

THE CARBON, NITROGEN AND PHOSPHOROUS CONTENTS IN THE BIOWASTE SOLID FRACTION PRE-TREATING IN A MECHANICAL BIOLOGICAL TREATMENT



Etih Hartati, Novri Susanto, Marisa Handajani, Prayatni Soewondo and Moch. Chaerul
 Program Study of Environmental Engineering-Faculty of Civil and Environmental Engineering ITB
 Jl. Ganesha 10 Bandung 40132-Tel: 022-2502647-Fax: 022-2530704
 E-mail: prayatnisoe@yahoo.com, etih_09@yahoo.com

BACKGROUND

The bio-waste generally contains high leveled organic matters in Indonesia, which is in the range of 70% to 80%. The bio-waste is potentially treated with biological treatments such as composting and anaerobic treatments. One of the potential biowaste treatment process is Mechanical Biological Treatment Process (MBT Process) which is a combination of a mechanical process and a biological process. The mechanical process, which is used as a pre-treatment process, includes sorting, grinding, and separation of liquid and solid phase of biowaste. After the MBT Process, the bio-waste will then continue a degradation process under an anaerobic condition

OBJECTIVE

The purpose of the research is to know the influence of pre-treatment processes on carbon, nitrogen, and phosphor contents in the solid fraction of biowaste

METHODOLOGY



Sampling Biowaste traditional market Caringin Bandung



Shredding



Blending

- variation of process water
- Ratio biowaste:water (1:1, 1:2, and 1:3)
- Blending time (30, 45 and 60 secnds)



Liquid fraction

Solid Fraction



Filter

RESULT

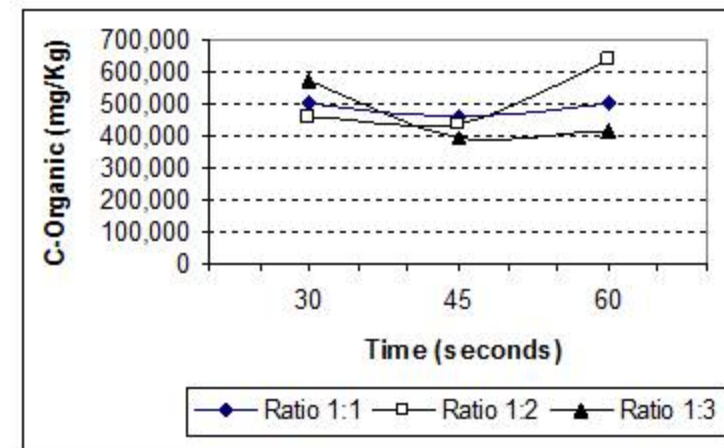


Fig. 1 : The value of C-organic compared to the blending time on different ratios of biowaste: tap water

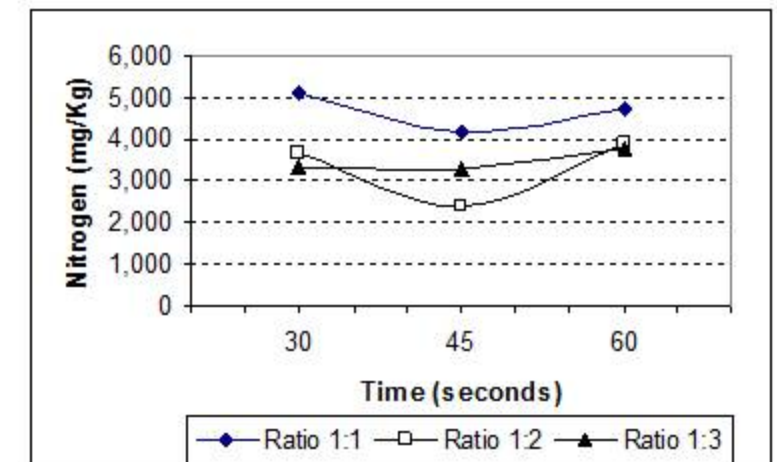


Fig. 2 : The value of Nitrogen compared to blending time on different ratios of biowaste: tap water

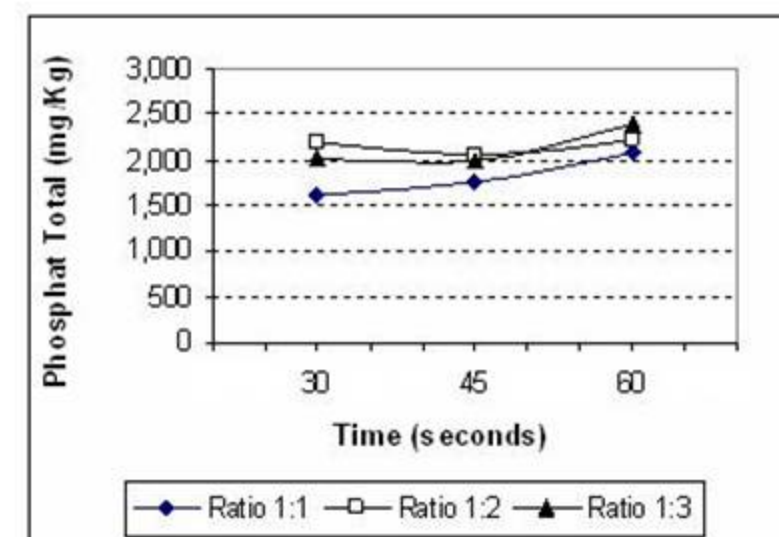


Figure 3. The value of total phosphat compared to the blending time on different ratio of biowaste and tap water

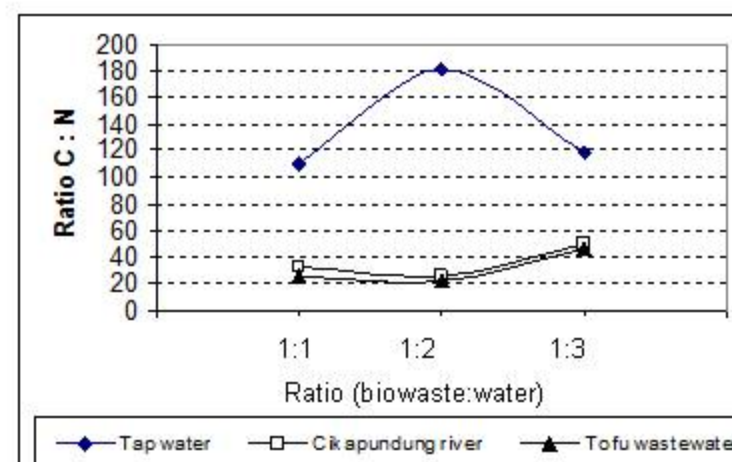


Fig. 4 : The ratio of C:N compared to biowaste:water on different water sources

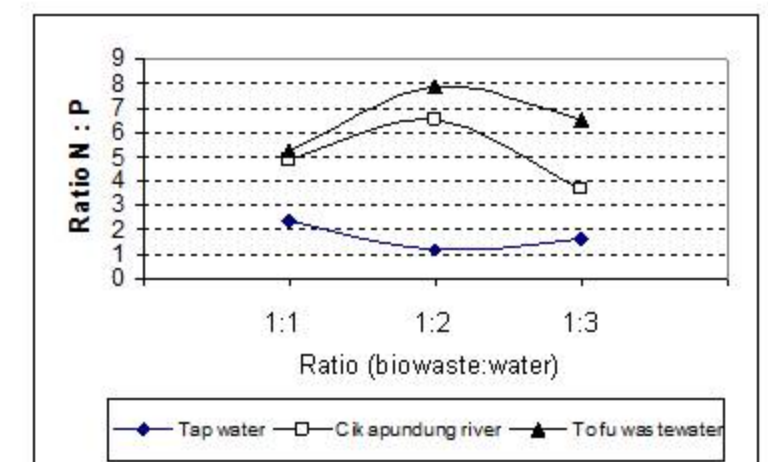


Fig. 5 : The ratio of biowaste: water on different water sources

CONCLUSION

The research results show that the ratio of solid and process water (1:1, 1:2, and 1:3), the length of blending times (30 seconds, 45 seconds, and 60 seconds), and the process waters influence the carbon, nitrogen, and phosphor content that remained in the solid fraction of the bio-waste.

ACKNOWLEDGEMENT

This research is funded by DFG/BMZ between University of Karlsruhe, Germany, LIPI Bandung and Institute Technology Bandung, Indonesia.