

## Analysis of plant growth regulators in two of green seaweeds using high-performance liquid chromatography with electrospray ionization tandem mass spectrometry

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Seaweed extracts and seaweed based products have been recently used as biofertilizer and biostimulant in agriculture due to the presence of a number of plant growth regulators and many other micro/ macro-element nutrients. Although marine algae are widely utilized in the world as biofertilizers in agriculture and horticulture, there are only a few investigations of micro algae usage on development of organic farming in our country. In order to fill this gap, the primary focus of the present work is to reveal main plant growth regulators (indole-3-acetic acid (IAA), abscisic acid (ABA), gibberellic acid (GA<sub>3</sub>), zeatin(Z), and kinetin) of two feasible seaweeds which are *Penicillus capitatus* and *Flabella petiolata* from green seaweed groups available in on seashores of Turkey as a source of potential biofertilizer. To develop an efficient, specific and validated analytical method suitable for the extraction and quantification of plant growth regulators (indole-3-acetic acid (IAA), abscisic acid (ABA), gibberellic acid (GA<sub>3</sub>), zeatin(Z), and kinetin) of the seaweeds, a specific extraction procedure (75 % methanol/water, v/v) was implemented into an analytical protocol using an appropriate buffer solution followed by solid-phase extraction (SPE). Final analyses were performed by high performance liquid chromatography with a photodiode array (PDA) detector in accompanied with tandem mass spectrometry.

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