



Srihumsuk, Phatchani and Knapp, Charles and Renshaw, Joanna (2018) Comparing the growth of fescue and clover plants in petroleum industrial effluents and solutions of similar salinity. In: Society of Environmental Toxicology & Chemistry Europe 28th Annual Meeting, 2018-05-13 - 2018-05-17, Rome Convention Centre La Nuvola. ,

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Comparing the growth of fescue and clover plants in petroleum industrial effluents and solutions of similar salinity

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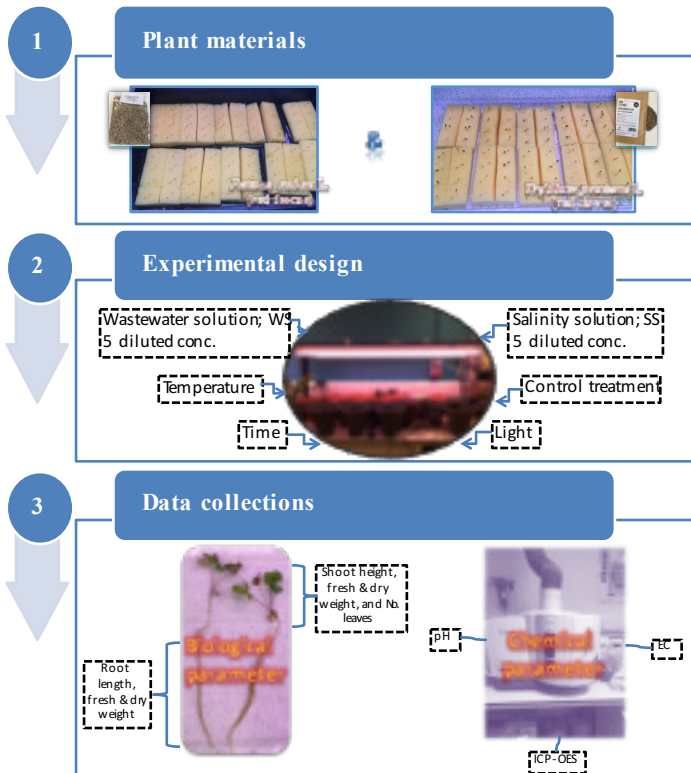


1. Introduction & Objective

A current challenge of petroleum industry is environmentally acceptable discharge of wastewater, particularly the impact of its produced-water components. Certainly, salinity is one of the problems of produced water disposal, which is a major contributor of toxicity; however, it remains questionable whether other constituents in wastewater may also be toxic. As such, we examine differentially the effects of wastewater exposure to synthetic solutions of similar salinity. Therefore, this aim and objective is intended to as following;

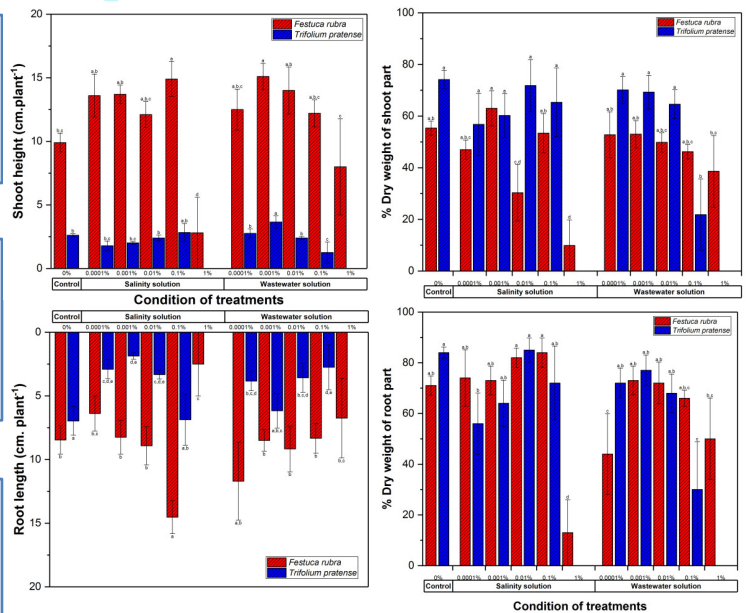
- (i) to investigate the efficiency of plant species (*F. rubra* and *T. pratense*) to grow in different salinities;
- (ii) to determine whether similar growth patterns exist in brine wastewaters from a petroleum industry; and
- (iii) to evaluate whether observable effect concentrations are comparable (or differentially toxic).

2. Materials & Methods

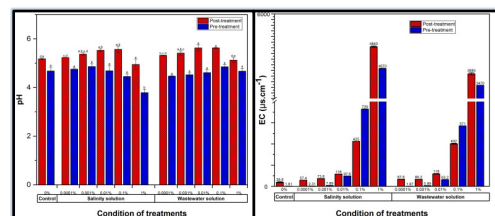


3. Results

Biological results



Chemical results



4. Conclusions

- As expected, plants required dilutions for survival (0.1%-0.001%), which would be representative of downstream dilutions following discharge into surface water
- Fescue rubra* was more halo-tolerant, and actually reduced salinity levels
- Further investigations with this other halophilic plants for remediation potential are underway.
- No indications of additional toxicity (other than salinity) in the wastewater from petroleum industry—at least at dilutions tested (being further examined)

5. Acknowledgements

The authors are grateful to acknowledgements the Ministry of Science and Technology under the Royal Thai Government for financial funding and the University of Strathclyde for laboratory facilities.

