

## CHAPTER VI

### CONCLUSION AND SUGGESTION

#### 6.1. Conclusion

From the result obtained, the result for the deflection and the loads up to the first crack, for bamboo reinforced beam without surface coating or plain can withstand 43.145 kN with 165 mm of deflection, for bamboo reinforced beam with araldite surface coating can withstand 54.912 kN with 192 mm of deflection, for bamboo reinforced beam with epoxy resin surface coating can withstand 49.028 kN with 165 mm of deflection, and for bamboo reinforced beam with coal tar surface coating just can withstand 25.495 kN with 64 mm of deflection. This indicates that araldite surface coating has 28% higher effect on load resistance and epoxy resin has 14% higher effect on load resistance than ordinary bamboo/bamboo without surface coating.

## **6.2. Suggestion**

Based on the research that has been done, there is suggestion for further research about bamboo reinforced beam. Research on bamboo reinforcement can be developed further, by conducting experiments on treatments for bamboo or the addition of other admixtures to increase the resilience of bamboo as reinforcement.



## REFERENCES

- A. Priyanto and I. Yasin, 2019. Pemanfaatan Laminasi Bambu Petung Untuk Bahan Bangunan. *Science Tech: Jurnal Ilmu Pengetahuan Dan Teknologi* 5. Available at: <<https://doi.org/10.30738/jst.v5i2.5803>>
- Araldite.in. Araldite Standard Epoxy Container Packs. Accessed on May 29, 2021. Available at: <https://www.araldite.in/product/araldite-standard-epoxy-container-packs/>
- Byjus.com. 2021. Tensile Stress. Accessed on May 29, 2021. Available at: <https://byjus.com/physics/tensile-stress/>
- Byjus.com. 2021. Modulus of Elasticity. Accessed on May 2, 2021. Available at: <https://byjus.com/jee/modulus-of-elasticity/>
- Corrosionpedia.com. February 5, 2015. Compressive Strength. Accessed on May 2021. Available at: <https://www.corrosionpedia.com/definition/1620/compressive-strength-material-science>
- Corrosionpedia.com. November 19, 2013. Tensile Strength. Accessed on May 29, 2021. Available at: <https://www.corrosionpedia.com/definition/1072/tensile-strength>
- Corrosionpedia.com. October 29, 2014. Elastic Modulus. Accessed on May 29, 2021. Available at: <https://www.corrosionpedia.com/definition/429/elastic-modulus>
- Corrosionpedia.com. June 9, 2016. Flexural Strength. Accessed on May 29, 2021. Available at: <https://www.corrosionpedia.com/definition/5061/flexural-strength>
- D. S. Rini, 2018. Sifat Fisika Bambu Petung (*Dendrocalamus Asper* (Schult. f.) Backer Ex Heyne) dari KHDTK (Kawasan Hutan Dengan Tujuan Khusus) Senaru Berdasarkan Posisi Aksial. *Jurnal Belantara*, 101–6. Available at: <<https://doi.org/10.29303/jbl.v1i2.83>>.
- Engineeringclicks.com. December 12, 2018. Units of Modulus of Elasticity ( Young's Modulus ). Accessed on May 29, 2021. Available at:

<https://www.engineeringclicks.com/units-of-modulus-of-elasticity/>

- F. T. Wulandari, 2019. Karakteristik Dan Sifat Fisik Bambu Petung (*Dendrocalamus Asper. Backer*) Di Kawasan Hutan Kemasyarakatan (HKM) Desa Aik Bual, Provinsi Nusa Tenggara Barat. *Buletin Loupe*, 15.01,6. Available at: <https://doi.org/10.51967/buletinloupe.v15i01.27>.
- F. X. Ndale, 2013. Sifat Fisik Dan Mekanik Bambu Sebagai Bahan Konstruksi. *Jurnal Teknik Universitas Flores*, 22–31.
- J. K. Sevalia, N. B. Siddhpura, D. B. Shah, J. V. Kapadia, C. S. Agrawal, 2013. Performance Evaluation of Axially Loaded Element Using Bamboo as Reinforcement. *International Journal of Engineering and Advanced Technology (IJEAT)*, 413–15.
- Kontraktorcatepoxy.com. 2020. Epoxy Resin. Accessed on May 29, 2021. Available at: <https://kontraktorcatepoxy.com/epoxy-resin/#:~:text=Epoxy%20resin%20adalah%20jenis%20yang,sangat%20berguna%20untuk%20berbagai%20aplikasi.>
- Matmatch.com. 2021. What is Compressive Strength. Accessed on May 29, 2021. Available at: <https://matmatch.com/learn/property/compressive-strength>
- Matmatch.com. 2021. Flexural Strength. Accessed on May 29, 2021. Available at: <https://matmatch.com/learn/property/flexural-strength>
- Petropedia.com. 2021. Coal Tar Epoxy. Accessed on May 29, 2021. Available at: <https://www.petropedia.com/definition/5349/coal-tar-epoxy>
- Ramaswamy S. N., and A. Mathew, 2019. Performance Evaluation of Bamboo Reinforced Concrete Beam. *International Journal of Civil Engineering and Technology*, 2512–23.
- S. Leelatanon, S. Srivaro, and N. Matan, 2010. Compressive Strength and Ductility of Short Concrete Columns Reinforced by Bamboo. *Songklanakarinn Journal of Science and Technology*, 419–24.
- S. Ahmad, A. Raza, and H. Gupta, 2014. *Mechanical Properties of Bamboo Fibre Reinforced Concrete*. 0531279486. Available at:

<<https://doi.org/10.15242/iie.e0314522>>.

Thoughtco.com. July 17, 2019. What is Epoxy Resin used In. Accessed on May 29, 2021. Available at: <https://www.thoughtco.com/what-is-epoxy-resin-820372>

Us.aralditeadhesives.com. Adhesive Raising Performance in Construction. Accessed on May 29, 2021. Available at:

<https://us.aralditeadhesives.com/us/industries/construction-industry.html>

