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BOOK OF ABSTRACTS

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POSTER PRESENTATIONS

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INNOVATIVE WASTEWATER DAIRY

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Wastewater of some food industries due to pollution is related to concentrated. It contains substantial amounts of organic matter that get into them during processing of raw materials.

The construction of wastewater treatment facilities took place on the basis of conventional biological treatment technology used for the disposal of sewage. However, this technology is not suitable for concentrated polluted wastewater purification.

To solve the problem of concentrated wastewater treatment the anaerobic-aerobic treatment technology was proposed.

The main point of it is that the concentration of contaminants initially is sharply reduced by methane fermentation, followed by the purification method of aerobic fermentation in the aeration tanks.

The range of dairy products and technologies of its production involves the formation of some waste at each plant which differs in terms of pollution indicators: chemical oxygen demand (COD) - 1000 ÷ 5000 mg O₂/dm³; biochemical oxygen demand (BOD) - 700 ÷ 3700 mg O₂/dm³; total nitrogen content - 20 ÷ 170 mg/dm³; pH - 4,5 ... 10,4.

Methanogenic fermentation of concentrated wastewater milk processing plant reduced the pollution indicators for SOD of 4500 to 600 mg O₂/dm³; got about 4 dm³ biogas from 1 dm³ wastewater, methane content in biogas is about 75%. The cleaning efficiency is 87%.

At the next stage, the wastewater treatment method of aerobic fermentation in the aeration tanks.

In laboratory conditions, they had to need 12 hours, during which the concentration of contaminants for COD decreased upto 25 mg O₂/dm³ that corresponds to BOD within 12-13 mg O₂/dm³ i.e. purification of wastewater by standards is achieved that allows to discharge wastewater into natural water bodies.

The analysis determined the feasibility of an integrated anaerobic-aerobic wastewater treatment technology that enables energy-valuable biogas. In terms of contamination of treated wastewater is allowed to drop into a natural pond.

KEY WORDS: concentrated wastewater, aerobic fermentation, chemical oxygen demand, culture liquid, aeration tanks