Glasses in agriculture

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Abstract

The Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 aim to end poverty, protect the planet and ensure peace and prosperity for all people by 2030. There is a high need for increasing the effectiveness of food production and, at the same time, reducing the negative impact of agriculture on the environment, such as soil degradation, water pollution and greenhouse gas emissions. For example, aquaponics and hydroponic technologies are being developed for integration with the built environment. This field presents new momentum for the use of glasses, from highly-adapted substrates and fertilizers to structural materials and light management. Sustainable glass fertilizers can provide all necessary macro- and micronutrients to the specific needs of a given plant, regulate the pH value, and ensure continuous, long-term release of nutrients. Despite these apparent advantages, serious issues remain, including cost, transport, acceptance and regulation.

Keywords: fertilizer, phosphate glasses, agriculture, soil active glasses, agriglasses, solubility, sustainability

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