

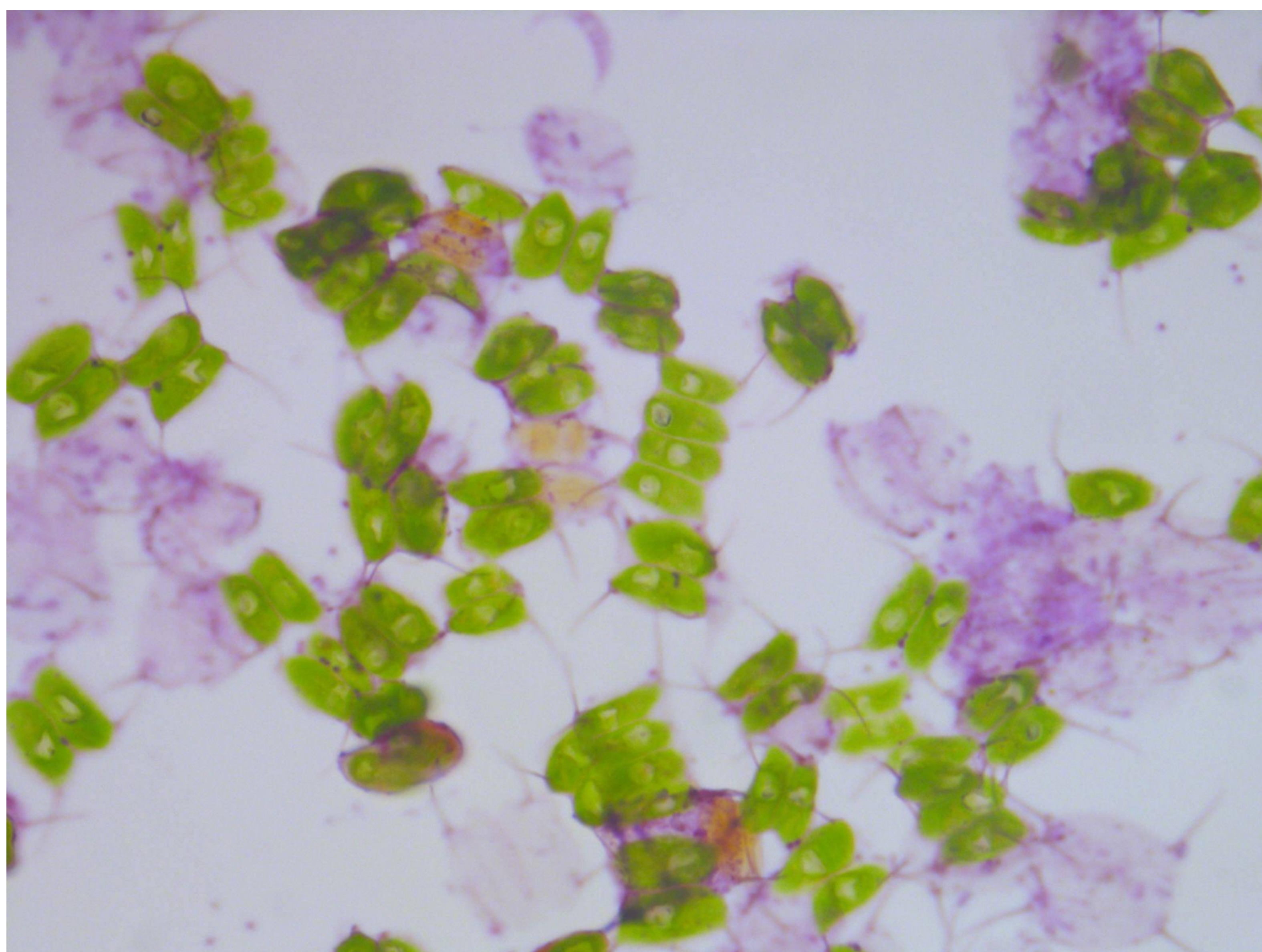
Microalgae

bio-treatment with microalgae is particularly attractive because of their photosynthetic capabilities, converting solar energy into useful biomass.

Microalgae require large amounts of nitrogen and phosphorus for their growth, meaning that these microorganisms can effectively uptake nitrogen and phosphorus from wastewater within very short periods of time, e.g., less than 1 h.

Application

Microalgae-based wastewater treatment technologies such as high-rate algal ponds have demonstrated the removal of a wide range of hazardous substances from urban wastewater. For instance, during this process high removal efficiency (>90%) has been demonstrated of caffeine, acetaminophen, ibuprofen, methyl dihydrojasmonate and hydrocinnamic acid, while moderate-high removal (from 60% to 90%) has been observed from oxybenzone, ketoprofen, 5-methyl/benzotriazole, naproxen, galaxolide, tonalide, tributyl phosphate, triclosan, bisphenol A and octylphenol.



Source: RTU Water Research Laboratory, Latvia

Sources:

- 1) Gonçalves, A.L., Pires, J.C.M., Simões, M., 2017. A review on the use of microalgal consortia for wastewater treatment. *Algal Res.* 24, 403–415.
- 2) Matamoros, V., Gutiérrez, R., Ferrer, I., García, J., Bayona, J.M., 2015. Capability of microalgae-based wastewater treatment systems to remove emerging organic contaminants: A pilot-scale study. *J. Hazard. Mater.* 288, 34–42.
- 3) Abdel-Raouf, N., Al-Homaidan, A.A., Ibraheem, I.B.M., 2012. Microalgae and wastewater treatment. *Saudi Journal of Biological Science.* 19, 257–275.