

Seven Zinder - GDE

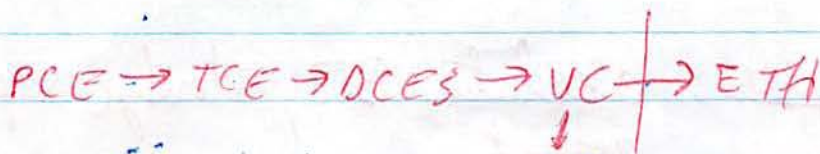
Chloroethenes

- some are solvents (e.g. dry cleaning)

PCE

TCE

- many of these are not degraded very well aerobically
- reductive dechlorination degrades these under anaerobic conditions



↓
carcinogen
(vinyl
chloride)

- so if it stops here that is bad

Dehalorespiration

- many chloroethanes can be used well as electron acceptors

Organisms reducing PCE + TCE to cDCE

low GC gram + → Dehalobacter, Desulfobacter

ε - Dehalospirillum

δ - Desulfuramorus

γ - Enterobacter agglomerans

Dehalococcoides ethenogenes

- their mixed culture went further

- in this - funny cocci looked like junk but they have DNA

Electron donor: H_2

Electron acceptors

- PCE, TCE

- VC

Requires acetate, B12, sludge supernatant, extract

Resistant to peptidoglycan inhibitors

cell structure

- 0.5 μm x 0.2 μm (disk shaped)

- no obvious peptidoglycan layer

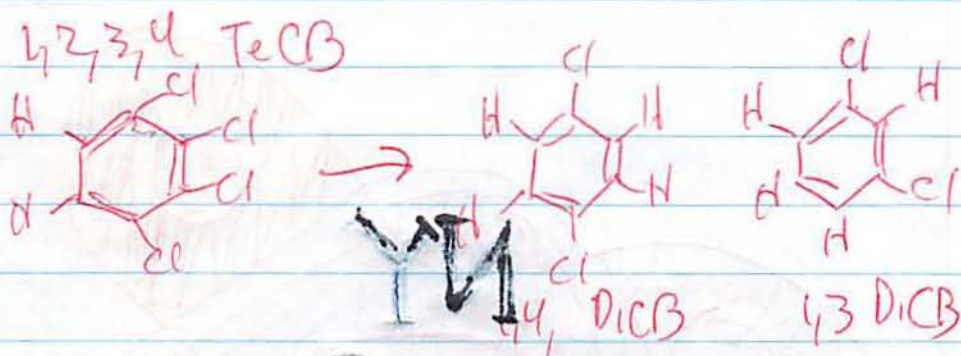
phylogeny

- epsilon proteobacteria

- deep branch in green-non sulfur/chloroflex

- mostly non-cultured

Dehalococcioides CBDB1 Adrian et al 2000



others detected

suggests whole group works on
chlorine

all TCE reductin dehalogenase form
same form

they have form arginine export signal

TceA-164 significant hits

other halogens
or not?
good!



- other halogens?

