

Soil contamination and remediation

Breakthrough with Rhodamine G

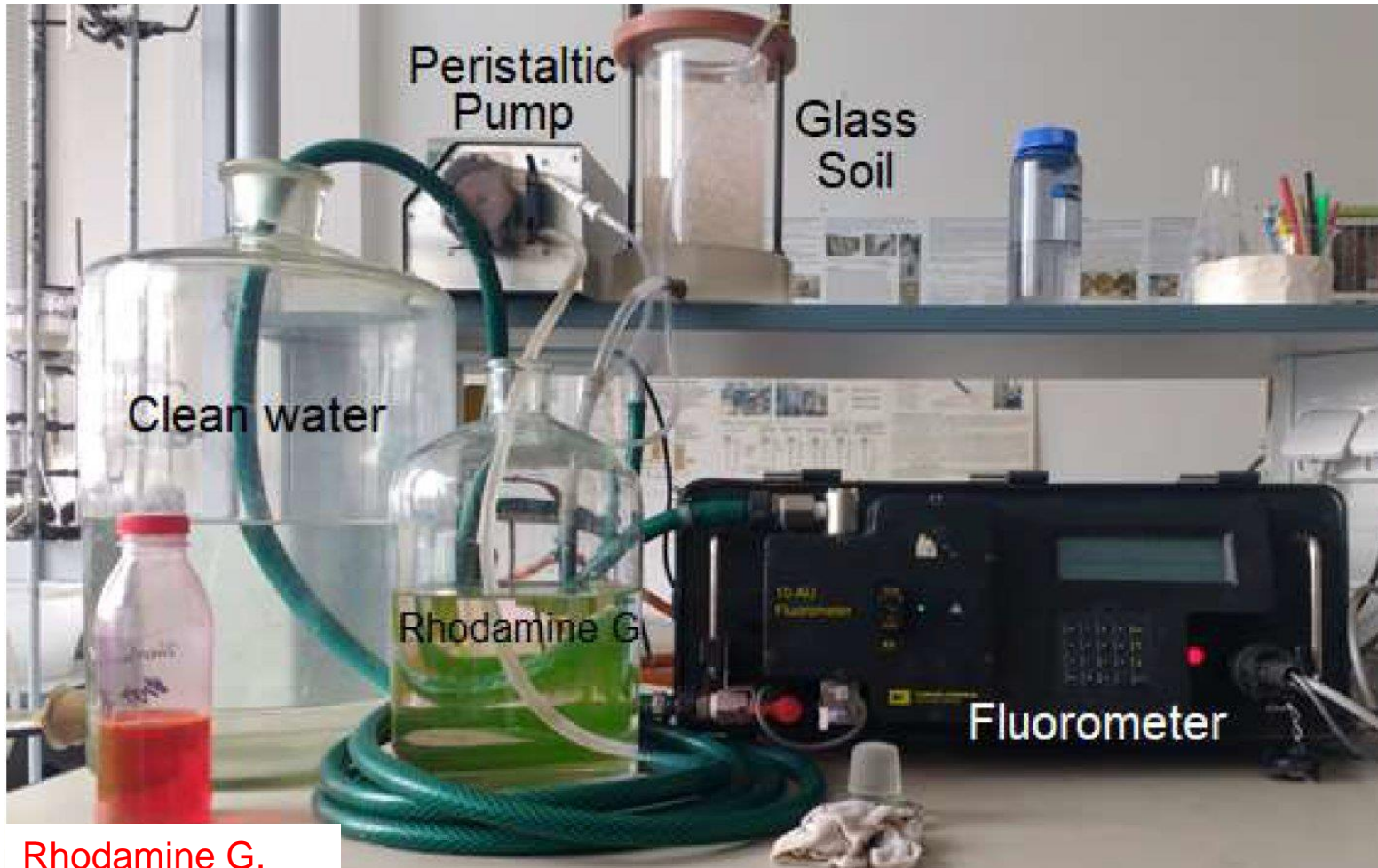
Breakthrough experiment with fluorescent dye Rhodamine G is being performed. Rhodamine G is conservative tracer (no degradation. Column is formed by glass beads mimicking porous environment).

Rhodamine G as a tracer is being pumped by peristaltic pump on top of the column in the form of a block pulse (sharp times of start and end of contamination). Prior and posterior of that, clean water is applied.

The concentration of Rhodamine G is detected by fluorometer Turner 10AU past the outlet from the experiment column.

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Parts of the experiment

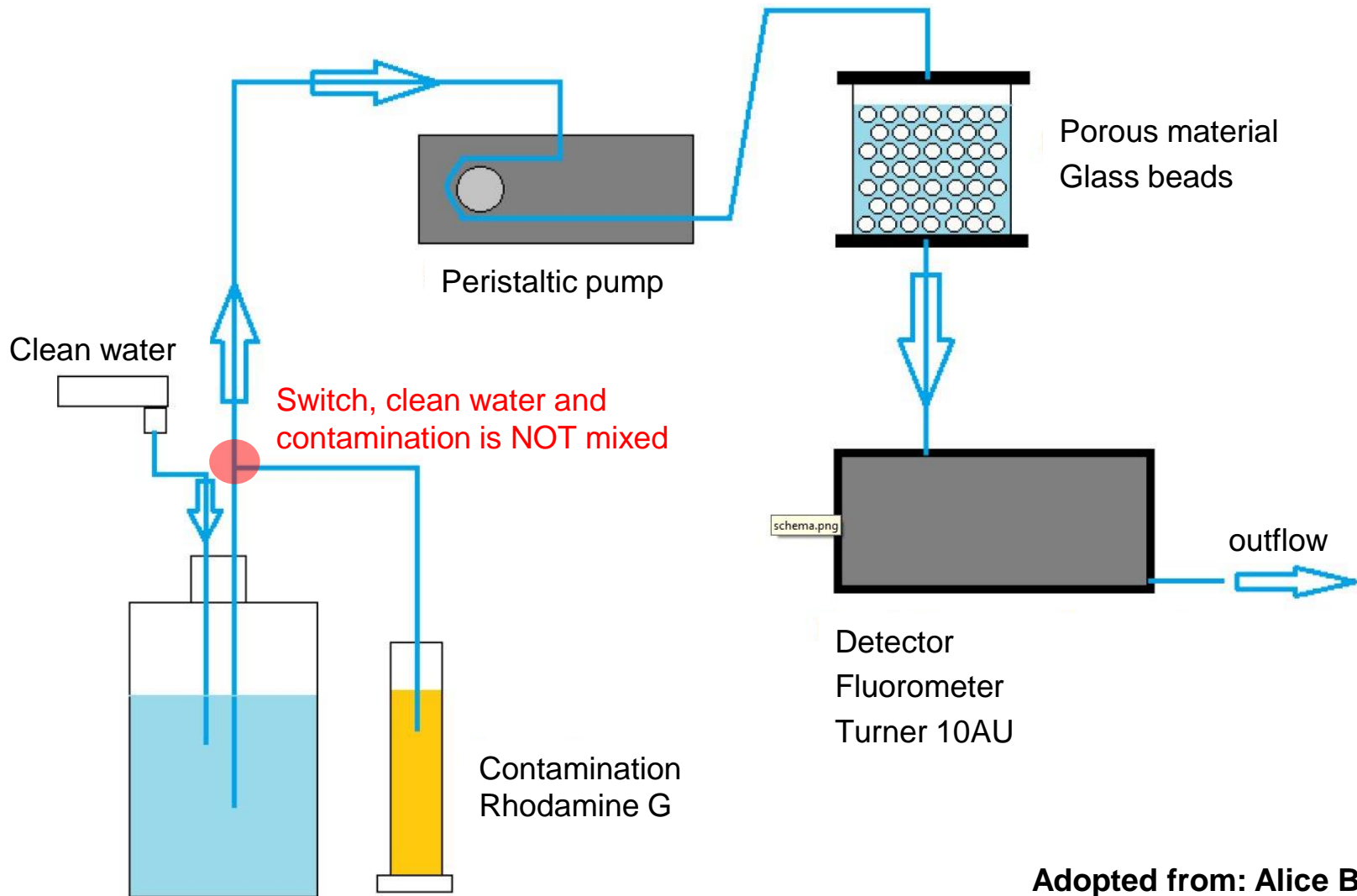


Rhodamine G,
concentrated
storage solution

Adopted from: Lucas Vázquez Barbatto

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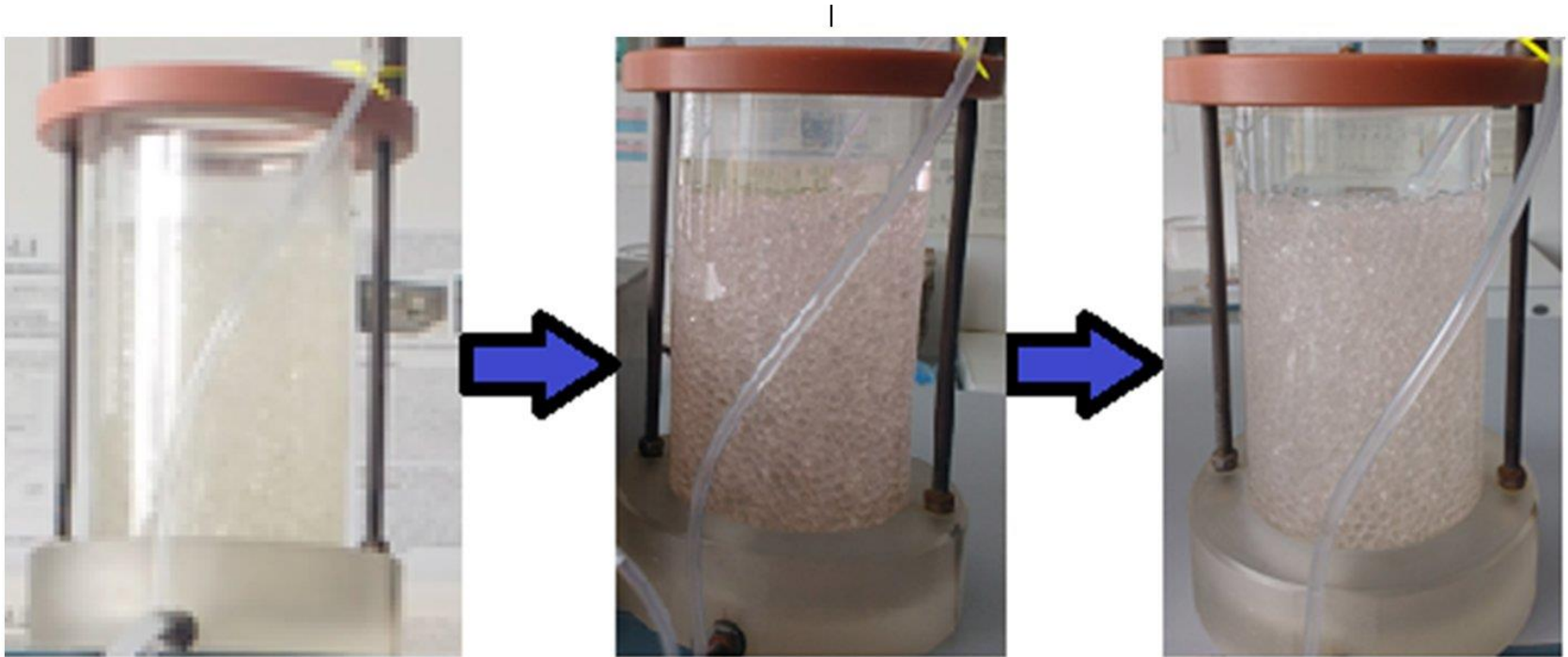
Scheme of the experiment



Adopted from: Alice Bohatá

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Advection, hydrodynamic dispersion and sorption of diluted Rhodamine G on glass beads – porous column.

Adopted from: Lucas Vázquez Barbatto

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Describe the experiment

- used parts,
- function,
- timing of clean water flushing and block pulse contamination
- concentration and amounts of contaminant

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Describe ongoing processes

- advection,
- hydrodynamic dispersion (molecular diffusion+dispersion)
- adsorption (sorption of chemical on grain surfaces)
- degradation of chemical in time

in theory and whether they are present in this experiment

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- Calculate and plot following in time:
 - input and output concentration,
 - mass influx and outflux,
 - cumulation mass influx and outflux
 - efficiency of the cleanup
- Make a technical report in Word/PDF according to this presentation, youtube - videopresentation in excel and spoken guidelines

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Mail the report to in docx or pdf format and calculation excel in xlsx format to

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Report is necessary to proceed for the exam.
Report will not be graded, but corrected and returned as a feedback