

First microsatellite markers developed for population genetic studies of unique sponges from Lake Baikal

P-01.3-04

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Freshwater sponges play a significant role in lake and river ecosystems, such as filtering and bio-indicating the condition of water masses. Lake Baikal is a unique natural object and an explosive speciation point, which is confirmed by the number of endemic species of sponges in the lake. In recent years, massive diseases and the mortality of endemic sponges have been observed on Lake Baikal. This issue threatens the state of the lake, which contains 20% of the world's freshwater reserves. It has been a UNESCO World Heritage Site for 23 years. Sponge disease spread across the lake unevenly. There are spots where the sponges are damaged by 80%, and at the same time, there are untouched spots.

Here we report about microsatellite genetic markers development for the first-ever population analysis of Baikal endemic sponges *Lubomirskia baicalensis*. Twelve microsatellite markers specific to the species of endemic Baikal sponge *Lubomirskia baicalensis* were developed based on genome data and tested on eight sponge samples from different points of the lake. PCR protocol was optimized for a more specific reaction. All out of twelve microsatellite markers showed to be polymorphic and are ready to use in population genetic studies. The analysis would take place at ten spots of Lake Baikal, which would cover all three basins. This data will provide not only the understanding of the differences between populations located in various basins of the Lake Baikal but also the first understanding of the differences in the structure of cosmopolitan and endemic freshwater sponges populations which differ by breeding strategies.

The reported study was funded by RFBR and the Government of the Irkutsk Region, project number 20-44-383010

* The authors marked with an asterisk equally contributed to the work.