

# Microbial Ecology Work by *Ebru Dulekgurgen, M.Sc*

1995 - 2005

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*Background picture: Unpublished data by E. Dulekgurgen (2003)*



# MEW\_ Research Interest\_1

## Ebru Dulekgurgen, M.Sc

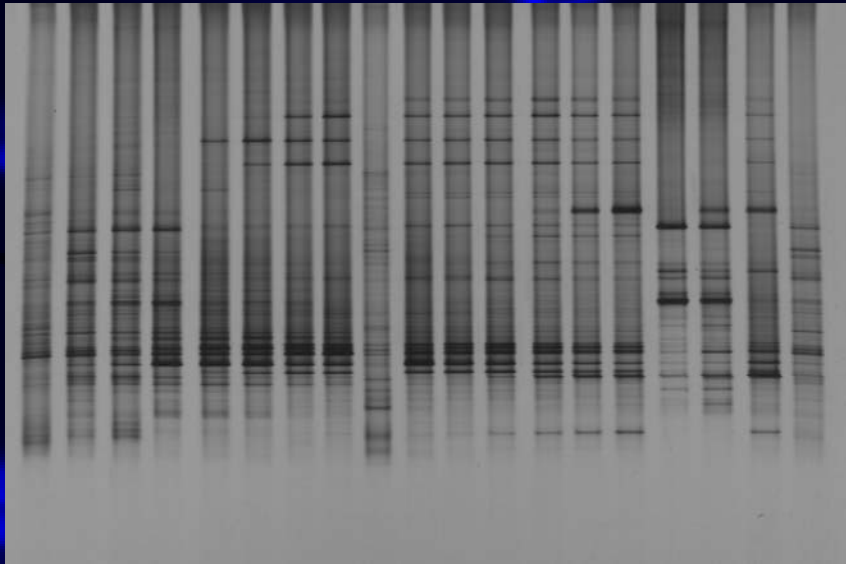
- *Objective1:* Microbial population dynamics in SBRs for EBPR using rRNA sequence analyses and oligonucleotide probe hybridizations
- *Approach:* Full cycle RNA analyses
- *Methods:* SSU rDNA sequence analyses, probe design targeting *Acinetobacter* genus, spp., and environmental isolates, quantification via dot-blot hybridization w/ P<sup>32</sup>-labelled probes
- *Result1:* The environmental isolate was phylogenetically identified as *Acinetobacter* strain ED (max. 97.8% similarity w/ *A. junii*)
- *<sup>a</sup>Result2:* Bioaugmenting the conventional AS with pure cultures of *A. calcoaceticus* or *A. johnsonii* did not help get EBPR: total wash-out of the pure cultures during the start-up period

<sup>a</sup>Oerther D.B., Dulekgurgen E., Leveque E., Freedman L., Raskin L. (1998). "Bioaugmentation of sequencing batch reactors for biological phosphorus removal: comparative rRNA sequence analysis and hybridization with oligonucleotide probes", *Water Sci Technol* 37(4-5), pp. 469-473.

# MEW\_ Research Interest\_2

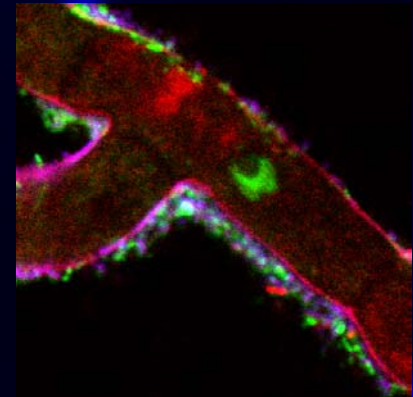
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- *<sup>b</sup>Objective2: Microbial population dynamics in GAS*
- *Methods:* DGGE, FISH+CLSM

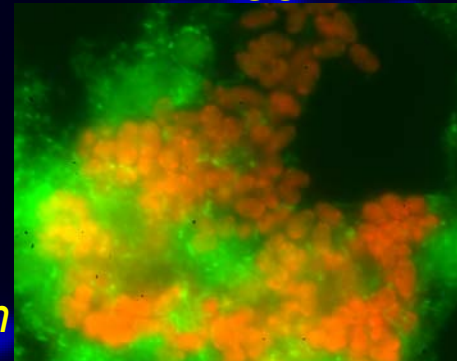


DGGE: Bubble column Rc-124 days operation

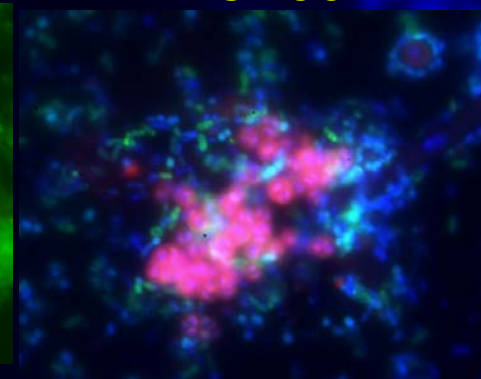
Fungi+Bacteria



PAOs



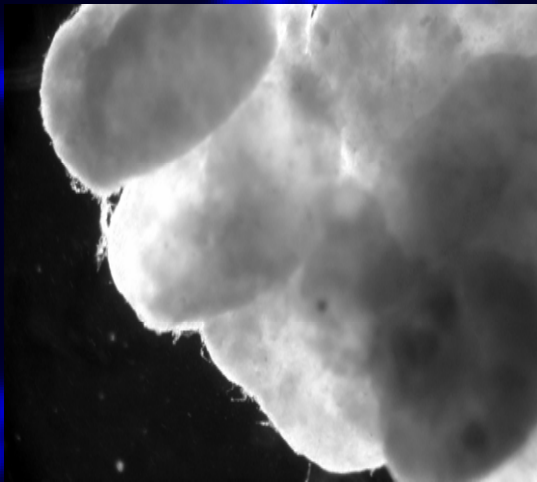
GAOs



# MEW\_ Research Interest\_3

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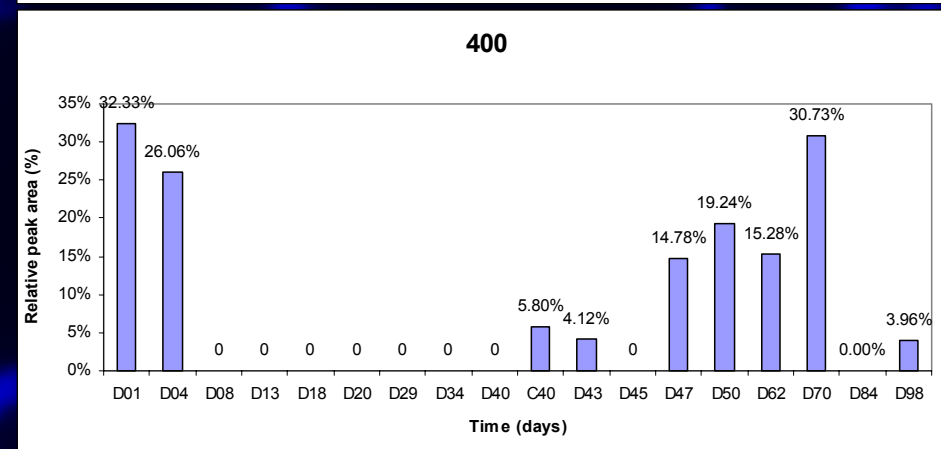
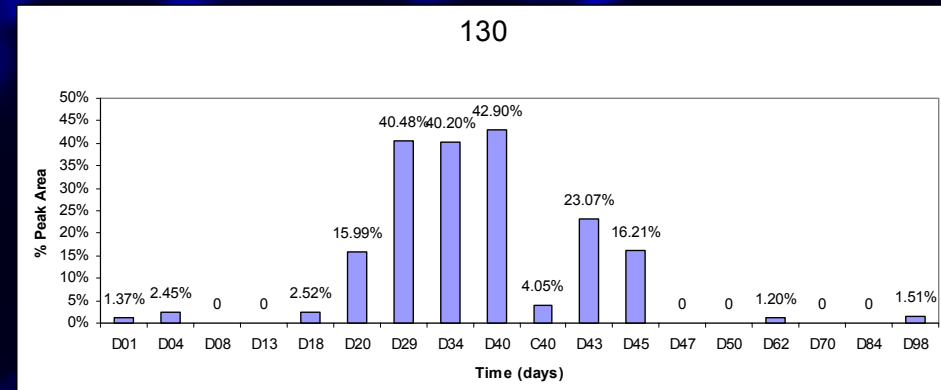
- *Objective 3*: Microbial population dynamics in EBPR-GAS at start-up period
- *Method*: TRFLP



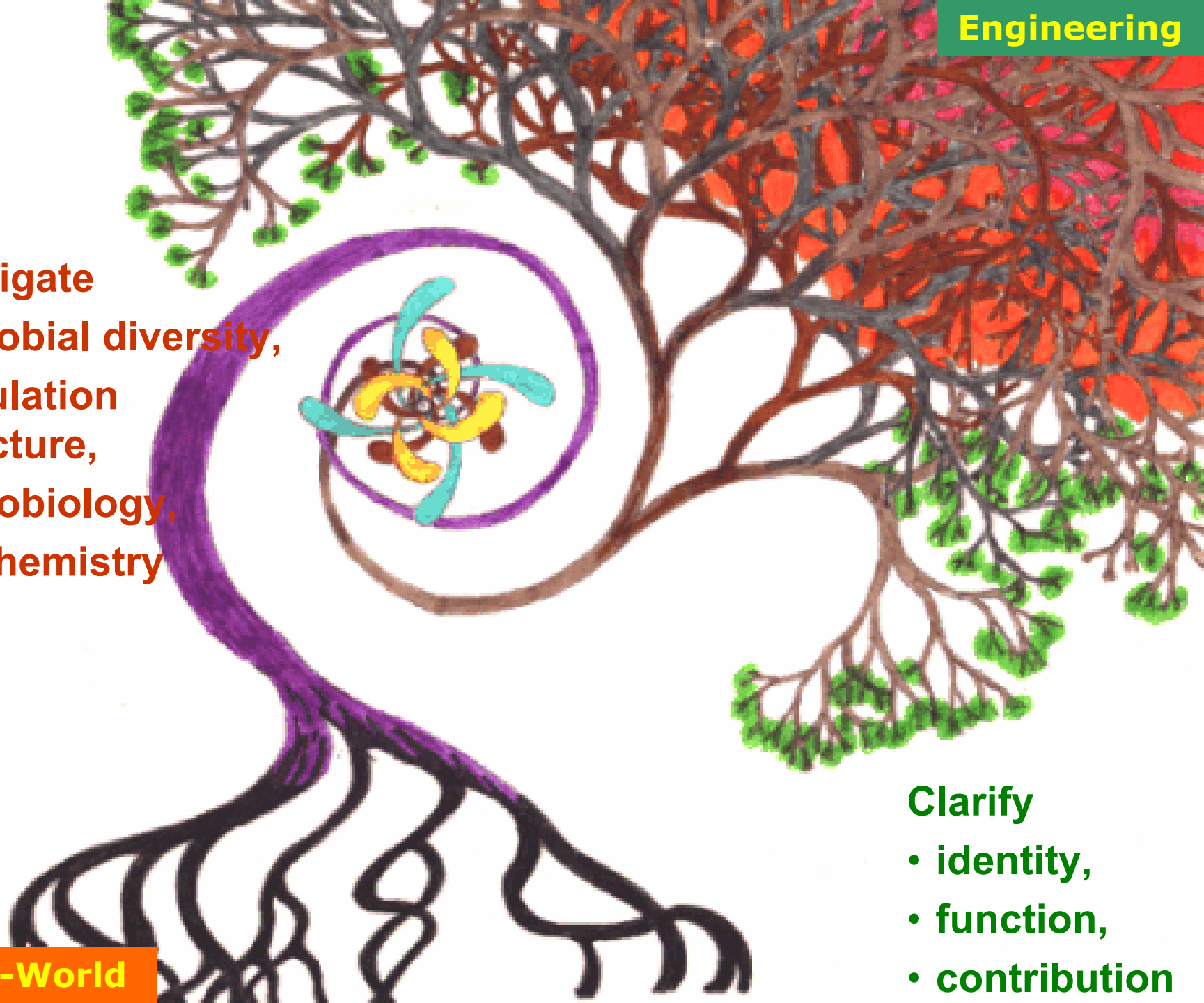
PAOs

GAOs

Granulation: Bubble column R<sub>c</sub>



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## Investigate

- microbial diversity,
- population structure,
- microbiology,
- biochemistry

## Clarify

- identity,
- function,
- contribution