

Content of Selected Essential and Toxic Metals in Adaptogenic Plants Supporting Post-COVID-19 Recovery

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INTRODUCTION & AIM

The COVID-19 pandemic, which began in late 2019, has drawn global attention to natural methods of supporting health during recovery. Adaptogens — plant-derived substances enhancing resilience to stress and boosting immunity — may play a vital role in post-infection rehabilitation.

Post-COVID-19 syndrome is frequently associated with persistent inflammation, oxidative stress and impaired immune response. Adaptogenic plants are increasingly used in convalescence due to their ability to modulate stress pathways, enhance resilience and support immune function. Since both essential and toxic metals can influence oxidative balance, enzymatic activity and overall recovery, determining their content in adaptogens is crucial for assessing their potential safety and effectiveness in post-infection rehabilitation.

This study aimed to determine the content of essential (Mn, Mg, Cu, K, Na, Fe) and toxic (Cr, Cd, Pb, Sr) elements in selected adaptogenic plants used in recovery after SARS-CoV-2 infection.

METHOD

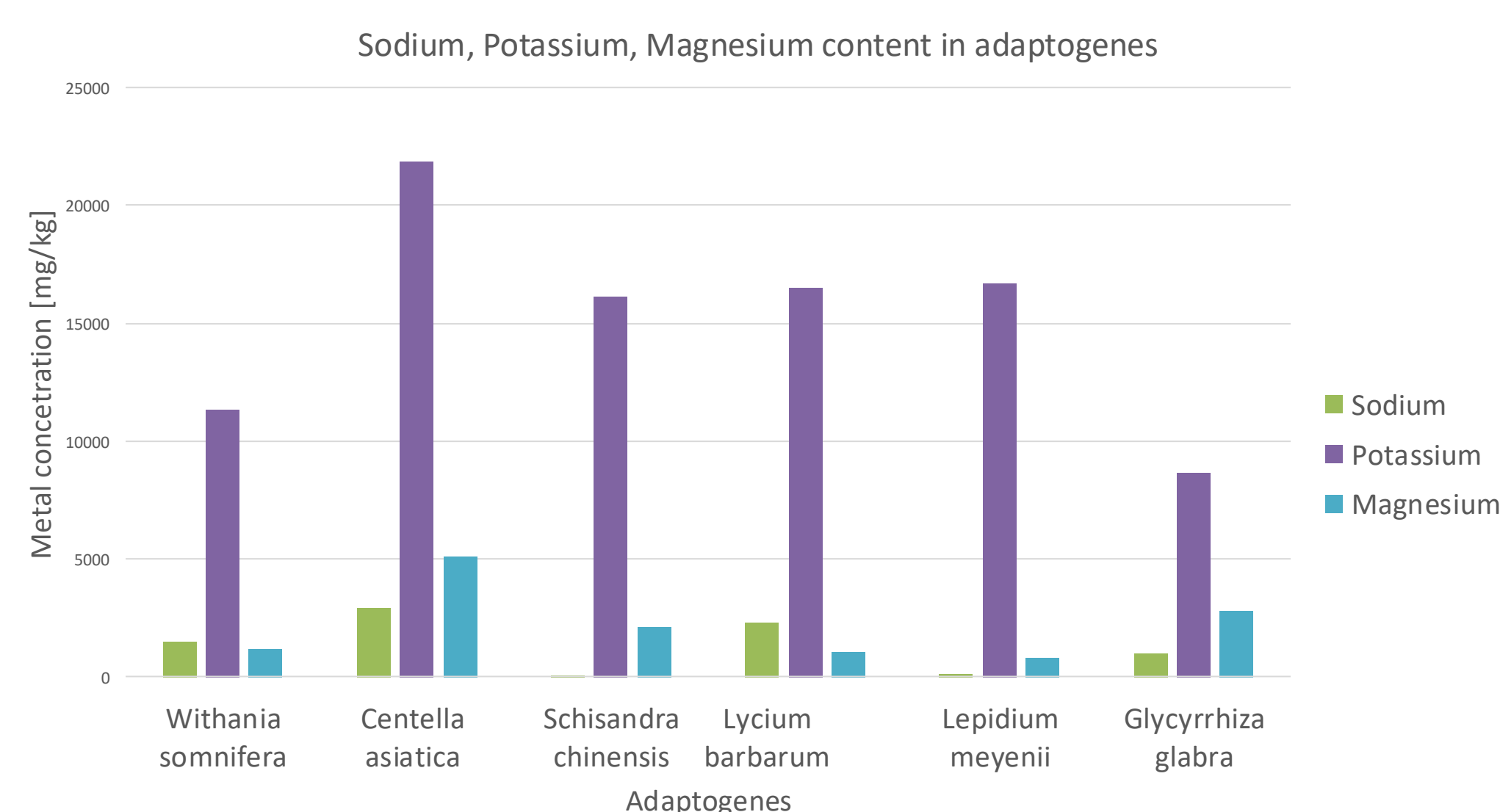
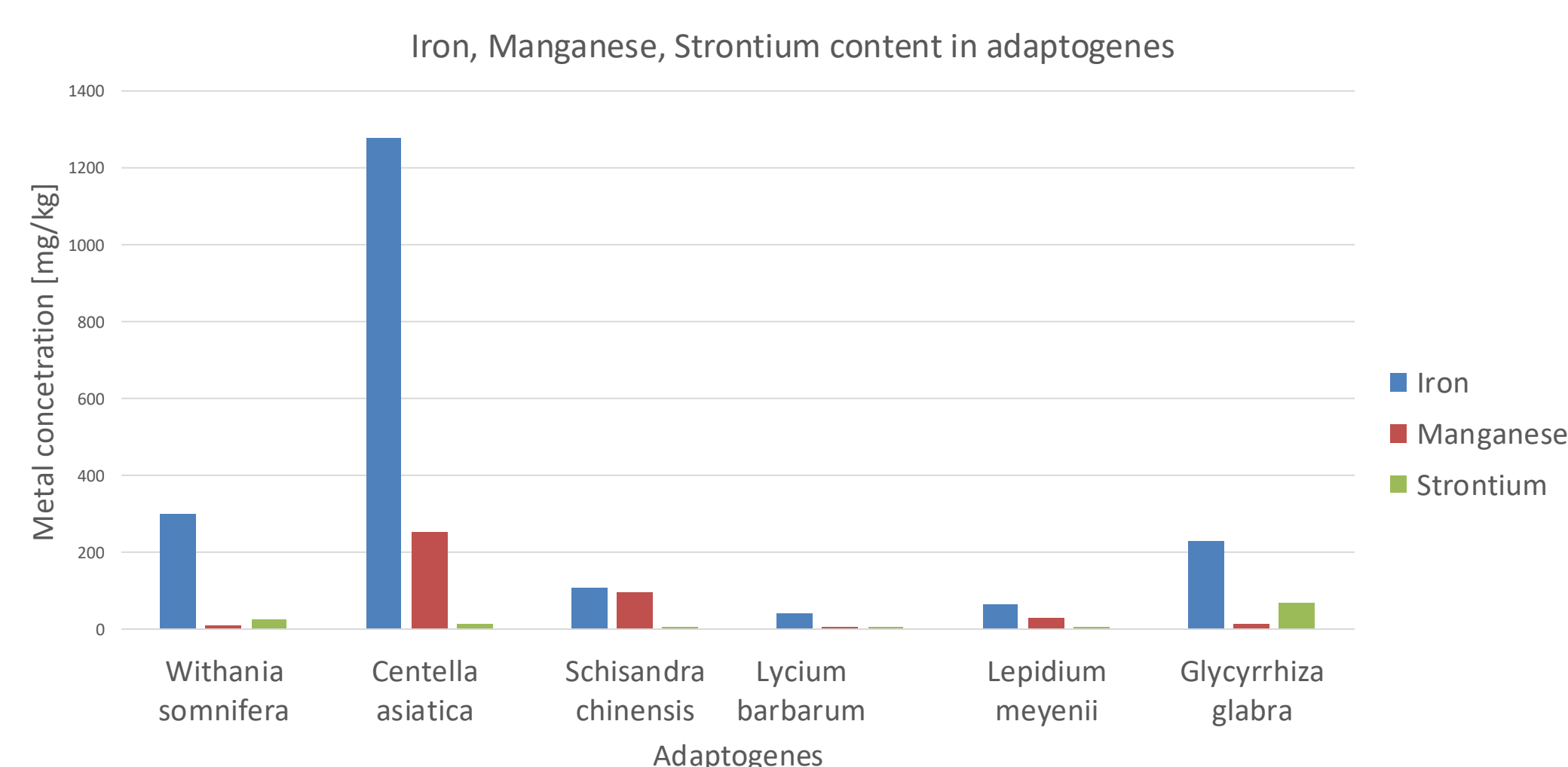
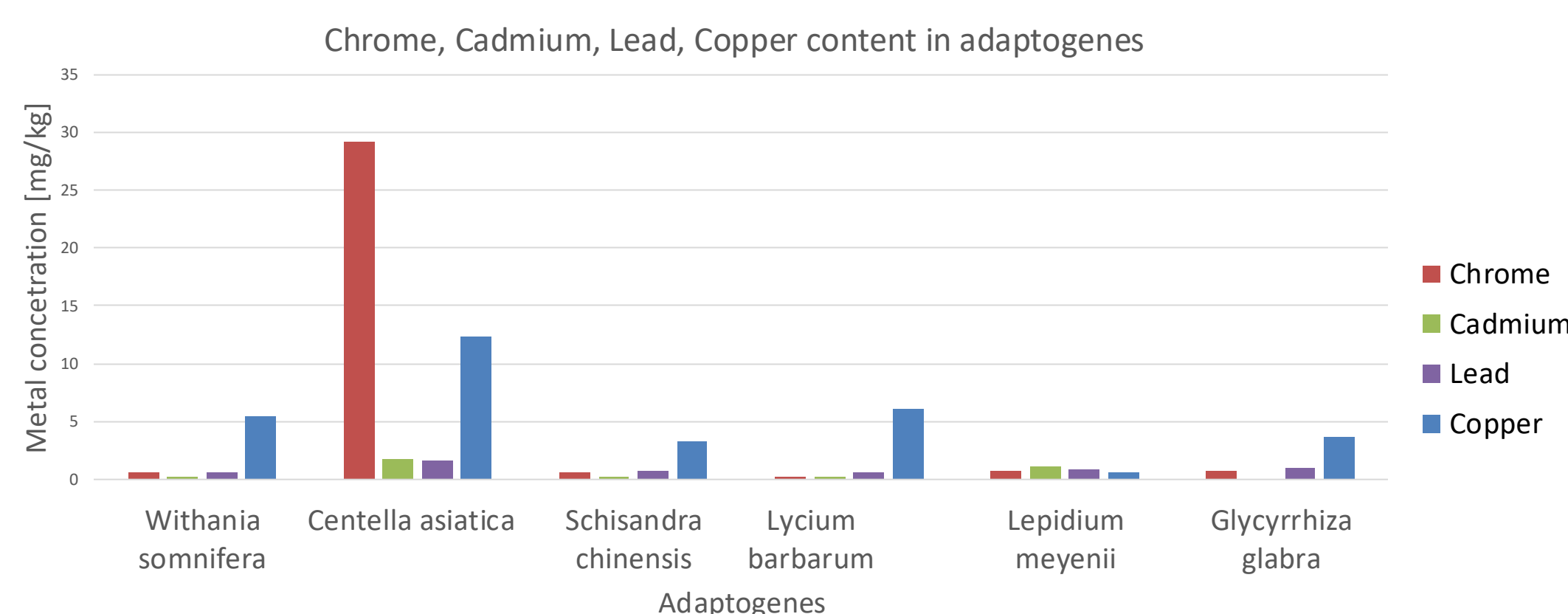
Six plant materials – *Withania Somnifera* (ashwagandha), *Centella asiatica* (gotu kola), *Schisandra chinensis* (schisandra), *Lycium barbarum* (goji berries), *Lepidium meyenii* (maca) and *Glycyrrhiza glabra* (licorice root) – were analyzed.

Elemental concentrations were determined using atomic absorption spectroscopy (ContrAA 700, Analytik Jena). Results were compared with literature data and international safety limits for heavy metals in herbal products.



Figure 1. Plant materials

RESULTS & DISCUSSION



CONCLUSION

1. The elemental analysis confirmed notable variability among the tested adaptogens, reflecting differences in their origin, cultivation conditions, and possible environmental exposure.
2. Although Cd concentrations in gotu kola and maca slightly exceeded regulatory thresholds, overall heavy metal levels remained within safe limits for human consumption when adhering to recommended dosages.
3. The high mineral content in certain species, particularly gotu kola, indicates their potential contribution to dietary mineral intake during convalescence.
4. These findings highlight the importance of monitoring elemental composition in medicinal plants to ensure both safety and therapeutic effectiveness.

FUTURE WORK / REFERENCES

1. Assessment of the bioavailability of the detected metals and their potential impact on post-COVID-19 recovery.
2. Investigation of the immunomodulatory effects of the analyzed adaptogenic plants.