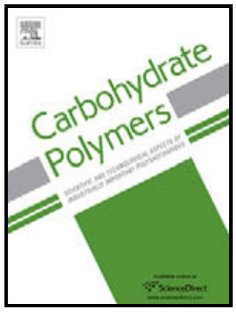

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SUGARCANE VINASSE AND MICROALGAL BIOMASS IN THE PRODUCTION OF PECTIN PARTICLES AS AN ALTERNATIVE SOIL FERTILIZER

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Highlights

- HM pectin particles with vinasse and microalgal biomass for soil fertilization
- Vinasse provided greater stability to HM pectin gel and particles
- Pectin/vinasse/microalgal biomass particles as macro and micronutrients source
- Novel alternative to vinasse and microalgal biomass final disposal
- Potential application as alternative slow release soil fertilizer

Abstract – High methoxyl pectin was used as biopolymeric matrix to produce a novel slow release soil fertilizer added with sugarcane vinasse and lipid extracted microalgal (*Desmodesmus subspicatus*) biomass residue (LMBR). Vinasse acted as the biopolymer solvent, providing greater stability to pectin gel, and as a source of nitrogen (N), potassium (K), calcium (Ca) and magnesium (Mg). LMBR (0.5%) was considered a complementary source of N and micronutrients, copper (Cu), iron (Fe) and zinc (Zn). Compared to blank pectin particles, the particles with vinasse and LMBR showed homogeneous polymer matrix, spherical shapes, higher soluble matter release and enhanced mechanical properties. Scanning electron microscopy (SEM) and Fourier Transform Infrared Spectroscopy (FTIR) analysis indicated the incorporation of