

Development and Trial of a Cocoa Pod Compost Digester with Biogas by Products on a Household Scale

Ulfah Zakiyah Hamdani^{1,a,*}, Rosmalah Yanti^{2,b}, Rahman Hairuddin^{3,c}, Ibnu Mansyur Hamdani^{4,d}, Nurul Fuady Adhalia^{5,e}

^aNorth Wara District, Palopo City, South Sulawesi, Indonesia. ^bEast Wara District, Palopo City, South Sulawesi, Indonesia. ^cSouth Wara District, Palopo City, South Sulawesi, Indonesia. ^dEast Wara District, Palopo City, South Sulawesi, Indonesia. ^eNorth Bacukiki District, Pare-Pare City, South Sulawesi, Indonesia

*ulfahzakiyah@uncp.ac.id, ²rosmalahy@gmail.com, ³rahmanhairuddin@uncp.ac.id, ⁴ibnumansyur27@gmail.com, ⁵n.fuadyadhalia@gmail.com

Abstract. This study was aimed to develop another digester model with output 2 products (compost and liquid organic fertilizer) and 1 by-product (biogas) that can be used on a household scale. The digester made from Parallon plastic with two tubes: the fermentation tube and the liquid fertilizer storage. The filter separates biogas with bad smell with water seal technology. The trial was conducted with finely chopped cocoa pod as starting material, aquadest, crystal sugar and EM4 as inoculum in the ratio 50 kg: 5 L: 2 kg: 1 L. After 32 days of fermentation, 50 kg starting material has been successfully converted into 12 L of liquid organic fertilizers, 30 kg of slurry and biogas. The fermentation process is still ongoing because biogas is still being formed continuously.

Keyword: digester, cocoa pod, liquid organic fertilizer, slurry compost, biogas.