

 Look Up Full Text

Full Text from Publisher

 Find PDF

 Export...

Add to Marked List


1 of 1

## A review on kenaf fiber hybrid composites: Mechanical properties, potentials, and challenges in engineering applications

Sarifuddin, N (Sarifuddin, Norshahida)<sup>[1]</sup>; Ali, AM (Ali, Afifah Mohd)<sup>[1]</sup>

### PROGRESS IN RUBBER PLASTICS AND RECYCLING TECHNOLOGY

DOI: 10.1177/1477760620953438

 Early Access: SEP 2020

Document Type: Review; Early Access

[View Journal Impact](#)

### Abstract

The developments of agricultural-based composites for structural applications such as in construction, aerospace, and automotive have gained tremendous interest from researchers due to the uniqueness of its behaviors. Among available agricultural fibers, kenaf fiber widely adopted as a reinforcement in polymer composites to form kenaf reinforced polymer matrix composites. The hybridization technique was introduced to enhance the mechanical performances of composite materials wherein two different types of reinforcements were employed to form a hybrid composite. Therefore, in this review paper, the investigations focus on the mechanical properties of kenaf hybrid composites as well as potentials and barriers of agricultural-based composites were discussed to provide a literature source for future research regarding this topic.

### Keywords

**Author Keywords:** Hybrid composite; polymer composite; natural fiber; mechanical properties

**KeyWords Plus:** REINFORCED POLYMER COMPOSITES; EPOXY COMPOSITE; NATURAL FIBERS; FLAX FIBER; POLYESTER; BEHAVIOR; TENSILE

### Author Information


#### Reprint Address:

International Islamic University Malaysia Int Islamic Univ Malaysia, Dept Mfg & Mat Engr, Kuliyyah Engr, Jalan Gombak, Kuala Lumpur 53100, Malaysia.

**Corresponding Address:** Sarifuddin, N (corresponding author)

 Int Islamic Univ Malaysia, Dept Mfg & Mat Engr, Kuliyyah Engr, Jalan Gombak, Kuala Lumpur 53100, Malaysia.

#### Addresses:

 [ 1 ] Int Islamic Univ Malaysia, Dept Mfg & Mat Engr, Kuliyyah Engr, Jalan Gombak, Kuala Lumpur 53100, Malaysia

**E-mail Addresses:** [norshahida@iium.edu.my](mailto:norshahida@iium.edu.my)

### Funding

Funding Agency	Grant Number
Ministry of Higher Education (MOHE) of Malaysia	
Kuliyyah of Engineering International Islamic University Malaysia (IIUM)	

[View funding text](#)

### Publisher

SAGE PUBLICATIONS LTD, 1 OLIVERS YARD, 55 CITY ROAD, LONDON EC1Y 1SP, ENGLAND

### Journal Information

**Impact Factor:** [Journal Citation Reports](#)

### Categories / Classification

**Research Areas:** Materials Science; Polymer Science

**Web of Science Categories:** Materials Science, Composites; Polymer Science

### Citation Network

In Web of Science Core Collection

0

Times Cited

 Create Citation Alert

88

Cited References

[View Related Records](#)

### Use in Web of Science

Web of Science Usage Count

0

Last 180 Days

0

Since 2013

[Learn more](#)

This record is from:

Web of Science Core Collection

- Science Citation Index Expanded

[Suggest a correction](#)

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

[See more data fields](#)

◀ 1 of 1 ▶

**Cited References: 88**Showing 30 of 88 [View All in Cited References page](#)*(from Web of Science Core Collection)*

1. **The use of bamboo fibers as reinforcements in composites** Times Cited: 1  
By: Abdul Khalil, HPS; Alwani, MS; Islam, MN.  
Biofiber Reinf Compos Mater Volume: 6 Pages: 488-524 Published: 2015
2. **Thermal Gravimetric Analysis (Tga) of Kenaf Core and Its Cellulose for Membrane Fabrication** Times Cited: 1  
By: Abdullah, S; Tajuddin, R.M.  
INT CIV INFR ENG C I Pages: 667-677 Published: 2015  
Publisher: Springer, Singapore  
[\[Show additional data\]](#)
3. **The Mechanical Properties of Treated and Untreated Kenaf Fibre Reinforced Epoxy Composite** Times Cited: 14  
By: Abu Bakar, M. A.; Ahmad, S.; Kuntjoro, W.  
JOURNAL OF BIOBASED MATERIALS AND BIOENERGY Volume: 4 Issue: 2 Special Issue: SI Pages: 159-163 Published: JUN 2010
4. **MECHANICAL PERFORMANCE OF MODIFIED EPOXY REINFORCED HYBRID NATURAL FIBER COMPOSITE** Times Cited: 1  
By: Abu Bakar, Mimi Azlina; Ahmad, Sahrim; Kasolang, Salmiah; et al.  
JURNAL TEKNOLOGI Volume: 76 Issue: 3 Pages: 13-17 Published: 2015
5. **A study on effect of variation of thickness on tensile properties of hybrid polymer composites (glassfibre-carbonfibre-graphite) and GFRP composites** Times Cited: 1  
By: Ahmed, MN; Kumar, PV; Shivanand, HK.  
Int J Eng Res Appl Volume: 3 Pages: 2014-2024 Published: 2013
6. **Mechanical properties and water absorption behavior of hybridized kenaf/pineapple leaf fibre-reinforced high-density polyethylene composite** Times Cited: 52  
By: Aji, I. S.; Zainudin, E. S.; Abdan, K.; et al.  
JOURNAL OF COMPOSITE MATERIALS Volume: 47 Issue: 8 Pages: 979-990 Published: APR 2013
7. **Sustainable Biocomposites: Challenges, Potential and Barriers for Development** Times Cited: 25  
By: AL-Oqla, Faris M.; Omari, Mohammad A.  
GREEN BIOCOMPOSITES: MANUFACTURING AND PROPERTIES Book Series: Green Energy and Technology Pages: 13-29 Published: 2017
8. **Natural fiber reinforced polymer composites in industrial applications: feasibility of date palm fibers for sustainable automotive industry** Times Cited: 281  
By: AL-Oqla, Faris M.; Sapuan, S. M.  
JOURNAL OF CLEANER PRODUCTION Volume: 66 Pages: 347-354 Published: MAR 1 2014
9. **REVIEW OF NATURAL FIBER REINFORCED WOVEN COMPOSITE** Times Cited: 22  
By: Alavudeen, A.; Thiruchitrabalam, M.; Venkateshwaran, N.; et al.  
REVIEWS ON ADVANCED MATERIALS SCIENCE Volume: 27 Issue: 2 Pages: 146-150 Published: APR 2011
10. **Mechanical and fracture study of hybrid natural fiber reinforced composite-coir and sugarcane leaf sheath** Times Cited: 1  
By: Arul, M; Sasikumar, KSK; Sambathkumar, M.  
Materials Today : Proceeding Published: 2020  
URL: <https://doi-org.ezproxy.um.edu.my/10.1016/j.matpr.2020.02.677>
11. **Development of kenaf-glass reinforced unsaturated polyester hybrid composite for structural applications** Times Cited: 119  
By: Atiqah, A.; Maleque, M. A.; Jawaid, M.; et al.  
COMPOSITES PART B-ENGINEERING Volume: 56 Pages: 68-73 Published: JAN 2014
12. **Mechanical Properties of Kevlar Reinforcement in Kenaf Composites** Times Cited: 12  
By: Bakar, Noor Haznida; Hyie, Koay Mei; Ramlan, Ahmed Safwan; et al.  
4TH MECHANICAL AND MANUFACTURING ENGINEERING, PTS 1 AND 2 Book Series: Applied Mechanics and Materials Volume: 465-466 Pages: 847-851 Published: 2014
13. **Influence of fiber orientation and thickness on tensile properties of laminated polymer composites** Times Cited: 25