This paper reports on the behaviour of bamboo reinforced concrete columns under the applied axial loads. 150x150x1000mm columns were cast using 1:2:4 mix with water/cement ratio of 0.65. The bamboo content was varied from 0% to 2.5% of the cross sectional area at interval of 0.5%. 10 x 10mm bamboo splints were used. The surface of the bamboo splints were coated with bituminous paint and sand blasted to improve its bond characteristics. 8mm diameter bar links were provided at 150mm centers with their ends tied with binding wires. The specimens were cured in water at a temperature of 21°C and tested at the curing ages of 7, 14 and 28 days. 

The results show that at 7-day curing age, the theoretical failure loads of bamboo reinforced columns increased when compared to that of un-reinforced specimens. At 1% reinforcement content, the theoretical failure load capacity at 7-day curing age is 8.52 N/mm². The results are 9.01, 9.71, and 10.26N/mm² for 1.5%, 2.0% and 2.5% bamboo reinforcement content respectively at the same curing age. When compared with un-reinforced specimens this showed an increase in strength values of 10.54, 16.88, 25.92 and 33.07% respectively.

For the experimental failure loads of tested specimens, it was observed that with the introduction of bamboo reinforcement, the experimental failure loads decreased with increase in reinforcement when compared with un-reinforced specimens. For 1.0, 1.5, 2.0, 2.5% reinforcement, the experimental failure loads were 8.74, 8.12, 7.40, and 6.88 N/mm² respectively. Compared to 0% reinforced specimen with experimental failure load of 9.56N/mm², this showed a decrease in load carrying capacity of 8.53, 15.04, 23.10 and 27.91 percent respectively. This trend of decrease in failure load with increase in proportion of reinforcement is the same for specimens’ tested at other curing ages. The results theoretically show increase in strength with increase in reinforcement content at all ages. The deflection of the reinforced concrete columns decreased with age and increased with the percentage of bamboo contents in the columns.