Comparison of greenhouse and field experiments for cesium uptake in two aquatic plant species

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Introduction

The need for identifying aquatic plant species capable of accumulation cesium, either for phytoremediation purposes or a better understanding of its movement in aquatic habitats, is still relevant [1]. Therefore, two aquatic species *Ceratophyllum demersum* (CD) and *Potamogeton pectinatus* (PP) were tested in greenhouse (G) and field (F) experiments.

Methodology

The 2 L cylindrical glass flasks were divided into 4 groups with concentrations of 0, 0.133, 0.267, 0.533 mM, contaminated with 99.99% CsCl. Each group had 10 repetitions. Preparation and processing of the experiment was performed according to Rinaldi et al. (2017) [2].

Concentration [mM]	Experiment type			
	CDF	PPF	CDG	PPG
0.133	10.82%	34.71%	10.08%	11.09%
0.267	10.90%	19.83%	11.19%	10.01%
0.533	11.80%	16.64%	8.06%	9.58%

Table 1: Mean removal rates of individual experiments at different external CsCl concentrations.

Results and Discussion

Significantly higher accumulation ($p < 0.005$) of Cs^+ was found in the PPF experiment compared to CDF, CDG and PPG. All other types of experiments tested were not significant differences. Removal rates for all types of experiments and concentrations are shown in Table 1.

Cs^+ values accumulated by CDF, CDG and PPG are lower than those published by Rinadli et al. (2017), but PPF values are comparable with them [2].

[1] Burger & Lichtscheidl (2018) Science of the Total Environment **618**, 1459-1485. [2] Rinaldi *et al.* (2017) Ecotoxicology and environmental safety **139**, 301-307.