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sciforum-136193: Estimation of *Ascophyllum nodosum* extract and mineral fertilizer potential to improve yield, morphological traits, and physiological parameters of *Petroselinum hortense* var. *foliosum*

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Parsley (flat-leaf parsley, *Petroselinum hortense* var. *foliosum*) is a plant that belongs to the Apiaceae family. It has no special requirements for soil chemical composition so that it can grow well on all soil types. However, it responds very well to moisture during the germination phase, with a very good response to fertilization, particularly nitrogen. The present study aimed to evaluate the level of significance in effects of soil mineral (NPK) fertilization solely and combined with foliar use of a brown seaweed *Ascophyllum nodosum* extract (ANE) in 2, 4 and 6 ml per liter, on the yield, morphological traits (stem length, number of leaves per stem, root length) and physiological parameters (nitrogen balance index, chlorophyll, flavonoids, anthocyanins) of parsley plants, comparing the treatments and in relation to the control. The trial was conducted in greenhouse conditions in pots from the first week of April to the fourth week of June 2025, using Eutric Cambisol soil, characterized as a clay loam with a very acidic reaction. Physiological parameters were measured using a Dualex leaf clip sensor. The obtained data revealed significant effects ($p < 0.05$) of all applied treatments on the physiological parameters of parsley, except for anthocyanin content, for which treatments had no significant effect ($p > 0.05$). All morphological traits did not differ significantly between treatments ($p > 0.05$), but showed values noticeably higher than those of the control. Statistically significant differences ($p < 0.05$) in the yield of parsley were most pronounced in the NPK + ANE (4 ml) treatment in relation to other treatments and the control. In conclusion, the best results were obtained with NPK + ANE (4 ml) across all tested parameters, suggesting it as the optimal fertilization treatment for flat-leaf parsley cultivation based on this study.



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