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Fertilizer effect of UASB (55°C) effluent with limestone as fixed bed treating vinasse on development of *Brachiaria brizantha* cv. Xaraés

F.J.C. Magalhães Filho[a,*], L.G.F. Gregio[a], J.B. de Azevedo[b], A.S. de Paiva[b], D. de O. Guilherme[b], M.P. Cereda[b]

[a]*Department of Sanitary and Environmental Engineering, Dom Bosco Catholic University, 6000 Tamandaré Avenue, 79.117-900, Campo Grande, MS, Brazil, emails: fernandojcmf@hotmail.com, fernando@ucdb.br (F.J.C. Magalhães Filho), luisgregio@gmail.com (L.G.F. Gregio)*
[b]*Centre of Technology and Agribusiness (CeTeAgro/UCDB), Dom Bosco Catholic University, Campo Grande, MS, Brazil, emails: cleiapaiva@ucdb.br (A.S. de Paiva), denilsond@gmail.com (D. de O. Guilherme), cereda@ucdb.br (M.P. Cereda)*

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ABSTRACT

Vinasse is a residual liquid obtained from the production of sugar and alcohol, which can be used in fertirrigation. However, if untreated, its use can pollute soil and water. The objective of this study was to evaluate a thermophilic (55°C) upflow anaerobic sludge blanket treating vinasse using a fixed bed with limestone as a buffer agent to avoid rapid acidification and the initial effect of applying the effluent to irrigate *Brachiaria brizantha* cv. Xaraés. Using treated vinasse generates biogas and effluent with lower pollutant loads that can be used in irrigation. This allows vinasse to be used in forage, for livestock food development and production systems. The inoculum (cattle manure) demanded 140 d to stabilize and the reactor had a chemical oxygen demand removal of 99% in the thermophilic range, and the gas production increased >40%. The use of raw vinasse did not significantly influence the vegetative development of *Brachiaria brizantha* cv. Xaraés. The treated vinasse benefited the growth after 40 d after sowing ("second cut").

Keywords: Anaerobic digestion; Fertirrigation; Agro-industrial wastewater; Biogas; Livestock

* Corresponding author.

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