

Experimental Study on RC Beam using Coconut Fibre Reinforced Concrete with Various Fibre Orientations

Kishor S¹ and Nandhakumar P²

PG Student, Department of Civil Engineering¹

Assistant Professor I, Department of Civil Engineering²

Kumaraguru College of Technology Coimbatore, Tamil Nādu, India

kishor.20mse@kct.ac.in and nandhakumar.p.ce@kct.ac.in

Abstract: *Engineering properties of concrete can be enhanced by reinforcement of various materials. In this study coconut fibers were used as they have many advantages such as easily available and cost effective. An experimental study is held for study on properties of concrete reinforced with coconut fiber. A good bonding in the concrete is observed due to its flexural strength by addition of coconut fibres. The major aim of this study is to create awareness among the society about the importance of coconut fiber as construction material. The concrete beams are casted and tested with uniformly distributed and randomly distributed coir fibres. The comparative study is done with conventional beam and beams with different fibre orientations.*

Keywords: Coconut fiber, Uniformly distributed, Randomly distributed, Flexural strength

REFERENCES

- [1]. Majid Ali, Anthony Liu, Hou Sou, Nawawi, Chouw, “Mechanical and dynamic properties of coconut fibre reinforced concrete”, 2012.
- [2]. H.S.Ramaswamy, B.M.Ahuja, S.Krishnamoorthy, Behavior of concrete reinforced with jute, coir and bamboo fibres, 1983.
- [3]. SK Al-Oraimi, AC Seibi, Mechanical characterization and impact behaviour of concrete reinforced with natural fibres, 1995.
- [4]. MA Aziz, P Paramasivam, SL Lee, “Prospects for natural fibre reinforced concretes in construction”, 1981.
- [5]. SK Yadav, A Singh, “An experimental study on coconut fiber reinforced concrete”, 2019.
- [6]. Akshay betageri, Dr. Anila kumar C.P, “Comparative study of strength properties of coconut coir fiber reinforced concrete due to partial replacement of cement by pozzolanic materials”, 2018.
- [7]. M.J. Ienamul Hasan Ali, S.Senthamizh Sankar, K.Saikumar, “Experimental study on coir fibre mixed concrete”, 2018.
- [8]. M Ramli, WH Kwan, NF Abas, “Strength and durability of coconut-fiber-reinforced concrete in aggressive environments”, 2013.
- [9]. Libo Yan, Nawawi Chouw, Liang Huang, Bohumil Kasal, “Effect of alkali treatment on microstructure and mechanical properties of coir fibres, coir fibre reinforced-polymer composites and reinforced-cementitious composites”, 2016.
- [10]. V.M. John, M.A. Cincotto, V. Agopyan, C.T.A. Oliveira “Durability of slag mortar reinforced with coconut fibre”, 2005.
- [11]. Zhijian Li, Lijing Wang, Xungai Wang, “Flexural characteristics of coir fiber reinforced cementitious composites”, 2006.
- [12]. Giovanni Martinola, Alberto Meda, Giovanni A. Plizzari, Zila Rinaldi, “Strengthening and repair of RC beams with fiber reinforced concrete”, 2010.
- [13]. Cong Zhang, Shicheng Han, Yuan Hua, “Flexural performance of reinforced self-consolidating concrete beams containing hybrid fibers”, 2018.
- [14]. Abdoullah Namdar, Ideris Zakaria, Sayed Javid Azimi, “An experimental study on flexural strength enhancement of concrete by means of small steel fibers”, 2013.