GrowGreen FERTILISER

PRODUCT BRIEF — PRODUCT INFORMATION

Microbe Plus® Kelp

Hormones and Fertiliser Benefits

What makes kelp extracts effective in crops, the role phytohormones play in plant growth, and the measured hormone profile of GrowGreen's Microbe Plus® Kelp.

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Product information

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Microbe Plus® Kelp: Hormones and Fertiliser Benefits

1- Kelp Extracts as Fertilizer Sources

Kelp extracts are naturally derived biostimulants widely used in agriculture to support plant growth, crop performance and resilience. When applied to crops, they can promote stronger root development, support flowering and fruit development, improve nutrient use efficiency, and help plants tolerate environmental stresses such as heat, drought and salinity. Kelp extracts can also support seed germination, crop quality and yield, while contributing to healthier and more vigorous plant growth.

The benefits of GrowGreen's Microbe Plus® Kelp come from its naturally complex combination of phytohormones and plant growth regulators, amino acids, beneficial microorganisms, essential plant nutrients and vitamins. Together, these components support plant growth, root development, nutrient uptake and overall crop performance.

2- The Role of Phytohormones in Plant Growth

Phytohormones are naturally occurring plant signalling compounds that regulate growth, development and responses to environmental conditions. Even at very low concentrations, they influence key processes such as cell division and expansion, root and shoot development, flowering, fruit development, ripening and responses to stresses such as drought, heat and salinity.

Rather than acting independently, phytohormones work through a complex network of interactions. The balance between hormones—including auxins, cytokinins, gibberellins, abscisic acid and ethylene—helps determine how a plant directs its resources at different stages of growth. Supporting this natural hormonal balance can therefore contribute to stronger establishment, more efficient growth and improved crop performance.

3- Phytohormone Profile of Microbe Plus® Kelp

Kelp extracts naturally contain a range of bioactive compounds, including phytohormones and hormone-like substances that can influence plant growth and development. These compounds do not act independently; their effects depend on their concentration, the plant's growth stage, and their interactions with other hormonal signals within the plant.

Analysis of GrowGreen's Microbe Plus® Kelp demonstrates the presence of several naturally occurring phytohormones, including auxins, cytokinins, gibberellins and abscisic acid (ABA). These hormones have different but interconnected roles in plant physiology, influencing processes such as cell division and expansion, root and shoot development, plant establishment, and responses to environmental conditions.

Table 1. Phytohormone Concentrations (ng/g FW) in GrowGreen's Microbe Plus® Kelp

Phytohormone	**Concentration (ng/g FW)**
Cytokinins	85
Abscisic acid (ABA)	103
Auxins	723
Gibberellins	11
Ethylene	N/A

The results provide a snapshot of the diverse phytohormone profile naturally present in Microbe Plus® Kelp. The presence of multiple phytohormones is particularly relevant because plant growth and development are regulated by the interaction and balance between different hormonal signals, rather than by the action of a single hormone in isolation.

4- The GrowGreen Difference: Microbially Digested Kelp

GrowGreen's Microbe Plus® Kelp differs from conventional kelp products through the use of beneficial microorganisms as part of the production process. These microorganisms biologically digest the kelp material, helping break down its complex organic components into smaller and more readily available forms.

This microbial digestion effectively begins the breakdown process before the product reaches the plant. As a result, nutrients and naturally occurring bioactive compounds contained within the kelp are presented in forms that can be more readily accessed and utilised by the plant, supporting faster availability and efficient uptake.

Importantly, the process does not rely solely on the nutritional value of kelp. It combines the natural benefits of kelp, including its phytohormones, amino acids, nutrients and other bioactive compounds, with the biological activity of beneficial microorganisms. This creates a biologically processed kelp fertiliser designed to deliver both readily available plant nutrition and the broader biostimulant benefits associated with kelp.

5- Conclusion

GrowGreen's Microbe Plus® Kelp is a naturally derived, microbially digested kelp-based biostimulant containing a diverse combination of bioactive compounds, including phytohormones, amino acids, beneficial microorganisms, essential plant nutrients and vitamins.

Analytical results demonstrate the presence of several important phytohormones. These compounds have different but interconnected roles in regulating plant growth, development and responses to environmental conditions.

Rather than relying on a single component, Microbe Plus® Kelp provides a complex combination of naturally occurring compounds that can support root and shoot development, plant establishment, nutrient utilisation and overall crop performance throughout the growing cycle.