1 Oscillatoria deflexa as a component of the LLS

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We suggest cyanobacteria *Oscillatoria deflexa* as one of the photosynthetic components of the biological-technical life support system (LSS). The main advantage of these bacteria is their ability to resist high concentrations of NaCl – up to 20 g/l. It is known that human urine contains up to 10 g/l of NaCl. In closed mather turn over in LSS, urine in oxidized form can enter the nutrition of higher or inferior plants (algae). Higher plants (wheat, vegetables) are sensitive to NaCl excess. Even the 1-2 g/l concentration of salt in the irrigation solution (which is by an order of magnitude less than *O. deflexa* can resist) produces inhibiting effect on their growth. Therefore, it is reasonable to use oxidized urine for feeding of *O.deflexa* and cyanobacteria *Spirulina ðlatensis* which is similar in terms of NaCl resistance ability. We have conducted several experiments aimed at cultivation of *O. deflexa* on the water extract of urine cinder, which receives up to 95% of Na, K, S and 30-40% of P, Mg, Ca. Only bicarbonate and nitrate, which could be obtained in LLS, were added to the water extract *Î.deflexa* – is a cyanobacterium of arctic type, possessing unique adaptation abilities. In monoculture *Î.deflexa* are cultivated in non-sterile conditions. It grows at a wide range temperature (optimal 25-27 ^{0} Ñ) and ðÍ - 6-12, with an optimum of 9-11. The culture prefers natural or luminescent light (6-7 kilolux). The producing capacity in accumulative mode is 2 g/l dry washed biomass. The culture can be stored at low temperatures in a refrigerating chamber over long periods of time and at room temperature exposed to light during 2-3 months. The biochemical composition of *O.deflexa* is represented by proteins (50-58 % in dry substance), lipids (20-26 %), and carbohydrates (9-10 %). The amino acid content is characterized by high concentration of indispensable amino acids (30 % of the total). Essential fatty acids make 22 % of the sum total of fatty acids and are represented by linolic and α-linolenic acids. The washed biomass of *O.deflexa* is not toxic for wheat germs, but is toxic for daphnids and rotifers (fish forage). This disadvantage would be essential, if algae become food for people and fish. But using *O.deflexa* as photosynthetic link is more preferable then *Sp. ðlatensis* since it has higher viability, needs less energy for its growth and more resistant to extremal situation.