SALT-AFFECTED SOILS : THREATS AND POTENTIALS
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Utilization of Organic Fertilizers for Sustainable Management of Salt-Affected Soils: A Synthesis of Studies and Trends

Nuray ÇİÇEK

ORCID : 0000-0001-5044-5276

Assist. Prof. Dr., Çankırı University, Faculty of Forestry, Department of Landscape Architecture, Çankırı-Türkiye

ciceknuray@karatekin.edu.tr

Objectives of the Study

- To summarise the effects of various organic fertilisers on plant species under salt stress,
- To provide a comprehensive overview of historical and current trends in their use to combat salt stress and reclaim affected soils,
- To contribute to the ongoing discourse on sustainable soil management and agriculture.

Results

- Organic fertilisers, particularly seaweed, bat guano, and liquid vermicompost, have consistently and significantly impacted plant growth, quality, and nutrient uptake under salt stress conditions.
- Seaweed liquid was tested on *Lavandula officinalis* grown under salt stress and exhibited effectiveness across all plant morphological and physiological traits analysed.
- Vermicompost applications to *Verbena officinalis* and *Vicia pannonica* grown under salt stress benefited plant germination and seedling parameters and significantly improved growth traits and root development, especially with frequent application.
- Bat guano enhanced plant traits of *Begonia semperflorens* and mitigated salt stress effects.
- Liquid vermicompost, while vermicompost leachate, improved growth and quality traits in tested plants.

Conclusion

- Organic fertilizers hold great potential for alleviating salt stress and reclaiming salt-affected soils.
- Organic materials like biochar and seaweed extracts have a potential for alleviating salinity stress and enhancing soil health.
- The integration of organic materials with conventional fertilisers has been proposed as a sustainable approach to managing salt-affected soils, further emphasising the potential of organic fertilisers in this context.
- Further studies are needed to optimise their application for different plant species and soil conditions
- Sustainable management practices, supported by effective policies, are essential for ensuring the long-term productivity and environmental sustainability of salt-affected soils.

Figure 1: Organic fertilisers examined in our studies

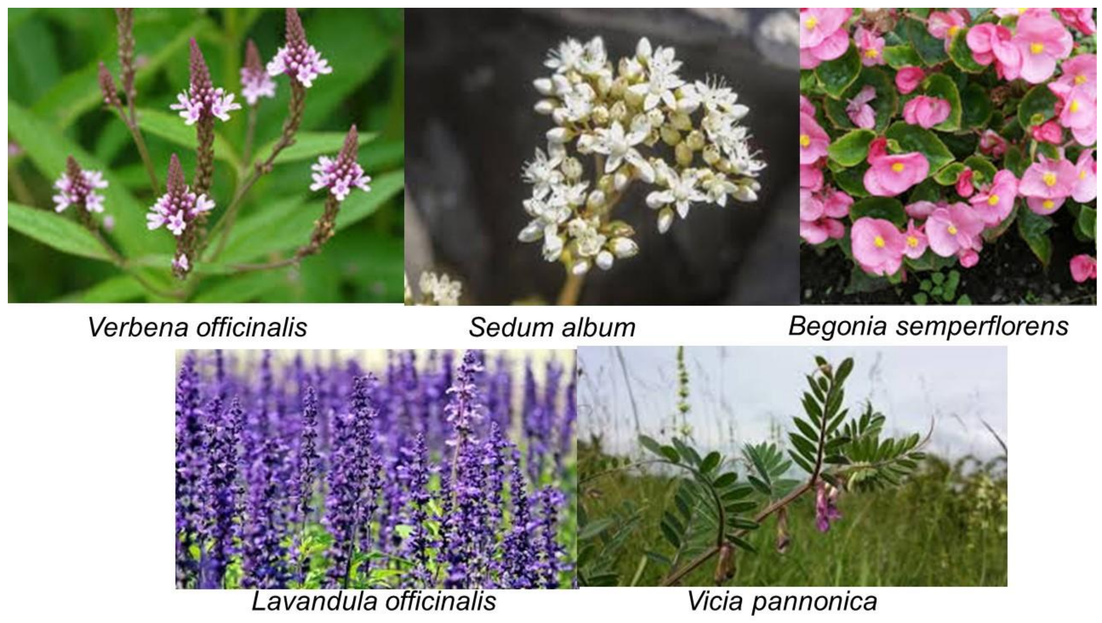

Figure 2: Plant species examined in the studies

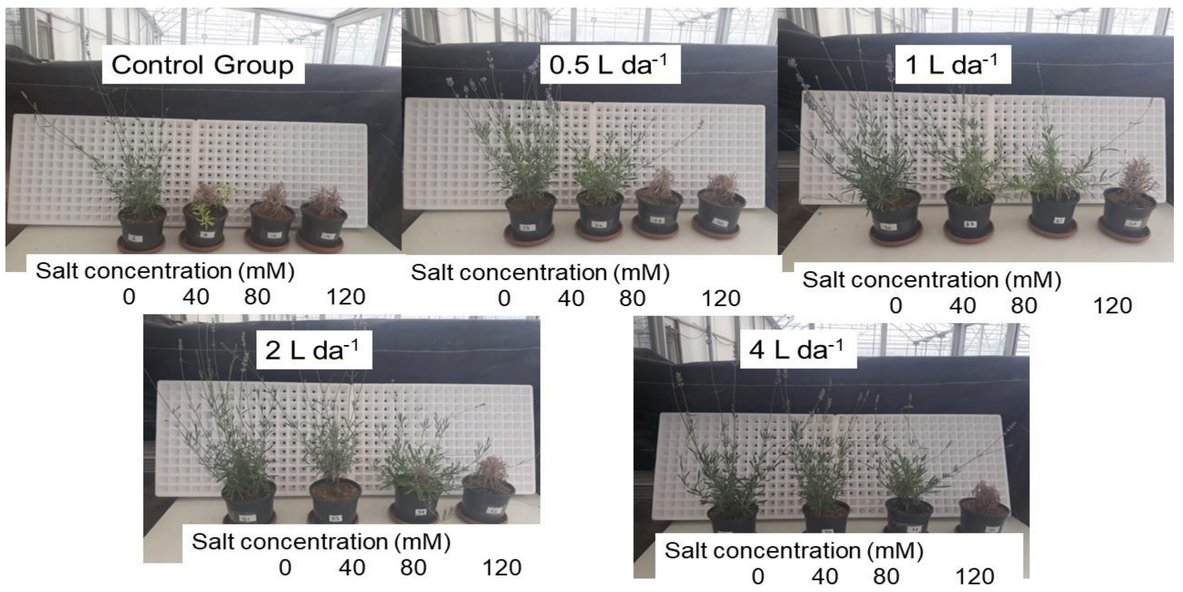

Figure 3: The Effect of Seaweed on Salty Conditioned Lavender (*Lavandula officinalis*) Growing

References

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