DAFTAR PUSTAKA

Agung, M., & Diah, W. (2024). *Pengaruh Variasi Arah Serat Komposit Berpenguat Serat Bambu Terhadap Kekuatan Tarik dan Bending*.

Ainun, R. M., & Arif, I. M. (2021). *Pengaruh Arah Sudut Dan Lama Perendaman Serat Rami Pada Larutan KOH Terhadap Kekuatan Tarik Dan Kekuatan Bending Komposit Dengan Matrik Epoxy*.

Ajeng, S., Rizka, N., Sulistyati, A. N., Program,), Kriya, S., Tekstil, S. /, Rupa, S., & Desain, D. (2023). *Pengembangan Visual Anyaman Serat Enceng Gondok Sebagai Elemen Dekoratif Pada Tunik Gaya Arty*. https://fitinline.com/article/read/jenis-

Chen, X., Knight, D. P., Shao, Z., & Vollrath, F. (2001). *Regenerated Bombyx silk solutions studied with rheometry and FTIR*. www.elsevier.com/locate/polymer

Dress, G. A., Woldemariam, M. H., & Redda, D. T. (2021). Influence of Fiber Orientation on Impact Resistance Behavior of Woven Sisal Fiber Reinforced Polyester Composite. *Advances in Materials Science and Engineering*, *2021*. https://doi.org/10.1155/2021/6669600

dwi, istanta. (2013). *Analisis Pengaruh Texture Serat Terhadap Sifat Fisik Dan Mekanik Aramid Epoksi Perepreg*.

Faizal, M., Pramono, C., & Salahudin, X. (2020). *Pengaruh Orientasi Serar Ampas Tebu Pada Bahan Komposit Dengan Matrik Epoxy Terhadap Kekuatan Tarik Dan Ketangguhan Impak*.

Freddi, G., Mossotti, R., & Innocenti, R. (2003). Degumming of silk fabric with several proteases. *Journal of Biotechnology*, *106*(1), 101–112. https://doi.org/10.1016/j.jbiotec.2003.09.006

Irdawati, Y., Sutanto, H., Anam, C., Fujibuchi, T., Zahroh, F., & Dougherty, G. (2019). Development of a novel artifact-free eye shield based on silicon rubber-lead composition in the CT examination of the head. *Journal of Radiological Protection*, *39*(4), 991–1005. https://doi.org/10.1088/1361-6498/ab2f3e

Jin, F. L., Li, X., & Park, S. J. (2015). Synthesis and application of epoxy resins: A review. In *Journal of Industrial and Engineering Chemistry* (Vol. 29, pp. 1–11). Korean Society of Industrial Engineering Chemistry. https://doi.org/10.1016/j.jiec.2015.03.026

Kumar, R. (2016). A Review on Epoxy and Polyester Based Polymer Concrete and Exploration of Polyfurfuryl Alcohol as Polymer Concrete. *Journal of Polymers*, *2016*, 1–13. https://doi.org/10.1155/2016/7249743

Mohamed, Y. S., & Abdelbary, A. (2023). Theoretical and experimental study on the influence of fiber orientation on the tensile properties of unidirectional carbon fiber/epoxy composite. *Alexandria Engineering Journal*, *67*, 693–705. https://doi.org/10.1016/j.aej.2022.12.058

Murdiyanto, D., & Hadyan, A. A. (2020). Pengaruh Penambahan Serat Kepompong Ulat Sutra (Bombyx Mori L.) Terhadap Kekuatan Tarik Diametral Resin Komposit Flowable. In *Jurnal Ilmu Kedokteran Gigi)* (Vol. 3, Issue 2). Online.

Naik, N. K., Shrirao, P., & Reddy, B. C. K. (2005). Ballistic impact behaviour of woven fabric composites: Parametric studies. *Materials Science and Engineering: A*, *412*(1–2), 104–116. https://doi.org/10.1016/j.msea.2005.08.019

Nayan, A., & Hafli, T. (2023). Effects of Fiber Orientation Variation on Tensile Strength of Bamboo Fiber Reinforced Composite Using Polyester Resin Type Bqtn-157-EX. *Proceedings of Malikussaleh International Conference on Multidisciplinary Studies (MICoMS)*, *3*, 00046. https://doi.org/10.29103/micoms.v3i.210

Nugroho, G., & Budiyantoro, C. (2022). Optimization of Fiber Factors on Flexural Properties for Carbon Fiber Reinforced Polypropylene. *Journal of Composites Science*, *6*(6). https://doi.org/10.3390/jcs6060160

Padaki, N. V., Das, B., & Basu, A. (2015). Advances in understanding the properties of silk. In *Advances in Silk Science and Technology* (pp. 3–16). Elsevier Inc. https://doi.org/10.1016/B978-1-78242-311-9.00001-X

Porter, D., & Vollrath, F. (2009). Silk as a biomimetic ideal for structural polymers. *Advanced Materials*, *21*(4), 487–492. https://doi.org/10.1002/adma.200801332

Priyandokohadi, S., & Rizeki, C. A. (2018). Analisa Pengaruh Orientasi Arah Serat Terhadap Kekuatan Tarik Dan Impack Material Komposit Serat Alam (Serat Agave Dan Serat Sansivera). In *Agustus 1945 Surabaya* (Vol. 4, Issue 1).

Puspita, S., Yuan Aziz, R., & Aji Nugroho, D. (2020). Microhardness Differences Betwen Silk Fiber As A Natural Filler Composite Resin With Nanofiller Composite resin. In *ODONTO Dental Journal* (Vol. 7).

Ramon, E., Sguazzo, C., & Moreira, P. M. G. P. (2018). A review of recent research on bio-based epoxy systems for engineering applications and potentialities in the aviation sector. In *Aerospace* (Vol. 5, Issue 4). MDPI Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/aerospace5040110

Shao, Z., Vollrath, F., Sirichaisit, J., & Young, R. J. (2005). *Analysis of spider silk in native and supercontracted states using Raman spectroscopy*.

Sharma, H., Komal, U. K., Singh, I., Misra, J. P., & Rakesh, P. K. (2019). Introduction to Green Composites. In *Materials Horizons: From Nature to Nanomaterials* (pp. 1–13). Springer Nature. https://doi.org/10.1007/978-981-13-6019-0_1

Shubhra, Q. T. H., Alam, A. K. M. M., & Beg, M. D. H. (2011). Mechanical and degradation characteristics of natural silk fiber reinforced gelatin composites. *Materials Letters*, *65*(2), 333–336. https://doi.org/10.1016/j.matlet.2010.09.059

Silva, A. S., Costa, E. C., Reis, S., Spencer, C., Calhelha, R. C., Miguel, S. P., Ribeiro, M. P., Barros, L., Vaz, J. A., & Coutinho, P. (2022). Silk Sericin: A Promising

Sustainable Biomaterial for Biomedical and Pharmaceutical Applications. In *Polymers* (Vol. 14, Issue 22). MDPI. https://doi.org/10.3390/polym14224931

Yamamoto, G., Koizumi, K., Nakamura, T., Hirano, N., & Okabe, T. (2021). Tensile-strength-controlling factors in unidirectional carbon fiber reinforced plastic composites. *Composites Part A: Applied Science and Manufacturing*, *140*. https://doi.org/10.1016/j.compositesa.2020.106140

Yasa Utama, F., Zakiyya, H., Teknik Mesin, J., Teknik, F., & Negeri Surabaya, U. (2016). Pengaruh variasi arah serat komposit berpenguat hibrida fiber hybrid terhadap kekuatan tarik dan densitas material dalam aplikasi body part mobil. In *MEKANIKA* (Vol. 15, Issue 2).

Yuan, Q., Yao, J., Chen, X., Huang, L., & Shao, Z. (2010). The preparation of high performance silk fiber/fibroin composite. *Polymer*, *51*(21), 4843–4849. https://doi.org/10.1016/j.polymer.2010.08.042

LAMPIRAN

Lampiran 1. Data uji tarik sutra motif A (90/90/90)

No	Lebar (mm)	panjang mula-mula (mm)	Tebal (mm)	Luas (mm^2)	Beban (N)	Tegangan (Mpa)	Perpanjangan (ΔL) (mm)	Regangan (€)	Regangan (%)
1	13	50	4,2	54,6	2027,18	37,13	3,01	0,060	6,02
2	12,9	50	4,2	54,18	2604,78	48,08	4,46	0,089	8,92
2	13	50	4,2	54,6	2150,36	39,38	3,55	0,071	7,09
x̄	**12,97**	**50,00**	**4,20**	**54,46**	**2260,77**	**41,53**	**3,67**	**0,07**	**7,34**
s	**0,06**	**0,00**	**0,00**	**0,24**	**304,22**	**5,78**	**0,73**	**0,01**	**1,47**

Lampiran 2. Data uji tarik sutra motif B (90/90/90)

No	Lebar (mm)	panjang mula-mula (mm)	Tebal (mm)	Luas (mm^2)	Beban (N)	Tegangan (Mpa)	Perpanjangan (ΔL) (mm)	Regangan (€)	Regangan (%)
1	13	50	4,1	53,3	2526,44	47,40	3,55	0,071	7,09
2	13	50	4,1	53,3	2125,03	39,87	3,03	0,061	6,06
3	13	50	4,1	53,3	2021,22	37,92	3,17	0,063	6,33
x̄	**13,00**	**50,00**	**4,10**	**53,30**	**2224,23**	**41,73**	**3,25**	**0,06**	**6,49**
s	**0,00**	**0,00**	**0,00**	**0,00**	**266,82**	**5,01**	**0,27**	**0,01**	**0,54**

Lampiran 3. Data uji tarik sutra motif C (90/90/90)

No	Lebar (mm)	panjang mula-mula (mm)	Tebal (mm)	Luas (mm^2)	Beban (N)	Tegangan (Mpa)	Perpanjangan (ΔL) (mm)	Regangan (€)	Regangan (%)
1	13	50	4,2	54,6	2320,44	42,50	3,19	0,064	6,37
2	12,8	50	4,2	53,76	1984,83	36,92	2,55	0,051	5,10
3	13	50	4,2	54,6	2234,61	40,93	3,25	0,065	6,49
x̄	**12,93**	**50,00**	**4,20**	**54,32**	**2179,96**	**40,12**	**2,99**	**0,06**	**5,99**
s	**0,12**	**0,00**	**0,00**	**0,48**	**174,35**	**2,88**	**0,39**	**0,01**	**0,77**

Lampiran 4. Data uji tarik sutra motif C (90/60/45)

No	Lebar (mm)	panjang mula-mula (mm)	Tebal (mm)	Luas (mm^2)	Beban (N)	Tegangan (MPa)	Perpanjangan (ΔL) (mm)	Regangan (€)	Regangan (%)
1	13,4	50	4,2	56,28	2563,72	45,55	3,70	0,07	7,41
2	13,5	50	4,2	56,7	2521,35	44,47	3,96	0,08	7,93
3	13,5	50	4,2	56,7	2608,31	46,00	4,04	0,08	8,09
x̄	**13,47**	**50,00**	**4,20**	**56,56**	**2564,46**	**45,34**	**3,90**	**0,08**	**7,81**
S	**0,06**	**0,00**	**0,00**	**0,24**	**43,48**	**0,79**	**0,18**	**0,00**	**0,35**

Lampiran 5. Data uji tarik serat motif B (90/60/45)

No	Lebar (mm)	panjang mula-mula (mm)	Tebal (mm)	Luas (mm^2)	Beban (N)	Tegangan (Mpa)	Perpanjangan (ΔL) (mm)	Regangan (€)	Regangan (%)
1	13,3	50	3,7	49,21	2534,55	51,50	5,12	0,102	10,24
2	13,3	50	3,7	49,21	2616,88	53,18	5,38	0,108	10,75
3	13,1	50	3,7	48,47	2490,18	51,38	4,34	0,087	8,68
x̄	**13,23**	**50,00**	**3,70**	**48,96**	**2547,20**	**52,02**	**4,95**	**0,10**	**9,89**
S	**0,12**	**0,00**	**0,00**	**0,43**	**64,29**	**1,01**	**0,54**	**0,01**	**1,08**

Lampiran 6. Data uji tarik serat motif B (90/60/45)

No	Lebar (mm)	panjang mula-mula (mm)	Tebal (mm)	Luas (mm^2)	Beban (N)	Tegangan (Mpa)	Perpanjangan (ΔL) (mm)	Regangan (€)	Regangan (%)
1	13,5	57	3,9	52,65	2279,29	43,29	4,47	0,08	7,84
2	13,5	57	3,9	52,65	2335,00	44,35	4,54	0,08	7,97
3	13,5	57	3,9	52,65	2327,10	44,20	4,22	0,07	7,41
x̄	**13,50**	**57,00**	**3,90**	**52,65**	**2313,80**	**43,95**	**4,41**	**0,08**	**7,74**
S	**0,00**	**0,00**	**0,00**	**0,00**	**30,15**	**0,57**	**0,17**	**0,00**	**0,29**

Lampiran 7. Data uji impak serat motif A (90/60/45)

No.	Lebar	Panjang	Tebal	Luas Penampang		W		R		α		ß		Tenaga Patahan	Kekuatan Impak	
	(mm)	mm	(mm)	A (mm^2)	A (m^2)	(kg)	(N)	(cm)	(m)	0	cos α	0	Cos ß	(joule)	(Joule /m^2)	(kj/m^2)
1	10,00	80,00	4,20	42,000	0,000042	0,78	7,65	83	0,83	156	-0,9135	151	-0,87462	0,247	5873,26	5,873
2	10,20	80,00	4,10	41,820	0,000042	0,78	7,65	83	0,83	156	-0,9135	152,5	-0,88701	0,168	4018,68	4,019
3	10,10	80,00	4,20	42,420	0,000042	0,78	7,65	83	0,83	156	-0,9135	152	-0,88295	0,194	4569,55	4,570
x̄	10,10	80,00	4,17	42,08	0,00	0,78	7,65	83	0,83	156	-0,91	152	-0,88	0,20	4820,49	4,82
S	0,10	0,00	0,06	0,31	0,00	0,00	0,00	0,00	0,00	0,0	0,00	0,76	0,01	0,04	952,42	0,95

Lampiran 8. Data uji impak serat motif B (90/60/45)

No.	Lebar	Panjang	Tebal	Luas Penampang		W		R		α		ß		Tenaga Patahan	Kekuatan Impak	
	(mm)	mm	(mm)	A (mm^2)	A (m^2)	(kg)	(N)	(cm)	(m)	0	cos α	0	Cos ß	(joule)	(Joule /m^2)	(kj/m^2)
1	10,00	80,00	3,80	38,000	0,000038	0,78	7,65	83	0,83	156	-0,9135	150	-0,866	0,301	7926,41	7,93
2	9,80	80,00	4,10	40,180	0,000040	0,78	7,65	83	0,83	156	-0,9135	151	-0,8746	0,247	6139,29	6,14
3	10,00	80,00	4,00	40,000	0,000040	0,78	7,65	83	0,83	156	-0,9135	151,5	-0,8788	0,220	5501,16	5,50
$\bar{X}$	9,93	80,00	3,97	39,39	0,00	0,78	7,65	83	0,83	156	-0,91	151	-0,87	0,26	6522,29	6,52
S	0,12	0,00	0,15	1,21	0,00	0,00	0,00	0,00	0,00	0,0	0,00	0,76	0,01	0,04	1257,17	1,26

Lampiran 9. Data uji impak serat motif C (90/60/45)

No.	Lebar	Panjang	Tebal	Luas Penampang		W		R		α		ß		Tenaga Patahan	Kekuatan Impak	
	(mm)	mm	(mm)	A (mm^2)	A (m^2)	(kg)	(N)	(cm)	(m)	0	cos α	0	Cos ß	(joule)	(Joule /m^2)	(kj/m^2)
1	9,90	81,00	3,80	37,620	0,000038	0,78	7,65	83	0,83	156	-0,9135	151	-0,8746	0,247	6557,065	6,557
2	10,10	81,00	3,80	38,380	0,000038	0,78	7,65	83	0,83	156	-0,9135	151	-0,8746	0,247	6427,222	6,427
3	10,00	81,00	3,80	38,000	0,000038	0,78	7,65	83	0,83	156	-0,9135	151	-0,8746	0,247	6491,495	6,491
$\bar{X}$	10,00	81,00	3,80	38,00	0,00	0,78	7,65	83	0,83	156	-0,91	151	-0,87	0,25	6491,93	6,49
S	0,10	0,00	0,00	0,38	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	64,92	0,06

Lampiran 10. Data uji impak serat motif A (90/90/90)

No.	Lebar	Panjang	Tebal	Luas Penampang		W		R		α		ß		Tenaga Patahan	Kekuatan Impak	
	(mm)	mm	(mm)	A (mm^2)	A (m^2)	(kg)	(N)	(cm)	(m)	0	cos α	0	Cos ß	(joule)	(Joule /m^2)	(kj/m^2)
1	9,90	80,00	4,20	41,580	0,0000416	0,78	7,65	83	0,83	156	-0,9135	152	-0,88295	0,194	4661,87	4,662
2	10,00	80,00	4,20	42,000	0,0000420	0,78	7,65	83	0,83	156	-0,9135	152,5	-0,88701	0,168	4001,45	4,001
3	9,90	80,00	4,20	41,580	0,0000416	0,78	7,65	83	0,83	156	-0,9135	153	-0,89101	0,143	3432,19	3,432
$\bar{X}$	9,93	80,00	4,20	41,72	0,00	0,78	7,65	83,00	0,83	156,00	-0,91	152,50	-0,89	0,17	4031,84	4,03
S	0,06	0,00	0,00	0,24	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,50	0,00	0,03	615,40	0,62

Lampiran 11. Data uji impak serat motif B (90/90/90)

No.	Lebar	Panjang	Tebal	Luas Penampang		W		R		α		ß		Tenaga	Kekuatan Impak	
	(mm)	mm	(mm)	A (mm^2)	A (m^2)	(kg)	(N)	(cm)	(m)	0	cos α	0	Cos ß	Patahan	(Joule /m^2)	(kj/m^2)
1	10,00	80,00	4,20	42,000	0,0000420	0,78	7,65	83	0,83	156	-0,9135	150	-0,866	0,301	7171,51	7,172
2	10,00	80,00	4,20	42,000	0,0000420	0,78	7,65	83	0,83	156	-0,9135	150,5	-0,8704	0,274	6517,38	6,517
3	10,00	80,00	4,20	42,000	0,0000420	0,78	7,65	83	0,83	156	-0,9135	150,5	-0,8704	0,274	6517,38	6,517
$\bar{X}$	10,00	80,00	4,20	42,00	0,00	0,78	7,65	83,00	0,83	156,00	-0,91	150,33	-0,87	0,28	6735,42	6,74
S	0	0	0	0	8,299E-21	0	0	0	0	0	0	0,2887	0,0025	0,01586	377,664402	0,3777

Lampiran 12. Data uji impak serat motif C (90/90/90)

No.	Lebar	Panjang	Tebal	Luas Penampang		W		R		α		ß		Tenaga	Kekuatan Impak	
	(mm)	mm	(mm)	A (mm^2)	A (m^2)	(kg)	(N)	(cm)	(m)	0	cos α	0	Cos ß	Patahan	(Joule /m^2)	(kj/m^2)
1	10,20	80,00	4,20	42,840	0,0000428	0,78	7,65	83	0,83	156	-0,9135	151	-0,87462	0,247	5758,10	5,758
2	10,10	80,00	4,20	42,420	0,0000424	0,78	7,65	83	0,83	156	-0,9135	151	-0,87462	0,247	5815,11	5,815
3	10,00	80,00	4,20	42,000	0,0000420	0,78	7,65	83	0,83	156	-0,9135	151	-0,87462	0,247	5873,26	5,873
$\bar{X}$	10,10	80,00	4,20	42,42	0,00	0,78	7,65	83,00	0,83	156,00	-0,91	151,00	-0,87	0,25	5815,49	5,82
S	0,10	0,00	0,00	0,42	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	57,58	0,06

Lampiran 13. Data uji bending serat motif A (90/60/45)

No	Lebar	Tebal	Luas	Defleksi	P	Tegangan	Regangan	Momen	EB	
	(mm)	(mm)	(mm^2)	(mm)	(N)	(Mpa)	(mm/mm)	Inersia	(MPa)	(Gpa)
1	15,90	3,90	62,01	15,08	221,98	87,57	0,09	78,60	966,06	0,97
2	16,10	3,80	61,18	13,93	203,48	84,55	0,09	73,62	984,21	0,98
3	16,10	3,90	62,79	14,78	222,94	87,94	0,09	79,59	989,80	0,99
$\bar{X}$	**16,03**	**3,87**	**61,99**	**14,60**	**216,13**	**86,69**	**0,09**	**77,27**	**980,02**	**0,98**
S	**0,09**	**0,05**	**0,66**	**0,49**	**8,96**	**1,52**	**0,00**	**2,61**	**10,13**	**0,01**

Lampiran 14. Data uji bending serat motif B (90/60/45)

No	Lebar (mm)	Tebal (mm)	Luas (mm^2)	Defleksi (mm)	P (N)	Tegangan (Mpa)	Regangan (mm/mm)	Momen Inersia	EB	
									(MPa)	(Gpa)
1	16,20	4,10	66,42	14,07	258,40	92,23	0,08	93,04	1146,97	1,15
2	16,20	4,10	66,42	14,78	261,05	93,18	0,08	93,04	1102,55	1,10
3	16,00	4,20	67,20	15,04	253,27	86,15	0,08	98,78	1026,21	1,03
$\bar{X}$	**16,13**	**4,13**	**66,68**	**14,63**	**257,57**	**90,52**	**0,08**	**94,96**	**1091,91**	**1,09**
S	**0,09**	**0,05**	**0,37**	**0,41**	**3,23**	**3,12**	**0,00**	**2,71**	**49,87**	**0,05**

Lampiran 15. Data uji bending serat motif C (90/60/45)

No	Lebar (mm)	Tebal (mm)	Luas (mm^2)	Defleksi (mm)	P (N)	Tegangan (Mpa)	Regangan (mm/mm)	Momen Inersia	EB	
									(MPa)	(Gpa)
1	16,20	4,60	74,52	14,15	318,63	90,35	0,09	131,40	1253,41	1,25
2	16,10	4,30	69,23	11,74	226,51	73,50	0,06	106,67	1149,14	1,15
3	16,30	4,20	68,46	12,11	212,69	72,34	0,07	100,64	1070,18	1,07
$\bar{X}$	**16,20**	**4,37**	**70,74**	**12,67**	**252,61**	**78,73**	**0,07**	**112,90**	**1157,58**	**1,16**
S	**0,08**	**0,17**	**2,69**	**1,06**	**47,02**	**8,23**	**0,01**	**13,31**	**75,04**	**0,08**

Lampiran 16. Data uji bending serat motif A (90/90/90)

No	Lebar (mm)	Tebal (mm)	Luas (mm^2)	Defleksi (mm)	P (N)	Tegangan (Mpa)	Regangan (mm/mm)	Momen Inersia	EB	
									(MPa)	(Gpa)
1	16,10	4,10	66,01	12,33	242,44	86,53	0,07	92,47	1227,40	1,23
2	16,10	4,20	67,62	13,41	266,87	90,77	0,07	99,40	1213,04	1,21
3	16,00	4,10	65,60	13,53	257,45	91,89	0,08	91,89	1188,18	1,19
$\bar{X}$	**16,07**	**4,13**	**66,41**	**13,09**	**255,59**	**89,73**	**0,08**	**94,59**	**1209,54**	**1,21**
S	**0,05**	**0,05**	**0,87**	**0,54**	**10,06**	**2,31**	**0,00**	**3,41**	**16,20**	**0,02**

Lampiran 17. Data uji bending serat motif B (90/60/45)

No	Lebar (mm)	Tebal (mm)	Luas (mm^2)	Defleksi (mm)	P (N)	Tegangan (Mpa)	Regangan (mm/mm)	Momen Inersia	EB	
									(MPa)	(Gpa)
1	16,00	3,80	60,80	14,90	205,40	85,35	0,09	73,16	928,42	0,93
2	16,10	3,80	61,18	15,02	233,67	97,09	0,09	73,62	1047,83	1,05
3	16,10	3,70	59,57	15,04	210,96	92,46	0,10	67,96	970,34	0,97
$\bar{X}$	**16,07**	**3,77**	**60,52**	**14,99**	**216,68**	**91,63**	**0,09**	**71,58**	**982,20**	**0,98**
S	**0,05**	**0,05**	**0,69**	**0,06**	**12,23**	**4,83**	**0,00**	**2,57**	**49,47**	**0,05**

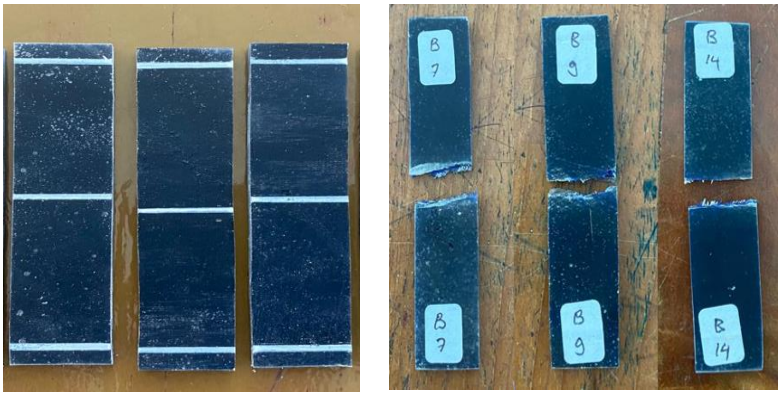
Lampiran 18. Data uji bending serat motif C (90/60/45)

No	Lebar (mm)	Tebal (mm)	Luas (mm^2)	Defleksi (mm)	P (N)	Tegangan (Mpa)	Regangan (mm/mm)	Momen Inersia	EB	
									(MPa)	(Gpa)
1	15,90	4,20	66,78	14,03	285,50	97,11	0,08	98,17	1240,64	1,24
2	16,00	4,00	64,00	14,47	229,82	86,18	0,08	85,33	1016,79	1,02
3	15,90	3,90	62,01	15,02	215,53	85,02	0,09	78,60	941,75	0,94
$\bar{X}$	**15,93**	**4,03**	**64,26**	**14,50**	**243,62**	**89,44**	**0,08**	**87,37**	**1066,39**	**1,07**
S	**0,05**	**0,12**	**1,96**	**0,41**	**30,19**	**5,44**	**0,00**	**8,12**	**126,96**	**0,13**

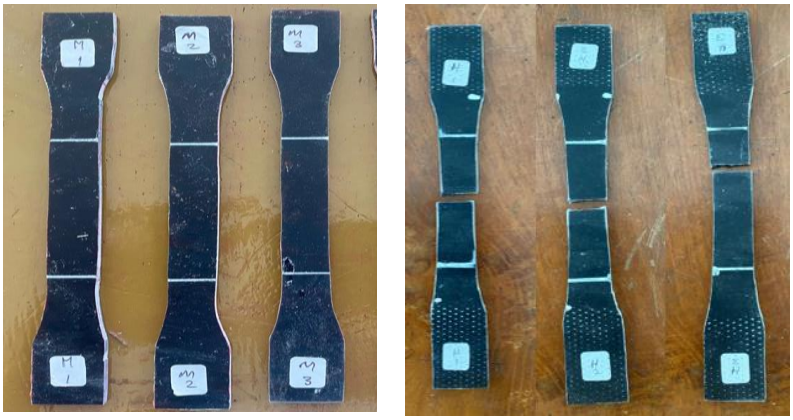
Lampiran 19. Fraksi ukuran penyusun komposit

Fraksi	Massa (kg)	Volume (cm^3)	Berat jenis (kg/cm^3)
Serat	0,014	93,75	$0,15 \times 10^{-4}$
Matriks	0,276	156,25	$1,76 \times 10^{-4}$
Komposit	0,290	250,00	$1,16 \times 10^{-4}$

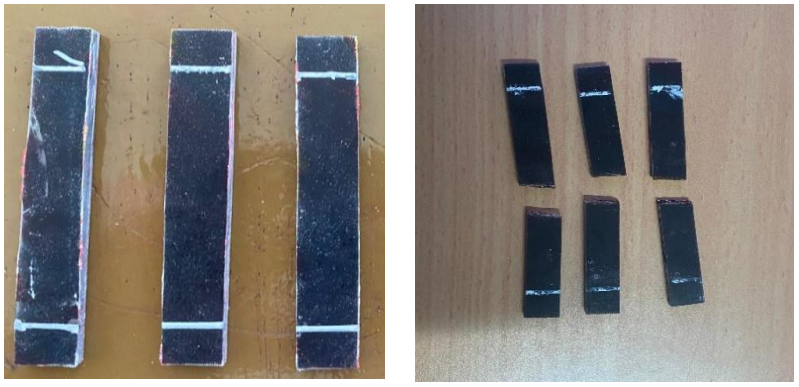
Lampiran 20. Spesimen uji bending



Lampiran 21. Spesimen uji tarik



Lampiran 22. Spesimen uji impak



Lampiran 23. Proses pengolahan

Lampiran 24. Serat tenunan sutra