



Fig. 4. Results for determining the content of heavy metals in plant parts with a total population of wild plants (n = 100).

group of elements of intense absorption. For zinc and cadmium, biogenic migration, apparently, can act as the main factor in the migration of these elements in the landscape. The variation in the content of HM in the botanical families of plants in the study area is small and averages: copper-35.0%, zinc-19.0%, manganese-34.8%, cobalt-46.7%, lead-43.3%, and cadmium-51.5%.

CRedit authorship contribution statement

L.R. Sassykova: Conceptualization. **Y.A. Aubakirov:** Software, Data curation. **M. Sh. Akhmetkaliyeva:** Writing - original draft, Visualization. **A.R. Sassykova:** Investigation, Supervision. **S. Sendilvelan:** Resources, Software, Validation. **M. Prabhakar:** Writing - review & editing. **S. Prakash:** Data curation, Editing and validation. **Zh.Kh. Tashmukhambetova:** Formal analysis. **T.S. Abildin:** Writing - original draft, Validation. **A.K. Zhussupova:** Methodology.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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