

# facts you didn't know about

# 7



## ASCOPHYLLUM NODOSUM



*Ascophyllum nodosum* is the most researched seaweed in the world; and yet scientists have only just scratched the surface on all its benefits in agriculture.

It is common knowledge that no two seaweeds are alike and that seaweed has more to it than just Cytokinins and Auxins. In fact *Ascophyllum nodosum* has shown to have more than 7 different active compounds that assist crops with abiotic stressors, thereby increasing yields, improving world wide food supply, better return on investments to farmers and growers, and stronger, healthier crops.

While interactions and synergisms are still being discovered, here are 7 little known facts about *Ascophyllum nodosum* that you probably didn't know.

**1** *Ascophyllum nodosum*'s common name is or is commonly called "Rockweed" because it grows on available hard surfaces, including rocks, shells, and dockpilings

**2** Rockweed is an oceanic photosynthesizer that requires CO<sub>2</sub> and reduce its levels by using it to produce its own food. In this way Rockweed regulates the pH of sea water which helps in maintaining water quality along the coast.

**3** *A. nodosum* increases the activity of certain defense-related enzymes, such as peroxidase, polyphenoloxidase, phenylalanine ammonia lyase, chitinase, and b-1,3-glucanase which has been used to treat *Alternaria radicina* and *Botrytis cinerea* in carrots (Jayaraj et al. 2008).

Alkaline extracts of *A. nodosum* showed an increase in chlorophyll content in different crops such as tomato, dwarf French bean, wheat, barley and maize. The increase in chlorophyll content is due to the presence of betaines in the seaweed extract (Blunden et al. 1997).

**4** *A. nodosum* contains, laminarin which has been shown to stimulate natural defense responses in plants and is involved in the induction of genes encoding various pathogenesis-related (PR) proteins with antimicrobial properties (Fritig and others 1998; van Loon and van Strien 1999).

**5** *A. nodosum* contains, laminarin which has been shown to stimulate natural defense responses in plants and is involved in the induction of genes encoding various pathogenesis-related (PR) proteins with antimicrobial properties (Fritig and others 1998; van Loon and van Strien 1999).

**6** Alginates present in *A. nodosum* results in better soil aeration and capillary activity of soil pores which in turn stimulate the growth of the plant root system as well as boost soil microbial activity (Eyras and others 1998; Gandhiyappan and Perumal 2001; Moore 2004).

**7** Organic solvent extracts of *A. nodosum* namely; methanol, chloroform and ethylacetate, alleviates salt induced stress in plants. Critchley, Alan T et al: 2009: WO 2009/129596 A9).

*A. nodosum* is commonly found on the north-western coast of Europe, East Greenland and the North-Eastern coast of North America. Also known as feamainn bhuí, rockweed, Norwegian kelp, knotted kelp, knotted wrack or egg wrack. This kelp has irregularly dichotomously branched fronds with large, egg-shaped air bladders set in series at regular intervals along the fronds and not stalked that make it unique.

Although this seaweed has been used since the early 1900s as a fertiliser, 21st century technologies have opened new understandings about how and why this brown, macro-algae has gained popularity in its uses as a highly successful bio-stimulant in today's agriculture.