

Biological Treatment Processes

- Office hour: Tue 4:30 – 5:30pm, 35-307
- Email: ychoi81@snu.ac.kr
- Course material/textbook:
 1. Lecture notes
 2. Rittmann & McCarty, Environmental Biotechnology: Principles and Applications

Objectives

- Understand the background, theories, techniques, and applications of biological approaches for the management of water, soil, and solid waste.
- Obtain in-depth knowledge on the biological approaches applied for wastewater treatment, study current issues of research, and discuss the future direction of research and applications.

Student presentation & paper discussion

- Midterm only! But...
- One of the student leads the class
- Select a topic (relevant to the class!) a week prior to the class assigned
- Select a relevant paper and post the link to eTL
- Briefly present general background
- Paper discussion

Application of biological processes

- Bioreactors: provide a controlled environment for the growth and maintenance of complex, self-assembled microbial communities that perform ecologically critical functions

Application of biological processes

- Wastewater treatment – secondary treatment



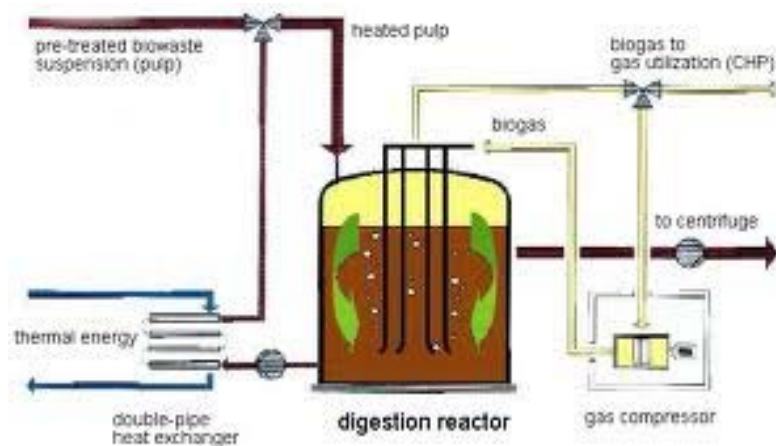
activated sludge



trickling filter

Application of biological processes

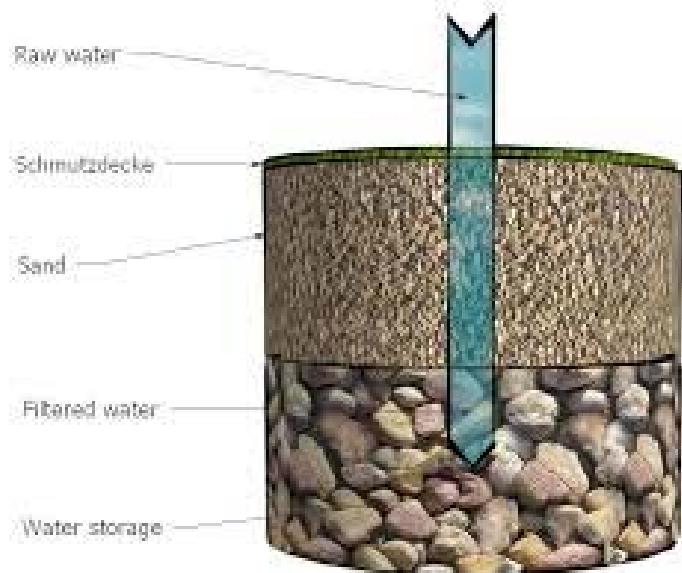
- Wastewater treatment – sludge treatment



anaerobic digestion

Application of biological processes

- Drinking water treatment



slow sand filtration



biological GAC treatment

Application of biological processes

- Soil and groundwater treatment

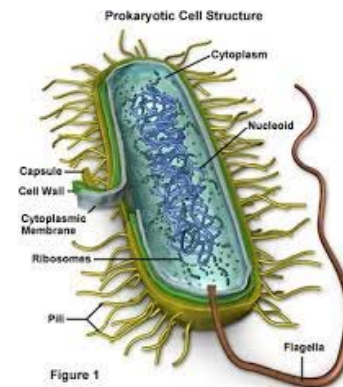
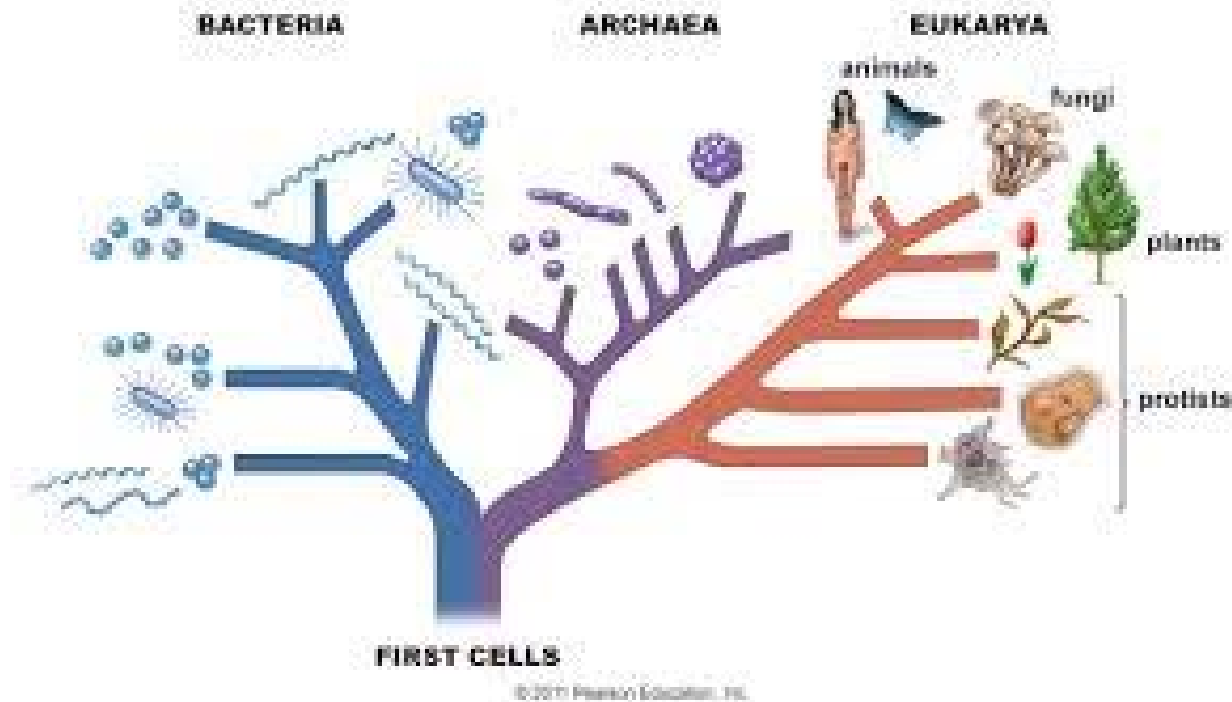


landfarming



biostimulation

The main player



bacteria