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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.  Recommendation  Insufficient 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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