The methanogenic consortium circumvented the loopholes of the individual anaerobic digesters by enhancing the stability of the overall digestion process, higher biogas yield, more methane content, higher reduction in percentage of COD and lesser VFA accumulation. The consortium’s better performance can be attributed to the healthy ratio of methanogens and eubacteria in the digester.

The thermophilic digesters holds a potential scope for methanogens growth and diversification, this can be envisioned based on the availability of high concentration of acetate (principal VFA in anaerobic digesters) and carbon dioxide and if methanogens tends to keep pace with eubacterial population the problem of high VFA, low pH and lower methane content of the biogas can be averted. Uncultivable forms of bacteria was not taken into account for the reason that their complex nutrient requirements itself may make them less competitive in the diverse environment. But their unknown influential role cannot be denied, in this regard, consortium was developed with the intention of using them as a supplementary to the usual environmental inoculum.

A comparative account of methanogenic activity has thus been evaluated for all the five different anaerobic digesters that have been used for the experiment. It has been noted that the least performing digester was LFS, which had operated with landfill slurry as inoculum, while consortium and mixed inoculum based digesters exhibited better biogas production and higher methane content again asserting the role of inoculum in improving digester performance.