

Mikhaevitch T.V. Vegetative reproduction of the bryozoans *Plumatella fungosa* in the field and laboratory conditions. The 8 th Colloquium on Fossil and Recent Bryozoans, Tallinn, 1990, pp.60-63.

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As known, the bryozoans of the continental reservoirs reproduces sexually and asexually. As a result of sexual reproduction, the larva is formed, which, after attachment to the substrate gives rise the colony. The growth of the colonies occurs through the external budding, which Dogel (1975) and other authors have been referred like not finished the asexual reproduction. L.A.Viskova (1987) suggests that the increase of the number of individuals in a colony can not be called the reproduction and should be seen as a type of growth by budding. We are also holding the point of view of Viskova. Asexual reproduction in the continental bryozoans exists in the form of internal budding, as a result of this the statoblasts are formed, homologs of hibernacula of some marine bryozoans and gemmula of sponges. The asexual reproduction of the bryozoans through the formation of the statoblasts we called the vegetative reproduction. *P.fungosa* forms two types of statoblasts: less numerous s sedentary sessoblasts, the functional role of which is the formation of the new colonies on the site of the old mother colony (the strategy of conservatism, Raddum, 1981) and the 2nd type - a significant number of floating flotoblasts that after the disintegration of the colonies are distributed in the water and air and provide a wide dispersal of the species (a strategy of expansion).

Our studies have been conducted in the warm channel of the cooling reservoir of the Bereza Power Station, Belarus, where bryozoans has a long vegetative cycle from March to December. In early March, pontoons and iron cages for fish begin be covered with colonies of bryozoans. Different duration of diapauses of the statoblasts guarantees the germination during the long time (the strategy of economization). The biomass of the bryozoans flotoblasts in the population of the bryozoa in the warm channel is significantly reduced in the spring and summer season. These seasons are the period of somatic growth of the bryozoans population, despite the fact that during this period the temperature in the channel is highest (30-36°C), which has depressing effect on the growth of the bryozoans. In the autumn the temperature in the channel is reduced to the optimum for growth and for some time is observed the "prosperity" of the colonies. At the same time, in the autumn the population of bryozoans changes life strategy and directs it to the vegetative reproduction. The most production of the statoblasts have been noted in the winter months, but in the end of the winter as a result of the disintegration of the parent colonies the flotoblasts spread by the current and their biomass per m² have been reduced.

The flotoblasts are available in the colony throughout the year. Moreover, if during the spring in the colonies there are the last year's overwintered flotoblasts, starting from early summer until the early winter the colonies continuously are formed the new flotoblasts, that mean that in the warm waters the bryozoans has the lengthened period of vegetative reproduction, more than six months.

For the purpose of the study of the generative production of the floto- and sessoblasts and duration of its development in the experimental conditions, the colonies of the bryozoans have been cultivated at 25 ° C in 800 ml glasses on the

Chlorella food on glass slides in 6 parallels from the statoblasts collected in autumn 1989 in the cooling reservoir. According to our data, the flotoblasts accumulated in the bryozoans colony were more numerous than sessoblasts. At the moment of the increase of the generative growth of the colonies ($N_{\text{statoblasts}}$) the somatic growth (N_{zooids}) have been reduced. We obtained 5 exponential equations of the type $y = ae^{bx}$ for the following correlations in the experimental colony of bryozoans:

- 1 - equation of the correlation of the growth of the number of zooids (N_{zooids}) from the duration of the experiment (τ , day).
- 2 - equation of the correlation of the growth of the numbers of flotoblasts (N_{floto}) from the duration of the experiment (τ , day).
- 3 - equation of the correlation of the growth of the numbers of sessoblasts (N_{sess}) from the duration of the experiment (τ , day).
- 4 - equation of the correlation of the numbers of flotoblasts from the number of zooids in the colony.
- 5 - equation of the correlation of the numbers of sessoblasts from the number of zooids in the colony.

The coefficients of equations 1-5 and statistics are given in Table 1 (r - coefficient of correlation, $M_{\bar{y}}$ - arithmetic average, $m_{\bar{y}}$ - error of $M_{\bar{y}}$, δ_i - average square deviation, c.v. - coefficient of variation, $m_{\text{c.v.}}$ - error of c.v.).

Table 1. The coefficients and statistical parameters of the exponential equations 1-5 $y = ae^{bx}$.

No of equation	a	b	r	No of determinations	$M_{\bar{y}}$	$m_{\bar{y}}$	δ_i	c.v.	$m_{\text{c.v.}}$
1	7.38	0.055	0.82	54	29.60	7.30	8.90	65.4	23.8
2	3.62	0.085	0.81	47	20.27	7.10	9.01	98.5	42.2
3	4.13	0.061	0.91	22	8.31	1.50	6.87	46.8	14.9
4	12.20	0.019	0.86	33	28.50	9.30	27.30	72.8	33.0
5	6.16	0.009	0.80	22	8.75	1.42	23.91	28.14	12.4

The ratio of the generative production of the bryozoans in the form of float- and sessoblasts in the experiment for the period of 35 days was 4:1. One zooid of the average dry weight of 0.0404 mg produces 1 flotoblast with the dry weight of 0.00586 mg and 0.24 sessoblasts. Mikai and Kobayashi (1988) at 25 ° C have been cultivated the colony of *R.emarginata* consisted of 140 zooids, which produced 741 flotoblasts and 34 sessoblasts, for 1 zooid, respectively, - 5.3 floto- and 0.24 sessoblasts. As Japanese authors has been shown, the bud of the statoblast is capable to differentiate in both, floto- and sessoblast, however, the mechanism of formation of these both types and the regulation of these processes has not yet been studied.

5 stages of the formation of the statoblasts of 2 types have been separated. The duration of the formation of sessoblasts, that have large body size, reduced for more than 1 day, compared with flotoblasts, and is about 4 days. The flotoblasts are smaller and have longer duration of the development (more than 5 days). It possible, that the regulation of 2 types of the generative productions in the colony of the bryozoans is associated with different functional role of statoblasts of 2 types.