



ANAEROBIC GAS LIFT REACTOR (AGR) – A HIGH RATE ANAEROBIC DIGEST-ER FOR THE GENERATION OF BIOGAS AND BIO MANURE FROM FOOD WASTE

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Abstract:

High rate biomethanation of food waste (FW) with anaerobic gas lift reactor (AGR) for the simultaneous generation of biogas and bio-manure was examined in laboratory scale reactors. The experimentations divulged that, FW having an average total solids (TS) and volatile solids (VS) in the range of 15 to 18 % and 10 to 14%, yielded biogas of 0.5 to 0.6 m3/(kg VS reduced) and bio-manure of 0.3 to 0.4 kg/(kg FW). M/s Ahuja Engineering Services Pvt.Ltd, Hyderabad has installed a plant at one of the kitchens of AkshavaPatra Foundation at Bellary, Karnataka for the generation of biogas and bio-manure from the FW. The plant is based on AGR - a high rate biomethanation technology developed by CSIR-IICT and the aim of this plant is to serve a sustainable technology to provide a scientific waste disposal system to the kitchen FW as well as to utilize the clean fuel (biogas) produced as a cooking fuel to replace LPG. Aproximately1000 kg of food waste and 500 litres of organic wastewater (boiled rice water/gruel water) are used for the generation of 80 to 100 m3 of biogas per day to replace 40 to 50 kg of LPG.

Biography:

Dr.A.Gangagni Rao completed his M.Tech from IIT-Delhi and PhD from IICT-Hyderabad. Specialized in the field of biomethanation and biological gas purification. Developed novel high rate anaerobic wastewater (UASB and AFFR) and organic solid waste treatment processes (SMAD and AGR). Developed BIO-FILTER technology for the purification of off gases emanating from industry. Served as consultant for UNDP-Egypt, AES, Hyderabad, M/s Fenix, Pune and M/s Rhodia Energy Services, France. Published 45 research papers in International Journals and he has three patents to his credit. Carried out advanced research in ERI, UCC, Cork, Ireland. Received IIChE award "Hindustan Dorr-Oliver Award for Excellence in use of Science & Technology in Rural Development for the Year 2014". Shortlisted (one amongst four) for IChemE Global Awards 2014 in the category of Innovator of the Year Award sponsored by NES Global Talent.



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