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**PROCEEDINGS**

**Designing circular economy through bioconversion of solid decanter palm oil waste**

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**ABSTRACT**

Palm oil waste treatment is widely researched. However, effective, and efficient waste treatment related to sustainability and environmental issues is still being encouraged. In the past decades, the circular economy framework is progressively used to address environmental and economic growth issues synchronously. This paper investigates the potential of bioconversion of solid decanter palm oil waste in developing a circular economy. This study also proposes Black Soldier Fly Larvae (BSFL) farm to treat solid decanter palm oil waste. From the analysis, the BSFL that using solid decanter palm oil waste as a substrate will produce high-value biomass in protein (approx. 55%) and fat (approx. 12%). Furthermore, this biomass can be transformed into animal feed and the residues from this process will be used as the fertilizer that can be applied back to the palm oil plantations. Based on our results, this design will improve palm oil employee revenue and reduce the solid decanter palm oil waste simultaneously. We also discuss how this design can be implemented: (1) full support from the top management of the palm oil company; (2) technology introduction to the employee smoothly such as the BSFL rearing system, harvesting, and product downstream development; (3) government support; and (4) employee/society goodwill.

**KEYWORDS**

Circular economy, solid decanter palm oil waste, black soldier fly larvae, bioconversion

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**Conflicts of Interest:**

The authors declare that they have no conflicts of interest to report regarding the present study.