



EOLI 2nd annual meeting Milano November 2004

LBE-WP1activities



Content

- COD adsorption
 - ✓ Experiments
 - ✓ Result and discussion
- Sludge settling
 - ✓ Experiments
 - ✓ Results and discussion
 - ✓ Perspectives



COD Absorption Capacity (CAC)

- Experiments
 - ✓ CAC variation with respect to COD concentration per sludge unit mass
 - ✓ CAC variation with influent

Material and method

- Conditions:

$V = 1\text{L}$,

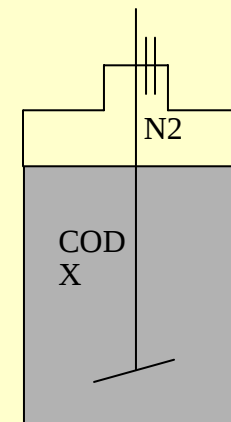
$SS = 3\text{-}4\text{g/l}$, (sludge from SBR reactor)

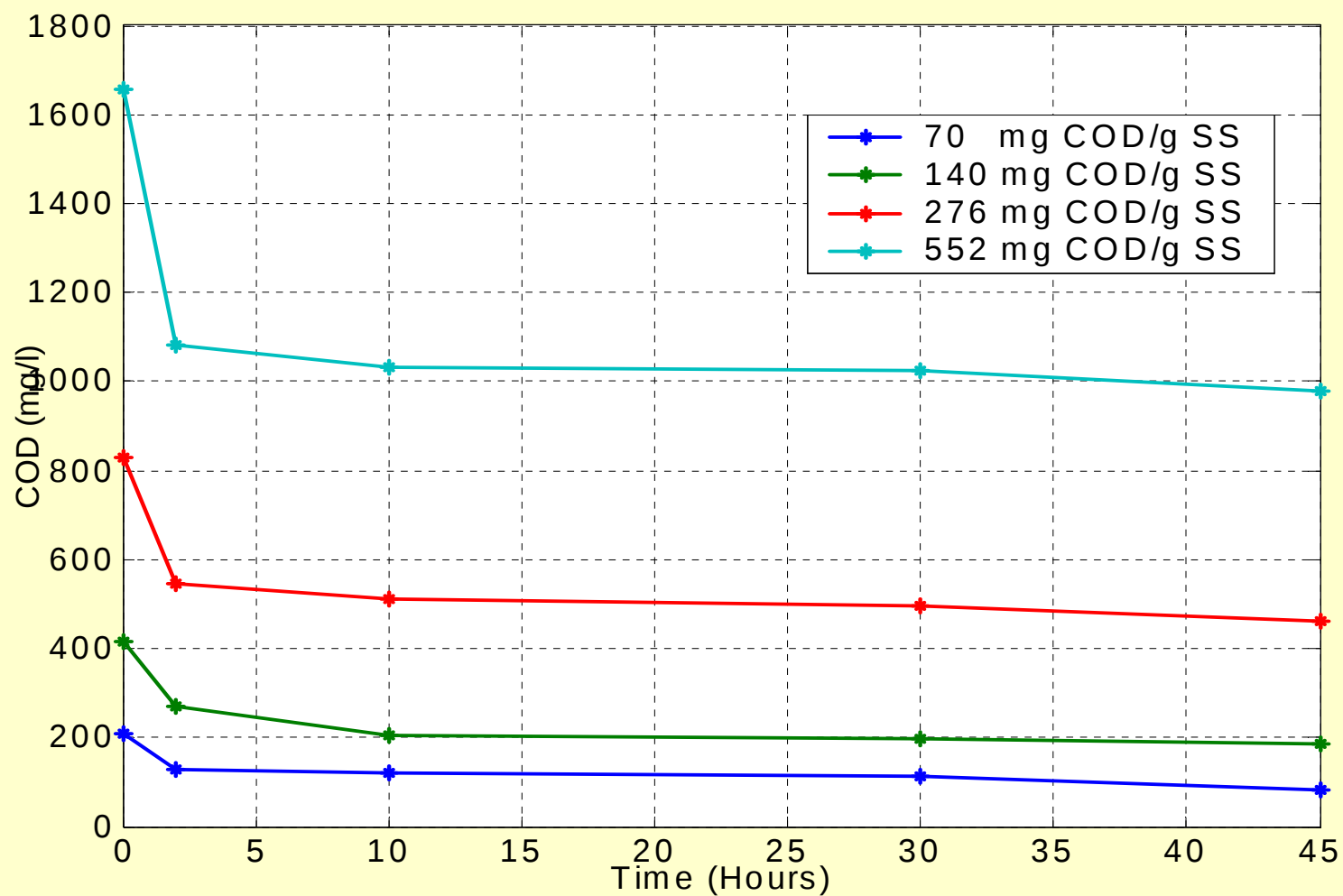
$NOX = 0\text{ mg/l}$ (eliminated by denitrification)

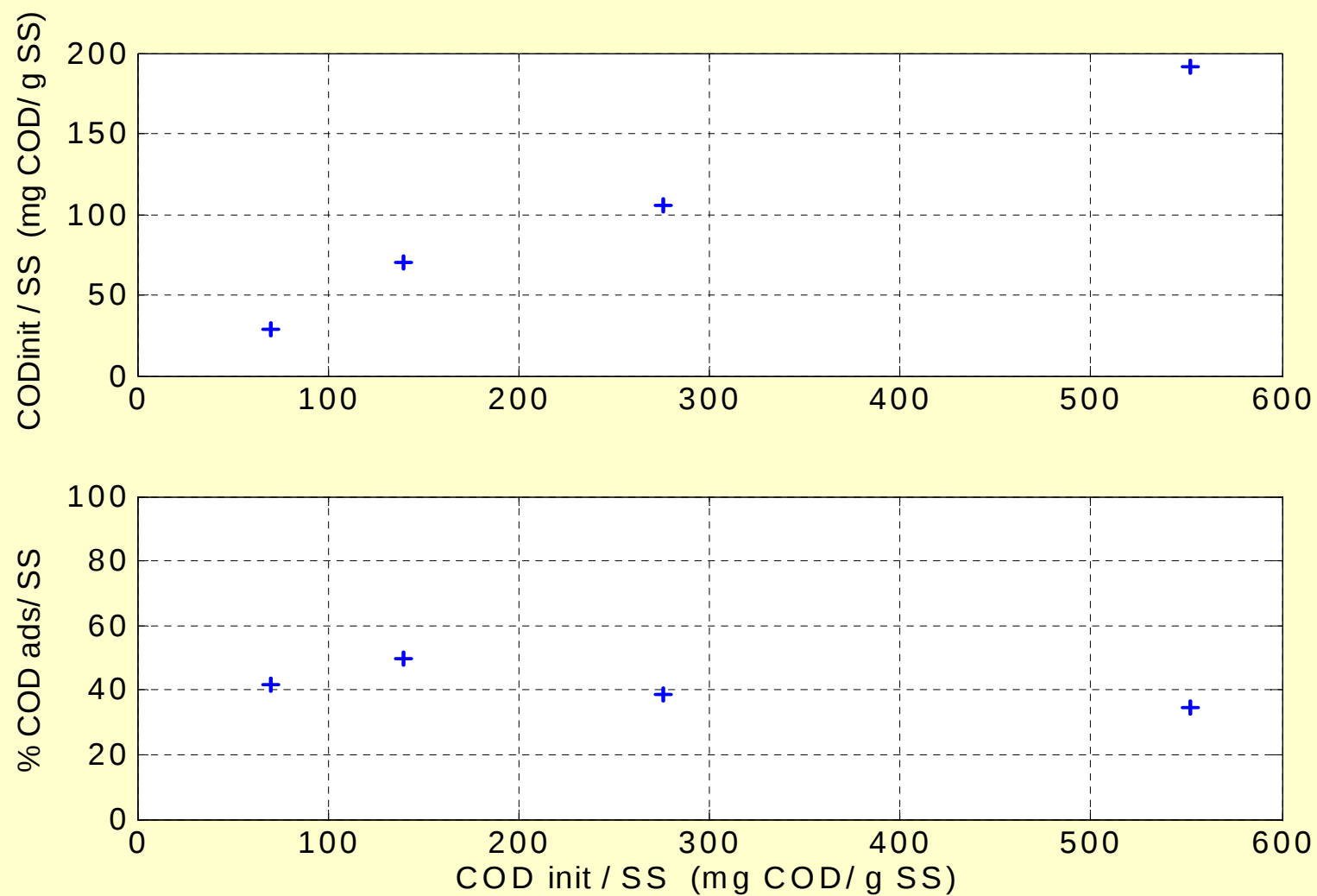
$DO = 0\text{ mg/l}$ (air is replaced by N_2)

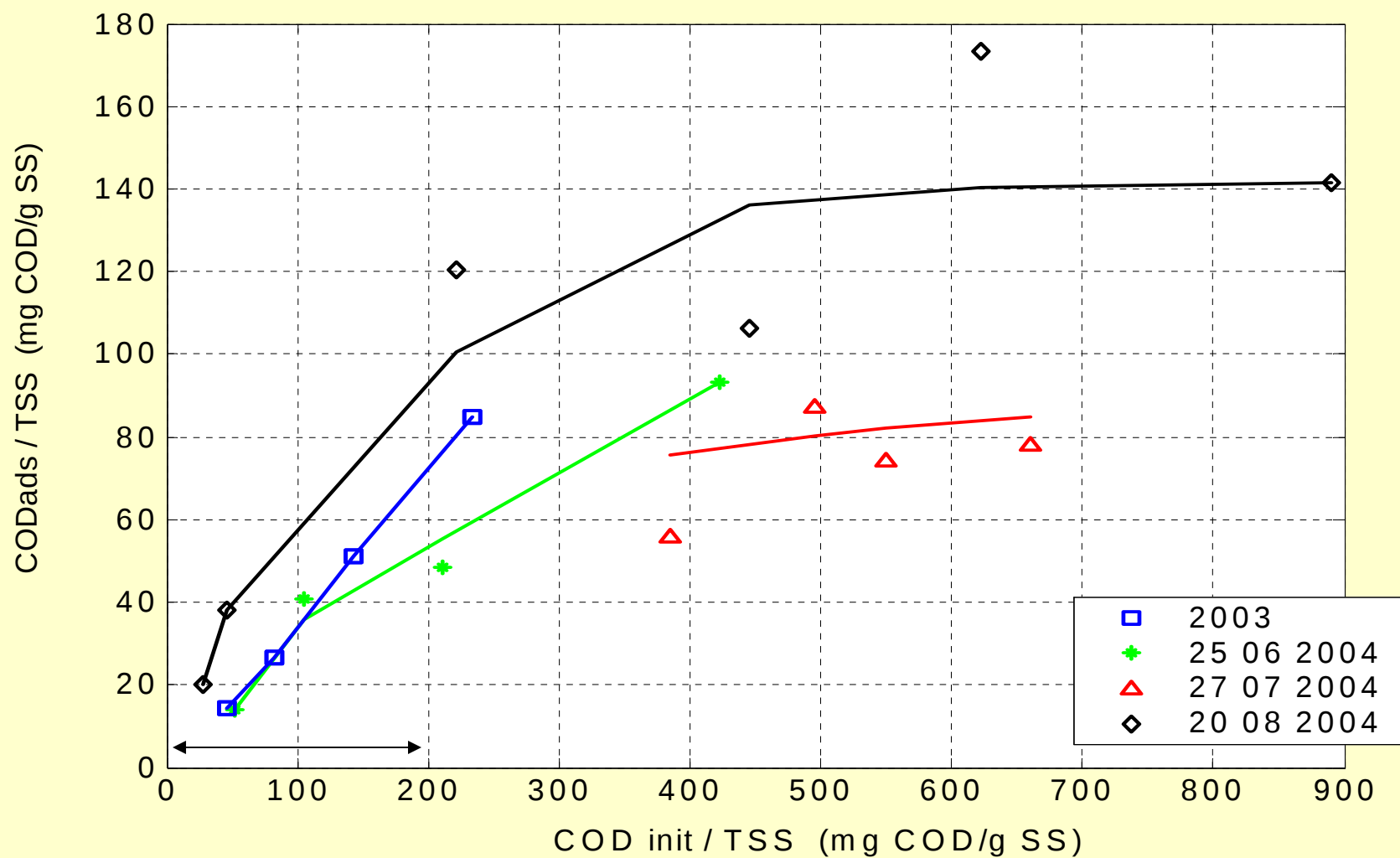
$COD = 200\text{-}3000\text{ mg/l}$

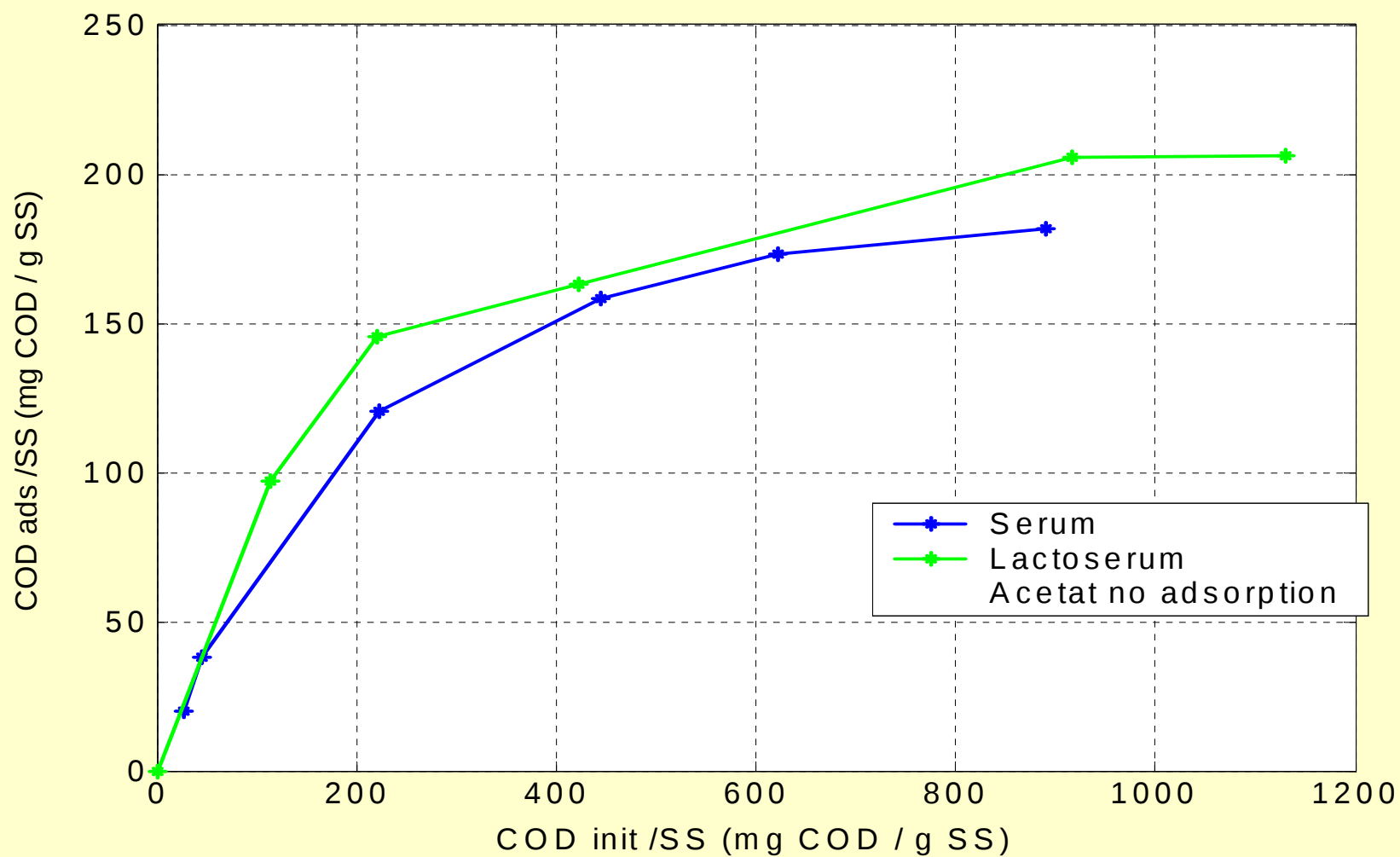
$S_0/X_0 = 0.070\text{-}1\text{ g COD/ g SS}$













Conclusion

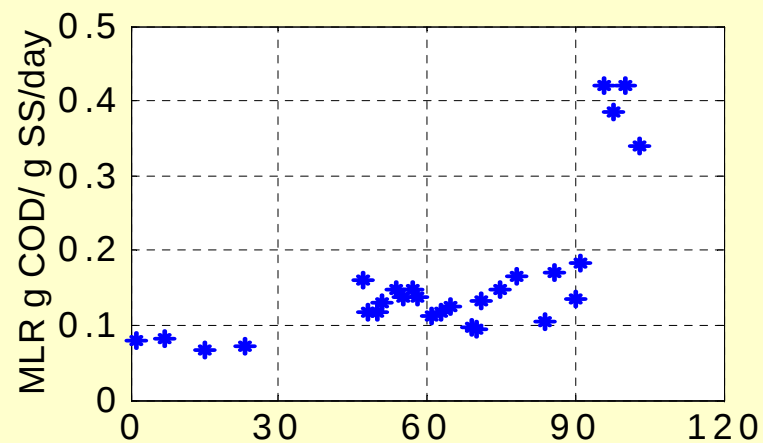
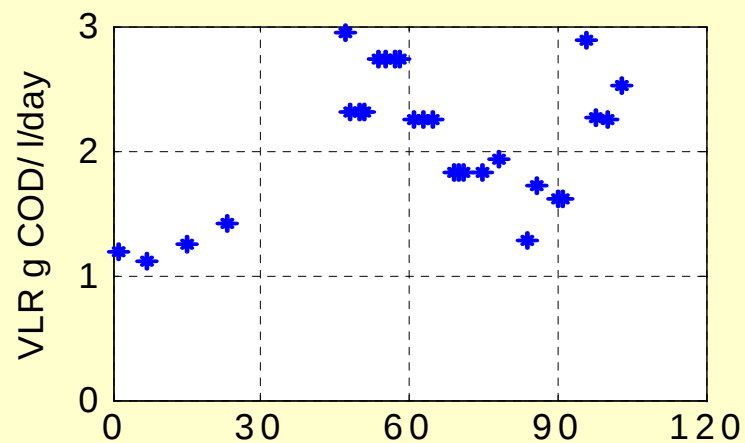
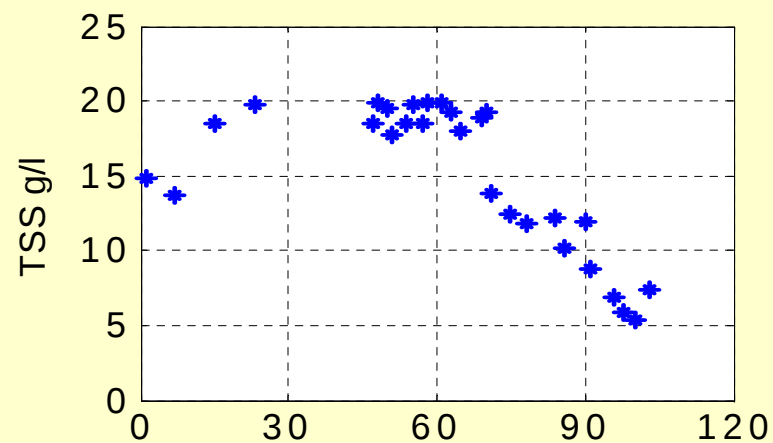
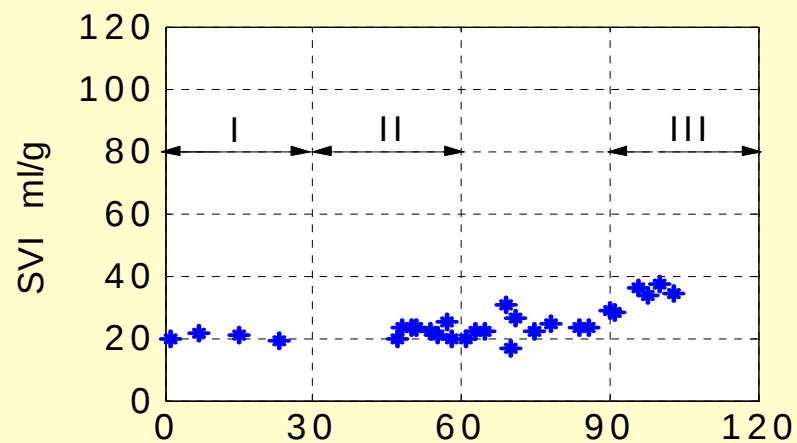
The CAC phenomenon :

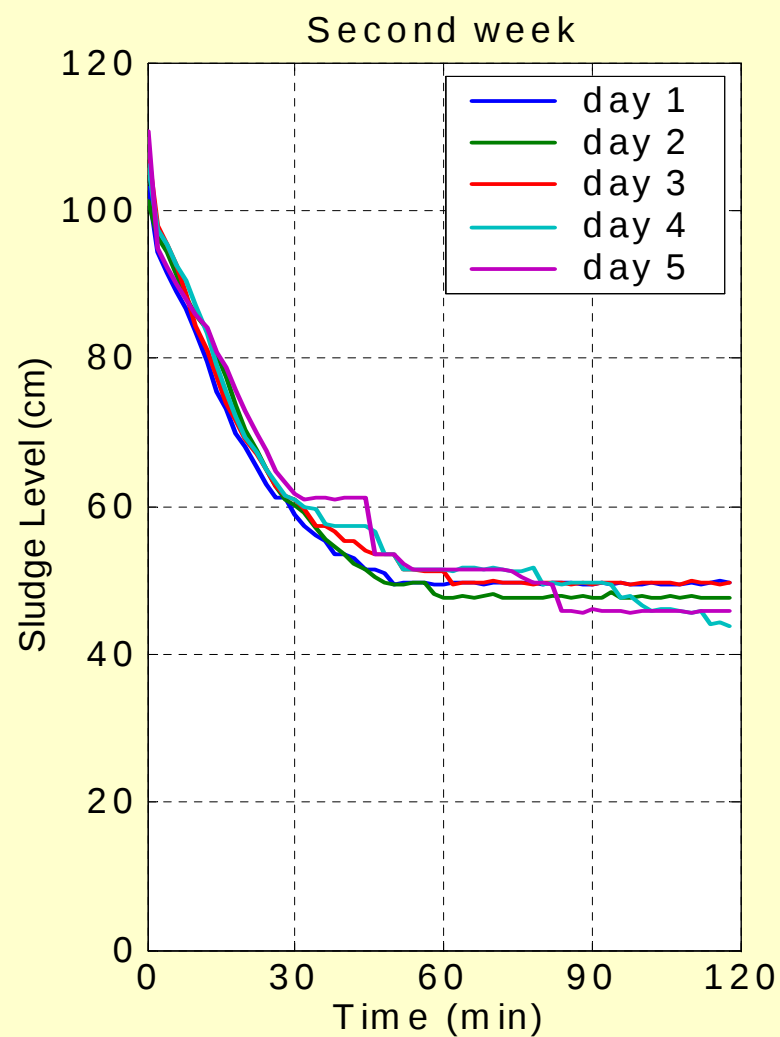
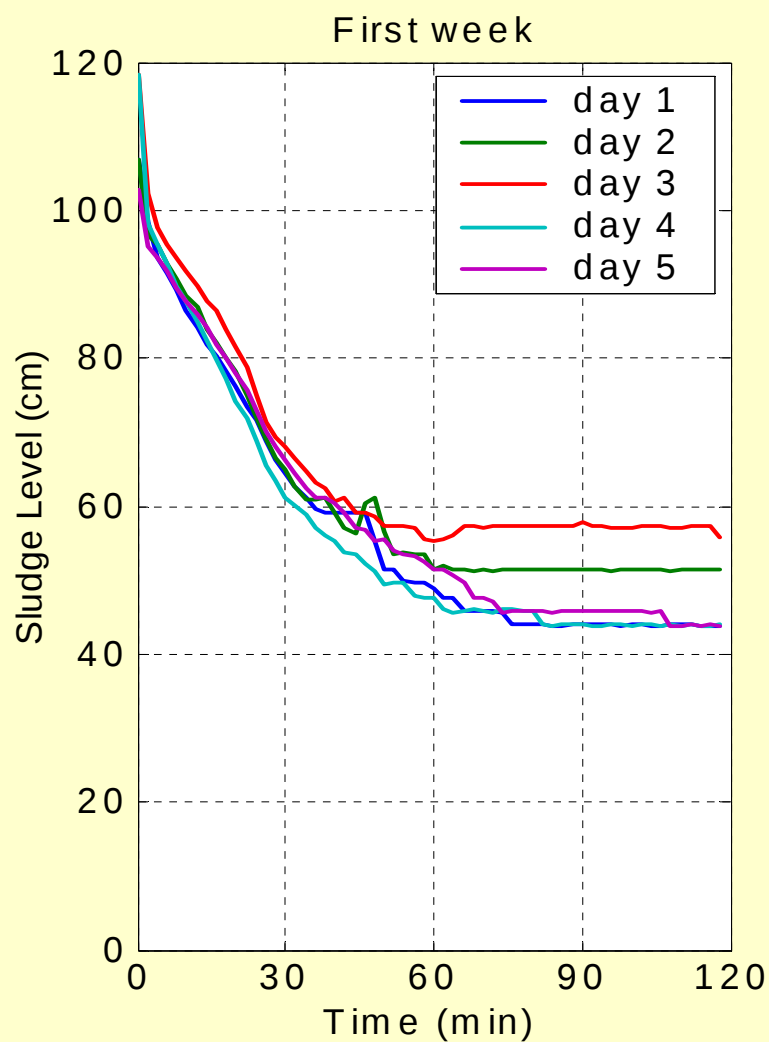
- Takes place in the first minutes
- Depends linearly with the COD init / SS for low mass loading rate
- Depends on the influent compounds and varies with the sludge evolution.

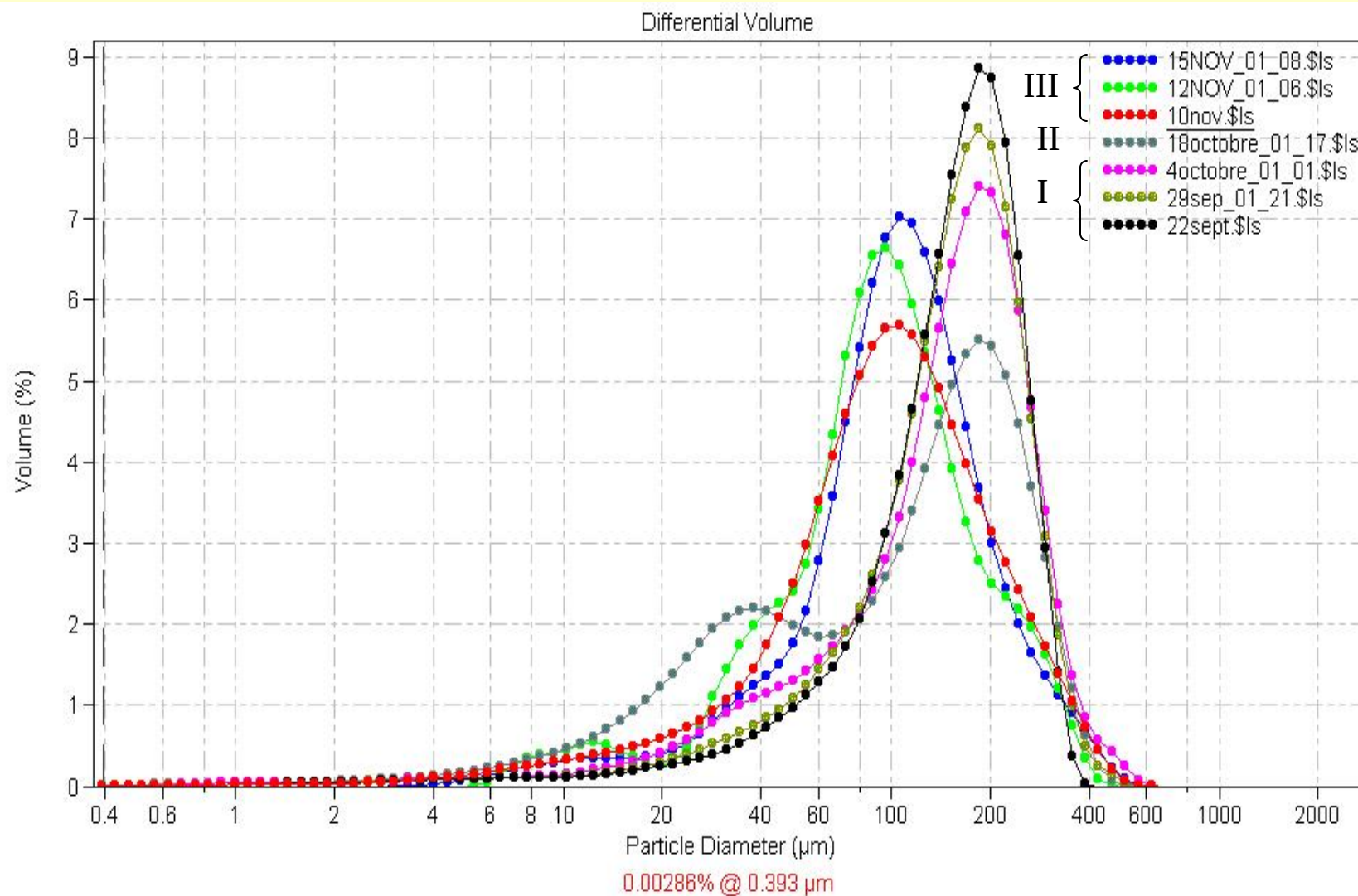


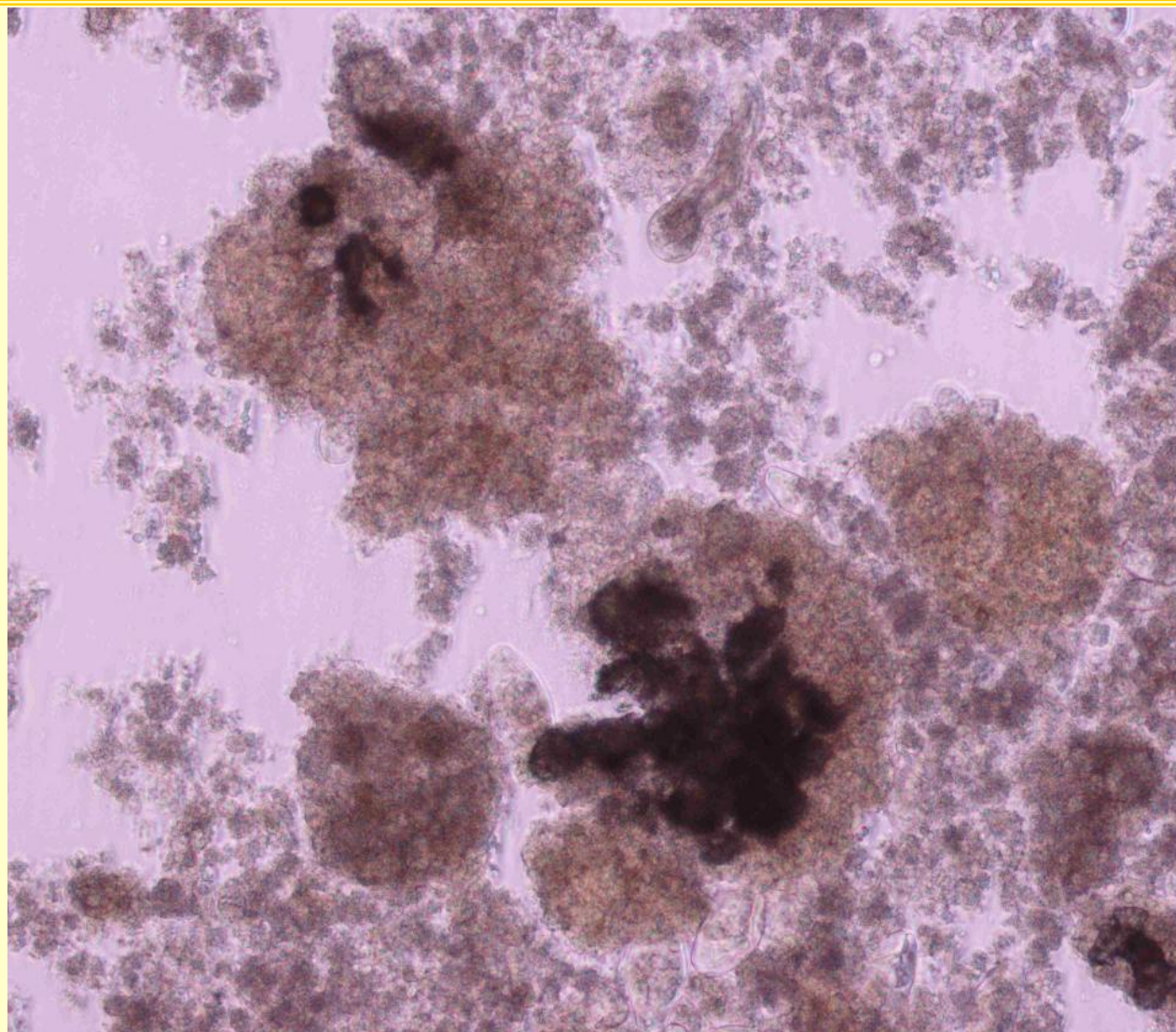
Sludge settling

- Experiments : three steps
 - I :Medium volumetric loading rate , low massic loading rate
 - II :High volumetric loading rate, low massic loading rate
 - III :High volumetric and massic loading rate
- Follow sludge characteristics: Sludge settling velocity, SVI, Floc size











Conclusion and perspectives

- SVI constant even at high loading rate
- Sludge level monitoring
- Daily sludge withdrawal
- Effect of higher massic loading rate
- Longer and difficult start-up phase