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# Abstracts

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**Keywords:** Triticum aestivum L.; GAPDH ; Promoter; Stress response; Abiotic stress.

**PO-69**

*Track: Plant and Environment*

**BIOREMEDIATION OF WASTEWATER BASED ON MICROALGAE STRAIN - PRODUCER OF FATTY ACIDS, PROMISING FOR BIODIESEL**

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Biodiesel production based on microalgae is an environmentally friendly alternative to conventional hydrocarbons. The use of domestic wastewater for the cultivation of microalgae can not only significantly reduce the cost of biodiesel production technology, but also provide the bioremediation of polluted wastewater, which is an actual problem of modern biotechnology. Axenic strains of microalgae were isolated from wastewater treatment systems of Almaty city: *Chlorella vulgaris*-1, *Chlorella* sp.-3, *Scenedesmus obliquus* and *Chlamydomonas reinhardtii*. In the results of received cultures screening the maximum increase of biomass was observed in *Chlorella vulgaris*-1 microalgae strain, consequently this strain was selected for next researches.

To study the bioremediation ability of *Chlorella vulgaris*-1 strain, it grown in laboratory photobioreactor with wastewater and Tamia nutrient medium in ratio 1:1. Cultivation carried out in 14 days, at the temperature 27-28°C, at continuous lighting at 120  $\mu$ moles of photons  $m^{-2}\cdot s^{-1}$ . Original number of strain cells was  $0,1 \times 10^6$  cell/ml. During the experiment, the number of strain's cells were increased and the maximum level was  $150 \times 10^6$  cell/ml on 12 day of cultivation. Results of physical and chemical analysis had shown that the overall rate of wastewater treatment in cultivation of *Chlorella vulgaris*-1 strain is equal to 96%.

After the cultivation, we have determined total number of lipids, which constitute 37% of dry weight. The results of fatty acids composition analysis have shown that *Chlorella vulgaris*-1 strain contains more than 26% of polyunsaturated fatty acids in the cell.

Therefore, as a result of this research the ability for bioremediation of *Chlorella vulgaris*-1 strain and its application as a prospective object for biodiesel production were determined.

**Keywords:** Microalgae, bioremediation, wastewater, lipids, fatty acids, biodiesel.

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