


Project title:	ROmania Serbia NETwork for assessing and disseminating the impact of copper mining activities on water quality in the cross-border area		
eMS:	RoRS 337		
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Title of the document:	Sample collection campaign from 19.05.2022 in Moldova Nouă area for sustainability of the RoS-NET2 project: ecotoxicological analysis		
Document description:	This document contains the ecotoxicological analysis of the samples collected in May 2022 in Romania using the common duckweed as test organism.		
Scope / Objective of document:	The objective of this document is the description of the results regarding the ecotoxicological effects the samples collected in May 2022 in Romania on <i>Lemna minor</i> .		
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Sample collection campaign from 19.05.2022 in Moldova Nouă area for sustainability of the RoS-NET2 project: ecotoxicological analysis

1 Introduction

The samples collected in May 2022 from Romania, Moldova Nouă area, were tested in order to determine their ecotoxic effects towards the aquatic macrophyte, *Lemna minor*.

2 Materials and methods

The assay involved the exposure for 7 days of a total number of 10 duckweed fronds. The water samples were tested without diluting the samples, using a volume of 10 mL from each sample, while the sediment and soil samples were tested by adding 0.1 g sediment / soil to 10 mL culture media, obtaining a concentration of 1% (equal to 10 mg/mL or 10000 mg/L). The assay also included a negative control (duckweed in culture media) and a positive control (0.5% ZnCl₂).

3 Results

All tested surface water, groundwater, sediment and soil samples showed ecotoxic effects towards duckweed (Figure 1). The surface water samples were the least toxic, while some of the soil samples were had the most toxic effect.



Cooperation beyond borders.

Interreg-IPA Cross-border Cooperation Romania-Serbia Programme is financed by the European Union under the Instrument for Pre-accession Assistance (IPA II) and co-financed by the partner states in the Programme.

Project RoRS 337- ROmania Serbia NETwork for assessing and disseminating the impact of copper mining activities on water quality in the cross-border area (RoS-NET2)

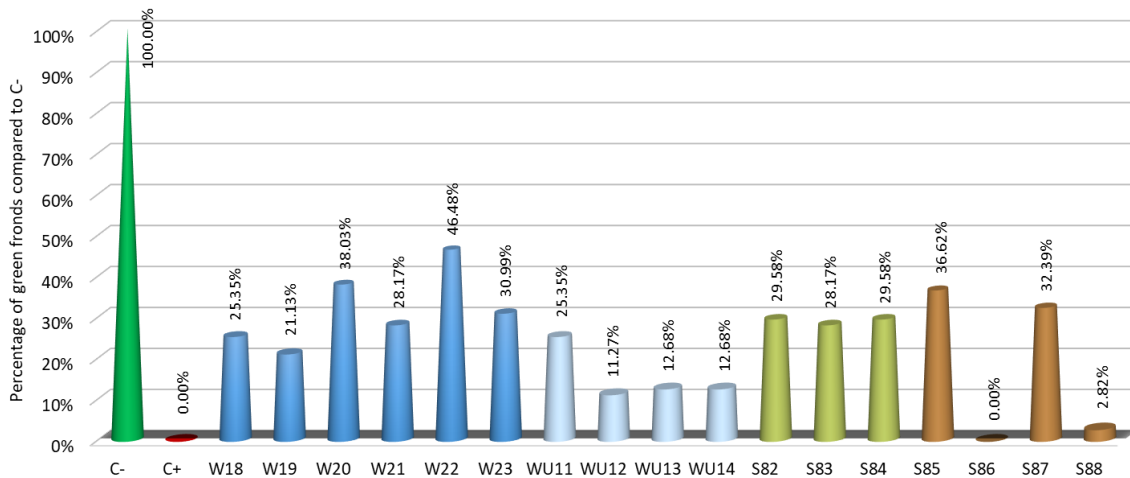


Figure 1. Percentage of green fronds for each tested samples, water, sediment and soil, compared to the negative control.

From the surface water samples, the lowest number of green fronds was observed for sample ID W19 (water from Boşneag river, from Moldova Veche village), representing 21.13% compared to the negative control (Figure 2). The least toxic sample was W22 (water from nera river, upstream Socol village), representing approximately 50% compared to the negative control. It was observed that the surface water samples collected from the villages were least toxic than the samples collected from upstream the villages.

Regarding the groundwater samples, the least toxic sample was WU11, representing 25% compared to C-, the other three samples were more toxic, representing 12% compared to the negative control.

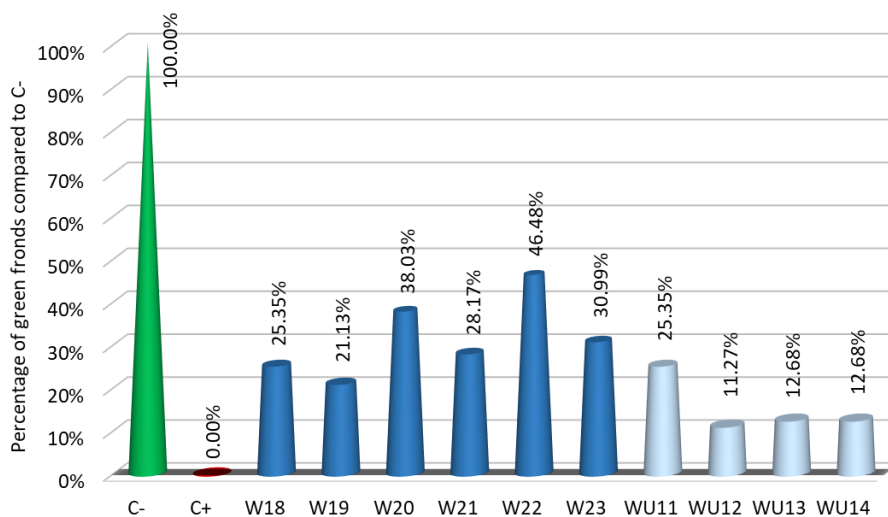


Figure 2. Percentage of green fronds for each tested water samples, both surface and groundwater, compared to the negative control.

All three sediment samples had approximately equal toxic effect towards duckweed, representing almost 30% compared to the negative control (Figure 3). Two soil samples represented approximately

35% compared to C-, while the other two samples had a very strong toxic effect, almost all fronds being chlorosed.

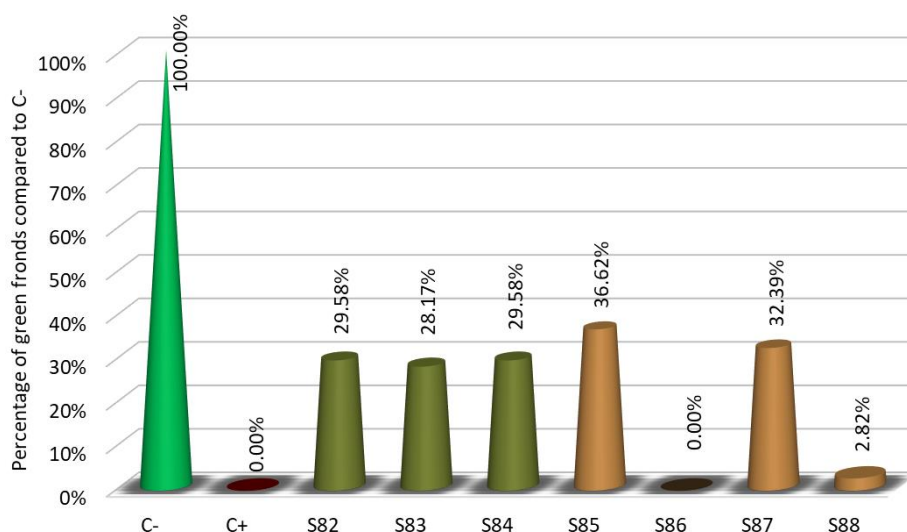


Figure 3. Percentage of green fronds for each tested sediment and soil samples compared to the negative control.

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