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| Book Name: | [**Chemical and Materials Sciences: Research Findings**](https://www.bookpi.org/bookstore/product/chemical-and-materials-sciences-research-findings-vol-1/)  |
| Manuscript Number: | **Ms\_BPR\_4543** |
| Title of the Manuscript:  | **Lignin-containing adhesion enhancer for wood-plastic composites** |
| Type of the Article | **BOOK CHAPTER** |

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| PART 1: Comments |
|  | Reviewer’s comment**Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | 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.** | This manuscript contributes significantly to the scientific community by advancing the expansion of sustainable and high-performance wood-plastic composites (WPCs). By using a lignin-containing polyelectrolyte complex (LPEC) as an adhesion enhancer, the study addresses key challenges related to interfacial bonding and moisture resistance in WPCs. The findings demonstrate how the incorporation of LPEC nanoparticles improves mechanical properties and water resistance, which is critical for enhancing the durability and applicability of recycled polypropylene-based composites. Also, this research provides valuable understandings into the functionalization of lignin-based materials, promoting eco-friendly alternatives for polymer composites and fostering innovation in sustainable material science |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | **NO**“Lignin-Based Adhesion Enhancer for Improved Performance of Wood-Plastic Composites” |  |
| 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. | **Abstract should be precisely of 150 words only** |  |
| **Is the manuscript scientifically, correct? Please write here.**  | **YES** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.****-** | **Add latest References in the field.** |  |
| Is the language/English quality of the article suitable for scholarly communications? | Not so good |  |
| Optional/General comments | 1. The references cited in the manuscript are outdated. The most recent references are from 2020 and 2019, while the rest are from before 2018. The author should incorporate recent literature relevant to the field to ensure up-to-date citations. 2. The current title does not effectively represent the study's scope. The author is advised to revise the title to better reflect the research focus and contributions. Such as “Lignin-Based Adhesion Enhancer for Improved Performance of Wood-Plastic Composites”3. The acronyms LPEC, HASL, rPP, and PEI in the abstract should be expanded at their first mention to ensure clarity for the reader. 4. The following reference should be discussed individually:  \*“Due to the manifested adhesive and sorption properties, PECs have great potential and multiple practical applications in various fields, particularly in medicine as drug carriers (Lankalapalli and Kolapali 2009; Verma and Verma 2013).”\*  A more detailed explanation of each cited study and its relevance to the present work is required. 5. The manuscript contains excessive referencing in the following sentences:  - \*"One of the prominent applications of PECs is the enhancement of cellulose fiber properties and inter-fiber bonding (Gärdlund et al. 2003; Maximova et al. 2005; Hubbe 2006; Gärdlund et al. 2007; Hubbe et al. 2008; Ankerfors et al. 2009) in the papermaking process."\*  - \*"The polyanionic nature of soluble lignins enables interaction with cationic polymers in aqueous media, forming lignin-containing polyelectrolyte complexes (LPECs) (Ström and Stenius 1981; Shulga et al. 1984; Li and Pelton 1992; Lappan et al. 1997)."\*  The author should streamline the citations, retaining only the most relevant references to avoid redundancy. 6. A schematic or image of the experimental setup should be included to enhance clarity and reproducibility. 7. The source of Equation (1) must be cited appropriately. If it is derived from prior work, a reference should be provided. If it is newly formulated, a brief explanation of the derivation should be included. 8. In Figure 1, the line connecting the data points should be represented as a dotted line since the data is not continuous. 9. The conclusion section should explicitly highlight the future scope of the study to provide insights into potential research directions. 10. The introduction lacks a discussion of existing literature gaps and the problem statement. The authors should revise this section to clearly outline the research gap being addressed. |  |

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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: | **Shivanku Chauhan** |
| Department, University & Country | **ABES Engineering College, India** |