

Sodium alginate gel beads with slow-release fertilizer from sea weeds and biostimulants of paddy growth

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Marine algal seaweed species are often regarded as an underutilized bio resource; many have been used as a source of food, industrial raw materials, and in therapeutic and botanical applications for centuries. Moreover, seaweed and seaweed-derived products have been widely used as amendments in crop production systems due to the presence of a number of plant growth-stimulating compounds. A multifunctional alginate gel beads controlled-release fertilizer has been developed to improve fertilizer use efficiency and reduce environmental pollution. Sodium alginate based gel beads superabsorbent used as slow release of Sargassum Wightii sea weed extract was analyzed by inductively coupled plasma-optical emission spectroscopy. Result showed that the product contained percentage of P (213.618 nm) shows that 2.10 ppm and K (766.491 nm) shows that 74.52 ppm compared the padina pavonica sea weed results showed that the product contained percentage of P shows that 2.21 ppm and K shows that 25.2 ppm. The water evaporation as well as the N, P, K and Micronutrients release behavior of controlled release in soil was explored. Furthermore, the incorporation of gel beads in soil could effectively prevent the compaction of soil. Observed the plant study we used different percentage of sargassum Wightii extract used different wt % (1 , 2 , 3 , 4 and 5) the result show that 3 wt % used plant height is high compared to other. These studies showed that the product prepared by a simple route with good slow-release and water-retention properties may be expected to have wide potential applications in modern agriculture and horticulture.

Keywords: Seaweed; Micronutrients; Biostimulants; Controlled release fertilizer; Sodium alginate

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