ASCOPHYLLUM NODOSUM EXTRACTS AS PLANT BIOSTIMULANTS: FROM GENE EXPRESSION TO PHENOTYPE

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ABSTRACT

Extracts of the brown macroalga, *Ascophyllum nodosum*, is widely on field and horticultural crops for over a century as it improves plant growth, yield, and quality and imparts tolerance to biotic and abiotic stresses. However, the biochemical and molecular mechanisms of action of *A. nodosum* extracts are largely unknown. The biostimulant activities of *A. nodosum* extracts were studied using the model plant *Arabidopsis thaliana* under salinity stress. *A. nodosum* extract significantly improved plant performance under 150mM NaCl stress. Whole genome transcriptome profiling revealed significant and specific effect of *A. nodosum* extract on gene expression. This research opens up a novel area of chemical regulation of gene expression to improve plant growth and quantitative traits in crop plants. This potential will be discussed.