,9^{a}	12,7^{b}	II ASH
	III	2,2^{a}	2,8^{a}	13,2^{a}	17,0^{b}	III
PROTEIN	I	28,7^{a}	42,3^{b}			
	II	45,1^{a}	54,6^{b}			
	III	34,2^{a}	38,5^{b}			

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