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| Book Name: | [Chemical and Materials Sciences: Developments and Innovations](https://www.bookpi.org/bookstore/product/chemical-and-materials-sciences-developments-and-innovations-vol-1/) |
| Manuscript Number: | **Ms\_BPR\_4105** |
| Title of the Manuscript:  | **Rheological and Dynamic Mechanical Properties of Abutilon Natural Straw and Polylactic Acid Biocomposites** |
| Type of the Article | **Book chapter** |

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| PART 1: Comments |
|  | Reviewer’s comment | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** |  |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** |  |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. |  |  |
| **Is the manuscript scientifically, correct? Please write here.**  |  |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** |  |  |
| Is the language/English quality of the article suitable for scholarly communications? |  |  |
| Optional/General comments | To critically review article "Rheological and Dynamic Mechanical Properties of Abutilon Natural Straw and Polylactic Acid Biocomposites," here are the detailed comments:• The research revisits well-established concepts, such as the use of natural fibers in biocomposites, without providing significant innovation. Similar studies with different fibers (e.g., hemp, jute, kenaf) are already prevalent in the literature.• No substantial advancement is demonstrated over prior work; for example, studies on PLA-based composites with natural fibers already address mechanical and thermal properties.• The choice of 1%, 3%, and 5% weight fractions of abutilon straw seems arbitrary. There is no justification for selecting these specific proportions.• Limited scope of characterization methods. Techniques like FTIR, DSC, TGA, and DMA are standar. Critical analyses, such as water absorption, biodegradability, and environmental impact of the composites, are missing.• Inconsistent reporting of experimental conditions: o The description of composite preparation lacks details on extrusion and injection molding temperatures and pressures.o Variations in straw particle size (average of 45 µm) may impact composite performance, yet no distribution analysis is provided.• Inadequate control experiments to separate the effects of abutilon straw and PLA matrix improvements.• FTIR and SEM analyses are presented but lack quantitative assessments (e.g., peak intensities, interfacial adhesion quantification).• The DSC analysis makes unsupported claims about the disappearance of the glass transition temperature (Tg) and its implications.• The dynamic mechanical analysis does not correlate changes in tan delta or storage modulus to structural or morphological changes effectively.• The assertion that the disappearance of Tg indicates hydrolysis is unsubstantiated. Alternative explanations, such as matrix stiffening or filler interaction, should be considered.• Rheological results indicate a decrease in processability, contradicting the claim of improved composite properties without addressing trade-offs.• Moisture absorption, a critical issue with natural fiber composites, is ignored.• Long-term stability and biodegradability tests are absent, despite the study's focus on eco-friendly materials.• The manuscript contains grammatical errors and unclear phrasing, e.g., "better interaction between abutilon natural straw and PLA" is vague and repetitive.• Figures are poorly labeled (e.g., Figure 5(c) has no descriptive title), and some graphs lack appropriate units and axes labels.• The manuscript lacks coherence in transitioning between sections, particularly in the discussion of results and their implications.• The conclusion reiterates findings without discussing broader implications or future directions.RecommendationInsufficient experimental rigor, , making it unsuitable for publication in its current state. Significant revision and more focused research are necessary before reconsideration. |  |

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| **PART 2:**  |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?**  | *(If yes, Kindly please write down the ethical issues here in details)* |  |

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| **Reviewer Details:** |
| Name: | **Alsultan Abdulkareem Ghassan** |
| Department, University & Country | **Universiti Malaysia Sabah, Malaysia** |