



UNIVERSITÉ
PARIS
DESCARTES




FONDATION
BETTENCOURT
SCHUELLER

10/02/17 Biosensors final presentation

LEMNA BALLOONS

A journey with plumpy plants

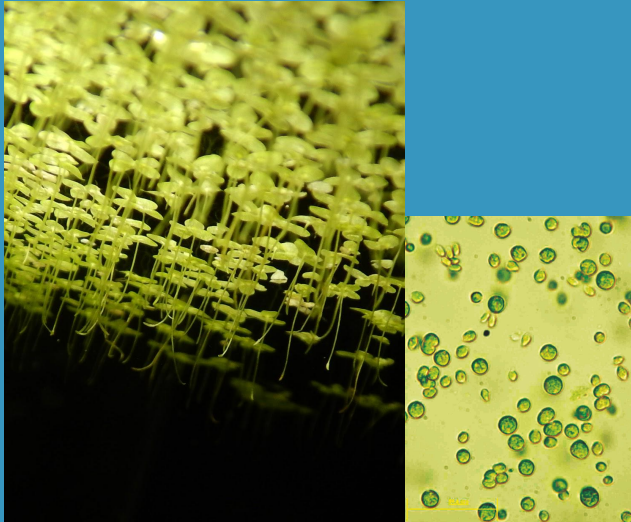
Louise Dagher
Simon Fradet
Corentin Mathé -- Deletang



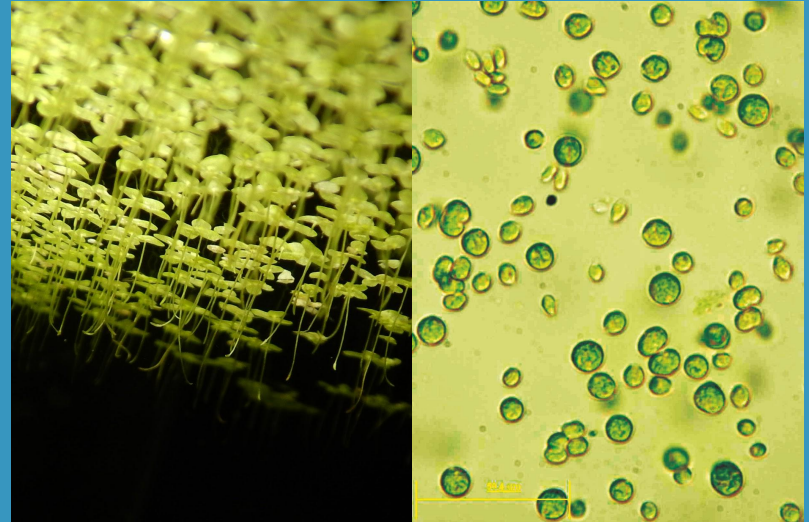
*“How do **Chlamydomonas reinhardtii** and
Lemna minor manage to survive in
different nitrate concentrations while
exposed together?”*

L. minor dominance in NO₃-restricted environment

NO₃



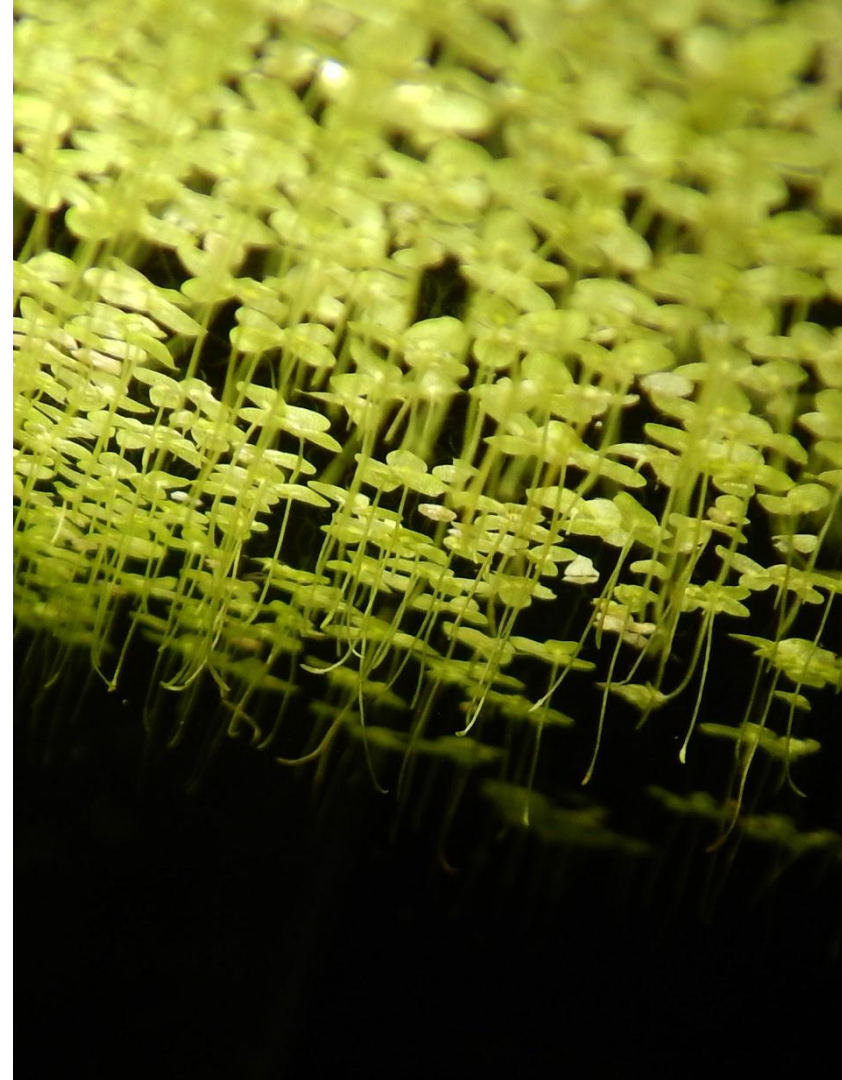
NO₃





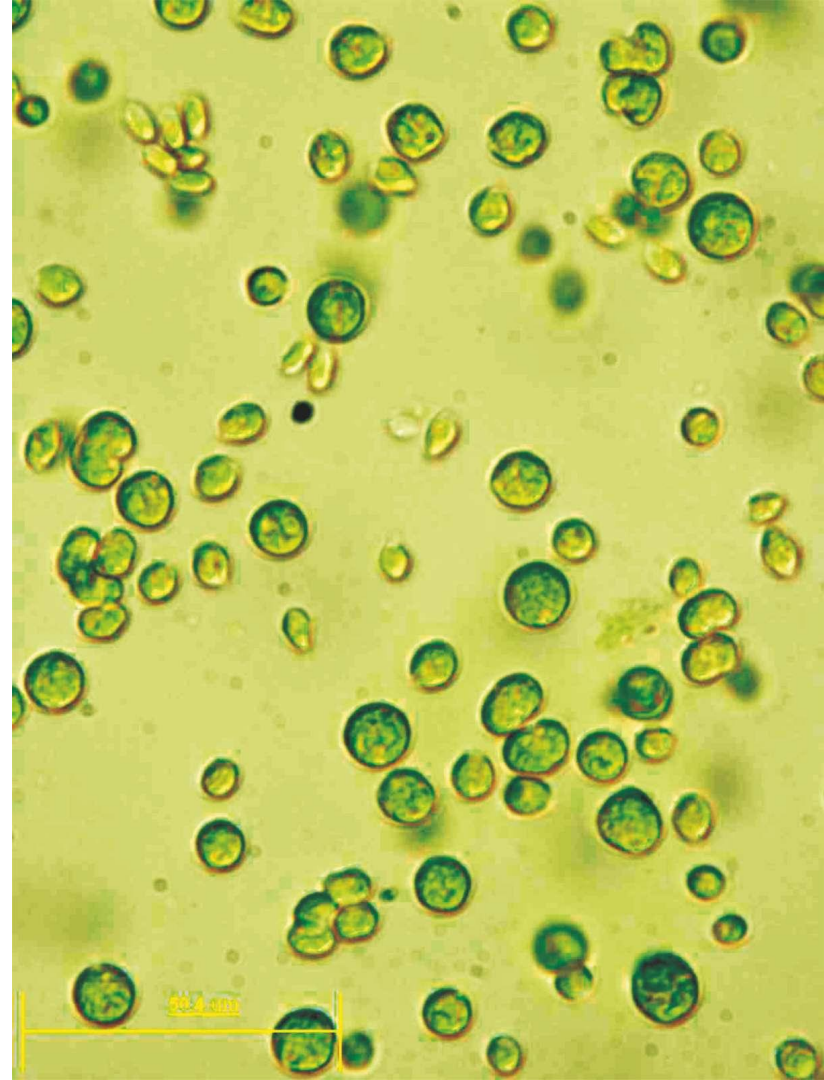
Cultivating *Lemna minor*

- » Air sacs
- » High Nitrate uptake
- » Sinks when low temperature



Working with *Chlamydomonas reinhardtii*

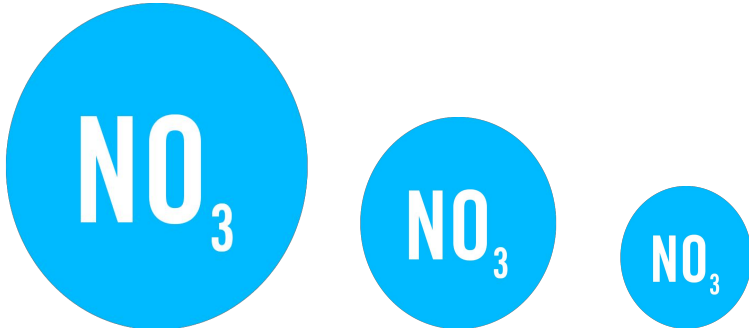
- » Nitrate usage
- » 5-8h generation time
- » Shed its flagella in some conditions





Measuring different parameters

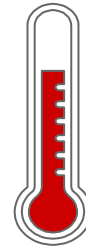
» Independent variable



» Dependent variables

C. reinhardtii concentration
L. minor growth + biomass

» Environment controls



pH



Setting up the 27 samples

Nitrates
concentrations

0 mg.L-1

Both



Control 1

L. minor only



Control 2

C. reinhardtii only



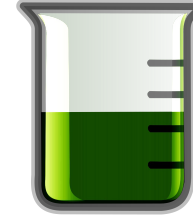
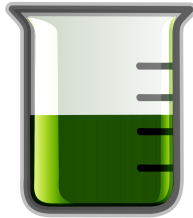
x 3

120 mg.L-1



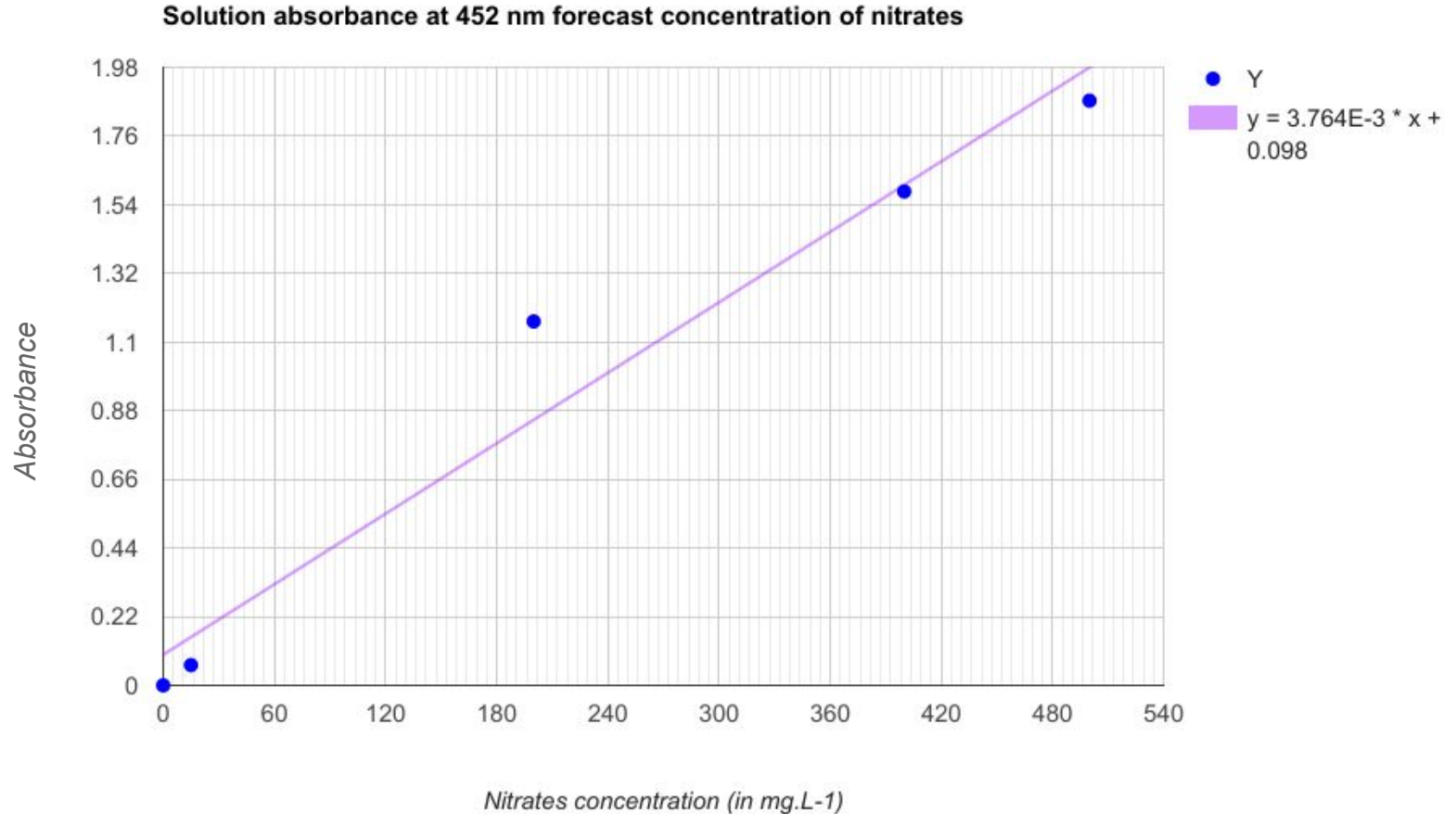
x 3

240 mg.L-1

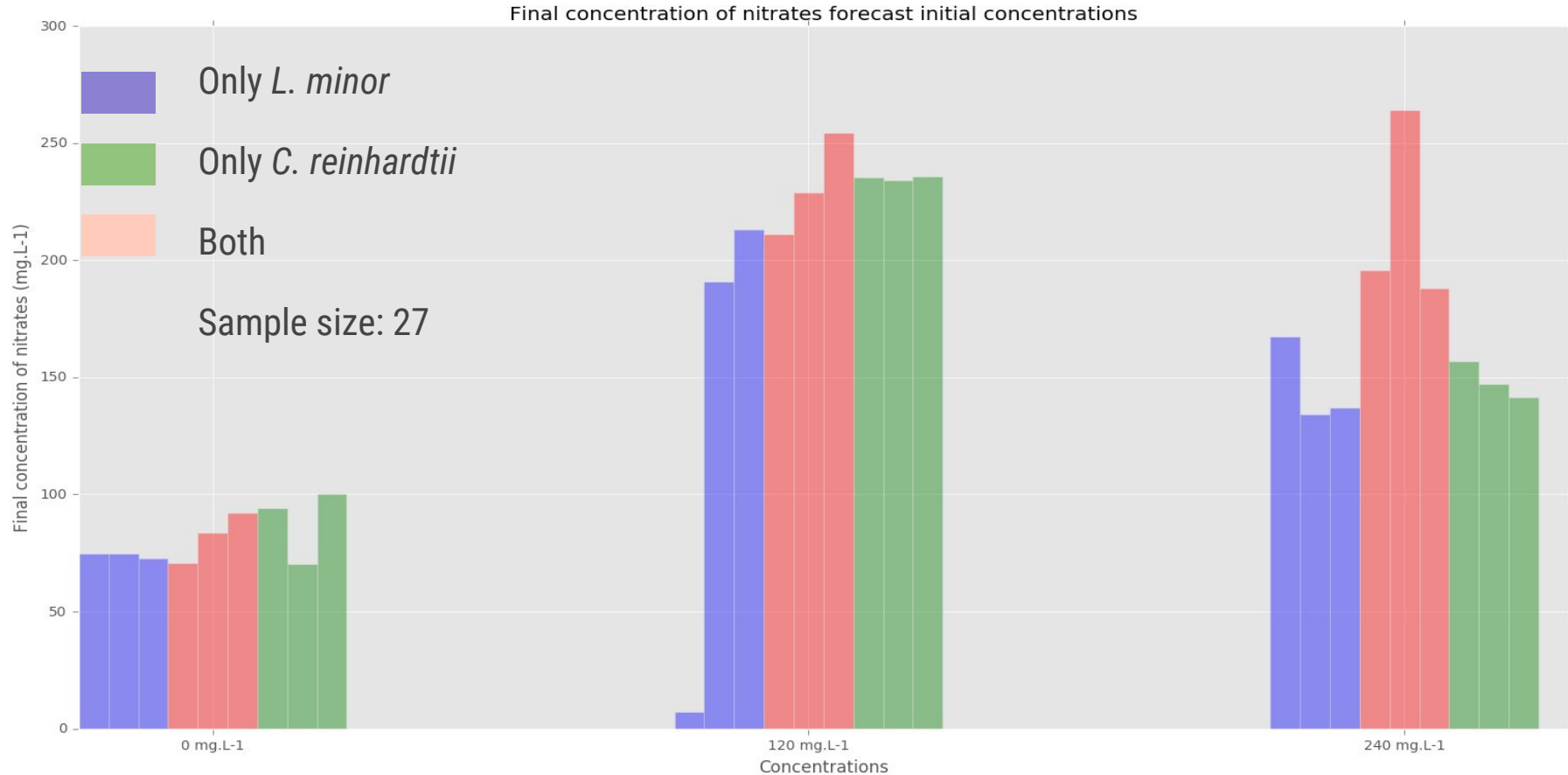


x 3

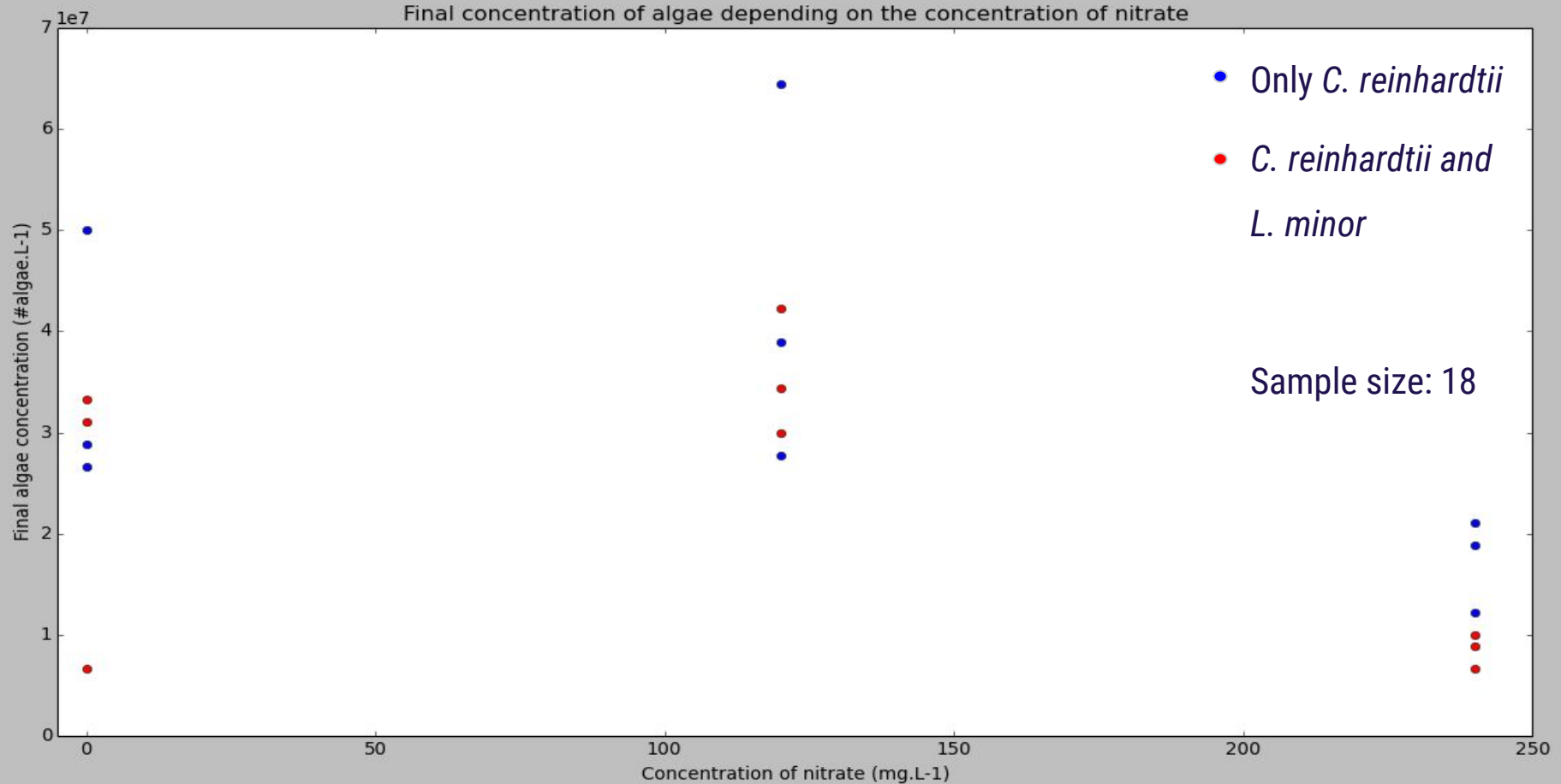
Calibrating the spectrophotometer



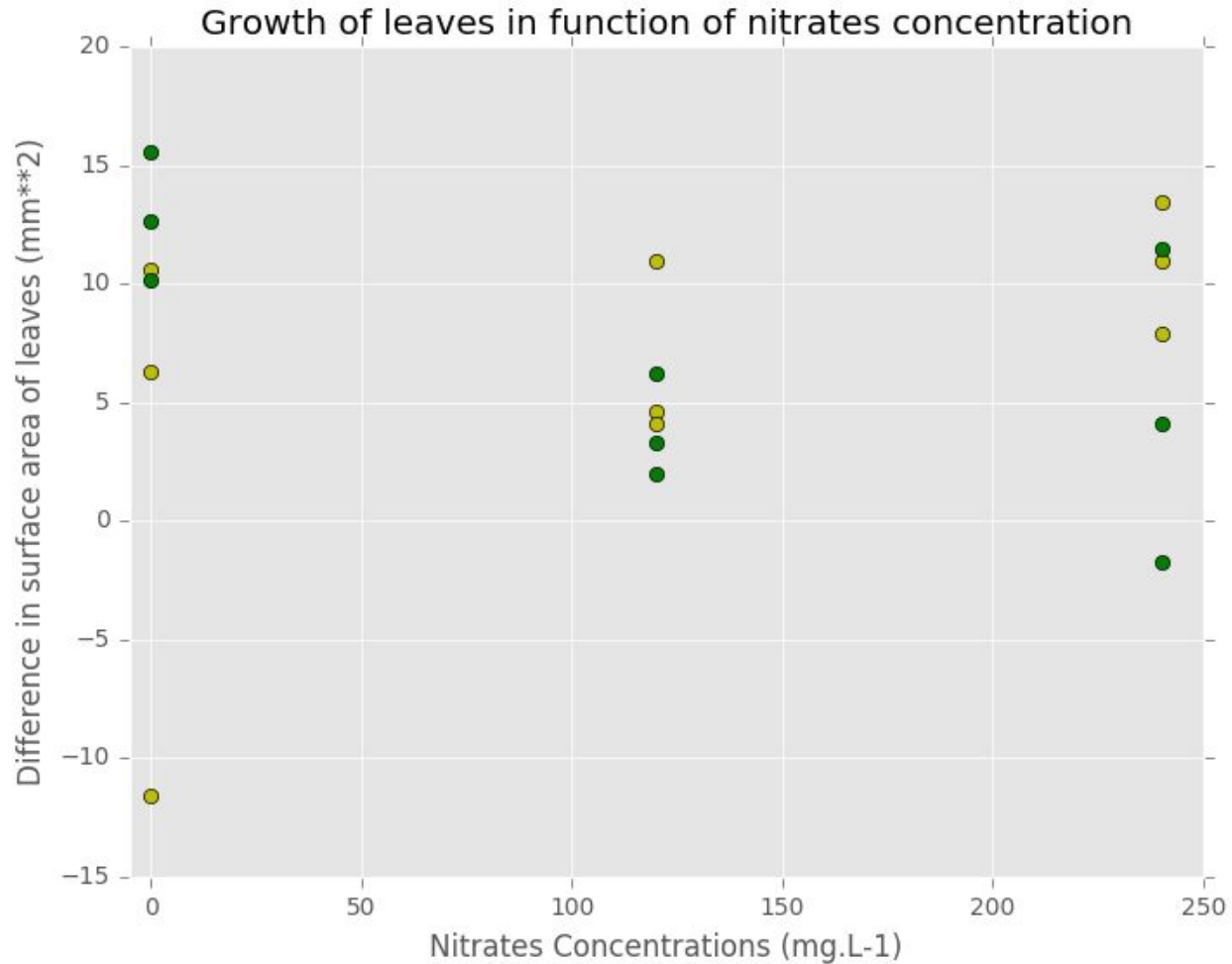
Nitrates are consumed faster when they are in high amount



C.reinhardtii don't seem to grow in high nitrate



L.minor doesn't seem to grow more in high nitrate

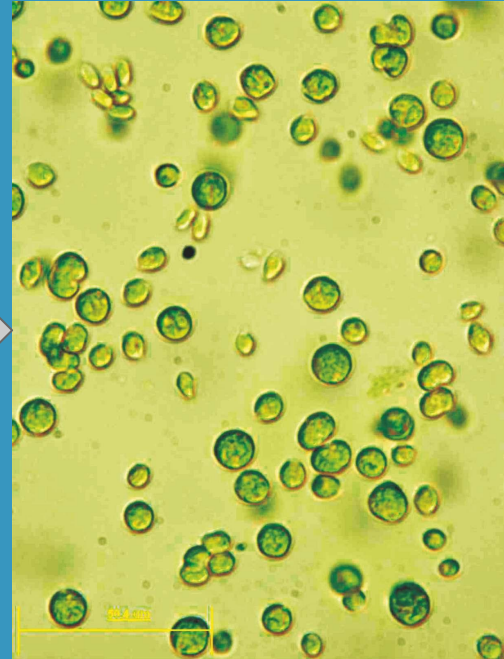
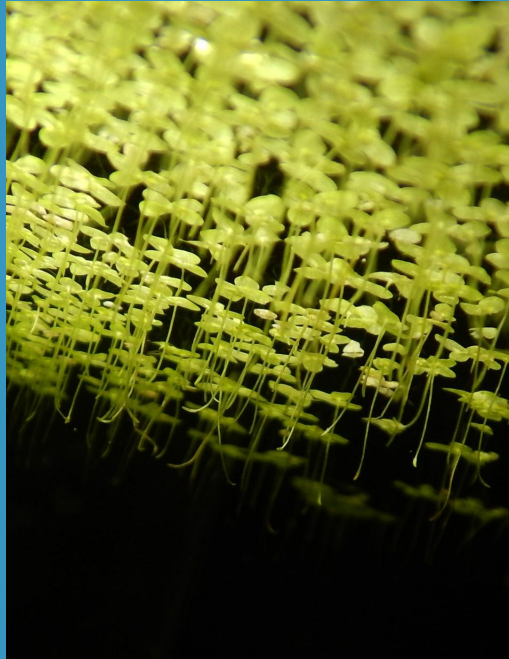


Only *L. minor*

C. reinhardtii and
L. minor

Sample size: 18

Nitrate supply for *L. minor* & *C. reinhardtii*



Environment controls and tests accuracy





Thank you for your attention !

Special thanks to **Tamara**, **Kevin** and
mentors for their help and cooperation !





Sources

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