ABSTRACT

If left untreated, biowaste is one of the contributors to environmental problems and greenhouse gas production. Treatment options such as bioconversion using insects may have beneficial and affordable outcomes for managing biowaste. Decomposing insect, such as the black soldier fly (BSF), whose larvae are capable of converting food waste into high-value biomass. Which then could be an alternative source of protein for human and animal consumption. Both tofu dreg and bread waste are in constant supply and contribute to the bio-waste problem in Indonesia. Black soldier fly larvae were fed three rearing substrates consisting of a combined formulation of a tofu dreg (TD) and bread waste (BW) done in triplicates. Formulated rearing substrates consist of TD:BW ratios of 1:1 or 1:2, and 2:1. In an addition, two controls consist of 100% BW and 100% TD. The substrates were supplemented to one hundred five-day-old larvae maintained in temperature 28-30°C and 70%±5 moisture content. Determination of developmental time, survival, waste conversion efficiency, yield, biomass and growth performance. Based on all parameters investigated, 2:1 ratio was the best performing TD:BW rearing substrate. TD control performed the best, it resulted in a comparable or higher than 2:1 ratio. However, the TD control had the lowest BSFL total solids record. Thus, combining TD with BW increased the BSFL performance in comparison to rearing in an individual substrate types.

***Keywords**: Black soldier fly; Tofu dreg; Bread waste; Bioconversion; Larvae*