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| <b>Title (1)</b>              | : | <b>A Comprehensive Design and Performance Assessment of a Reel-Type Blade Organic Waste Chopper Machine</b>  |
| <b>Journal</b>                | : | Journal of Advanced Research in Applied Mechanics  |
| <b>Document Type</b>          | : | Article  |
| <b>Publisher</b>              | : | Semarak Ilmu Publishing  |
| <b>UniKL Author</b>           | : | Nadia Razali   |
| <b>Link to Full Text</b>      | : | <a href="https://semarakilmu.com.my/journals/index.php/appl_mech/article/view/7445">https://semarakilmu.com.my/journals/index.php/appl_mech/article/view/7445</a>  |
| <b>Link to Scopus Preview</b> | : | <a href="https://www.scopus.com/inward/record.uri?eid=2-s2.0-85190250722&amp;doi=10.37934%2faram.115.1.166180&amp;partnerID=40&amp;md5=fbab63c8ce7459022c7c005d93991af7">https://www.scopus.com/inward/record.uri?eid=2-s2.0-85190250722&amp;doi=10.37934%2faram.115.1.166180&amp;partnerID=40&amp;md5=fbab63c8ce7459022c7c005d93991af7</a>  |
| <b>Abstract</b>               | : | <p>The global issue of organic waste poses a serious threat to the environment and public health. With the increasing production of organic waste driven by population growth and urbanization, waste management systems worldwide are confronted with inevitable pressures. The decomposition process of organic waste generates methane gas, contributing not only to global climate change through the greenhouse gas effect but also posing risks of air and water pollution. The primary function of organic waste lies in its ability to become a valuable resource through recycling and composting processes. The potential use of organic waste as a source of renewable energy through biogas or biomass production also presents promising prospects. The objective of this research is to design a reel-type chopper machine for more optimal waste processing. The research method employed is engineering, involving non-routine design activities to create something new in both process and form. The results of the study show that the designed reel-type organic waste shredder has dimensions of 800 mm in length, 750 mm in width, and 1042 mm in height. The machine consists of four main components: the frame hopper, shredding cylinder, and discharge hole. The chopper machine has a power of 2.2 kW, a chopper capacity of 1 ton/hour, and a cutting length of 2–5 cm. The advantages of the shredded output from this reel-type chopper machine can accelerate the decomposition and fermentation processes of organic waste. The smaller and uniformly shredded particles provide a larger surface area for the activities of decomposing microorganisms ...see more</p> |