Effect of food conditions on ingestion rate and digestion time in lobate ctenophore *Mnemiopsis leidyi*. G. A. Finenko, Z. A. Romanova, G. I. Abolmasova, B. E. Anninsky, E. S. Gubareva, L. Bat, A. Kideys. Effect of food conditions (food concentration, volume of the experimental bottles) on ingestion and clearance rates as well as digestion time has been studied in lobate ctenophore *Mnemiopsis leidyi*, the invader to the Black Sea. It was shown that the relationship between ingestion rate (I, ind ind^{-1}) and food concentration (C, ind l^{-1}) was I =0.374 C + 1.731 with high value of the coefficient of determination 0.869. Clearance rate was constant throughout the wide range of food concentrations and was 0.294 ± 0.076 l g^{-1} wet weight h^{-1} in 20 - 30 mm *Mnemiopsis*. In ctenophores with length of 40 - 50 mm it was half as that – 0.129±0.038 l g^{-1} wet weight h^{-1}. There is effect of ctenophore weight (W,g) on clearance rate value (F, l g^{-1} h^{-1}) that is described as F= 1.163 W $^{-0.829}$ in *Mnemiopsis* weight range from 5 to 15 g. Average digestion time at 26^0 C was 0.86 ± 0.32 in 20 - 30mm ctenophores and 1.29 ± 0.38 hours in 40 – 50 mm animals.

Key words: ctenophore, *Mnemiopsis leidyi*, ingestion rate, clearance rate, digestion time

ЗАМЕТКА

Chemical contamination inhibits the process of water filtration by *Mytilus galloprovincialis* [Хімічне забруднення пригнічує процес фільтрування води *Mytilus galloprovincialis*. Химическое загрязнение ингибирует процесс фильтрации воды *Mytilus galloprovincialis*]. Oil hydrocarbons produce a number of effects on marine organisms, including the marine bivalves *Mytilus galloprovincialis* (e.g., Mironov, 1985; 1988). Filtering rates of M. galloprovincialis were studied (e.g., Shulman, Finenko, 1990). This is important as filter-feeders contribute to the repair of water quality (e.g., Ostroumov, 2002). We studied the effects of petroleum hydrocarbons on water filtration by *M. galloprovincialis*. In a typical experiment, the mussels *M. galloprovincialis* (average wet weight with shells 6.1 g) were incubated in seawater with the addition of the oil suspension so that the final concentration of the oil was 8 microliters per 1 l of seawater. In the process of water filtration, the suspended matter was removed from the water. The process was monitored using measurements of the optical density of the water with seston. A pronounced inhibition of the filtration rate was found that led to an increase in the optical density of the water with seston in the beaker with oil as compared to that in the control beaker with bivalves without oil. As a result of the inhibition, the optical density (550 nm) of the seawater with seston in the beaker with oil was 157.1 – 977.8 % of that in the control. The incubation time was 10 – 140 min, temperature 26.4° C. Some degree of inhibition of the filtration rate was also found in a series of similar experiments where the concentration of the oil suspension was 2 – 4 microliters per 1 l of the seawater. The data received are in accord with previous data obtained by the author, who had studied effects of other contaminants - e.g., surfactants and detergents – in the same experimental system (Ostroumov, 2002). The data contributes to better understanding of the interaction between pollutants and the ecologically important functioning of the filter feeders. The author thanks Prof. G. E. Shulman, G. A. Finenko, Z. A. Romanova A. A. Soldatov and other colleagues at the Institute of Biology of southern Seas NASU for help. McArthur Foundation and Open Society Foundation for support of the first stage of this work. **S. A. Ostroumov** (Moscow State University, Moscow, Russia)