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**The industrial use of microalgae for wastewater treatment and mitigation of environment degradation**

**Armen B Avagyan**

Research & Industry Centre of Photosynthesizing Organisms, Armenia

The industrial use of microalgae for wastewater purification based on their mixotrophic growth is alternative important approaches as microalgae has higher stability, which enables their application in more concentrated and toxic environment, with a higher purification level compared with activated sludge. In our experiment the separate use *Chlorella* microalgae for purification wastewater of phenylalanine manufacturing with high quantity of phenol was the sole decision for biological cleaning as activated sludge cannot help in such case. Generation of the symbiosis between bacteria of activated sludge and microalgae in wastewater treatment plant (WTP) aeration oxidation ponds must be also a general way of improving wastewater cleaning, as microalgae is also a cost effective flocculent, which allows the silts to settle more quickly, accumulates heavy metals, etc. On the development technology for Yerevan chemical reagents and vitamin plants industrial WTP, we recommended two phase biological purification: first phase by the use *Chlorella* with commercial production of biomass (only using of activated sludge was no sustainable due high concentration of organic components) and at second phase – transfer centrate with rest amount of microalgae cells to aeration tanks with activated sludge aimed to formation bacteria-microalgae consortium. We offer also the addition of microalgae biomass in tailings ponds of Canadian oil sands operators aimed at the improvement of the microbial balance for the water speedily cleaning, recycling and reusing from arsenic, cyanide, naphthenic acids, mercury, sulphuric acid, carcinogenic polycyclic aromatic hydrocarbons with mitigation of GHG emission, etc. For this objective the use of microalgae biomass may be in the following variants: the use accounted volume of non-separated microalgae suspension produced by the use of food scraps, the centrate to inject into the tailing ponds for creating the microalgae-bacteria symbiosis.

armin.av@hotmail.com