THE EFFECTIVENESS OF THE USE OF FIBERS AND OTHER METHODS AS REINFORCEMENT IN THE REPAIR OF WOOD BEAMS OF VARIOUS ARBOREAL ORIGINS.

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This paper describes and compares results between articles, for this, 4 relevant topics were selected in reinforcements to wood beams of different types and tree origin [1, 2, 3, and 4], found in the literature or status of the Art.

On the samples of the literature to be compared, it was considered for the choice that the selected articles have similar approaches and have similar mechanical tests as: tensile strength, resistance to the average flexion, elasticity module analysis, however, a limitation of the work is the fact that the obtained values cannot be bought in an absolute way since the authors and selected referents apply their research on various configurations of wood beams or different species such as Pine, Beech, Alamo and Fir or even the technique and type of fibre to be used in the reinforcement of such fibres as glass, polymer, bamboo, GFRP, and others made from steel, suggesting a percentage comparison of the improvement or efficiency achieved by the applied methods.

Concerning the methodological plan it is noted that the selected samples do not use the same units, this is bought according to relative values or percentage of variation according to the type of test, in which a comparison is made with the control sample (beam without backup) and a reinforced or repaired selected beam (which was selected according to the best achieved or as a sample in which the reinforcement is not invasive).

The comparison between work referents concludes that these constructive solutions (repair and reinforcement) provide benefits or contributions to the mechanical characteristics of structural elements of wood, shaping an attractive concept for the development of applications in the field of building and civil construction, as:

The variation of the elasticity Module, when using a method of repair / reinforcement with organic fibres (the case of Bamboo) is negative [1].
The highest contributions or percentage increases in the elasticity Module and the breakage

Module are obtained when synthetic materials are used, for the matter, the GFRP fibre (F. glass + polymer) and the GFRP bar respectively [2 and 3].

The lowest results in the variation of the breakage Module are obtained by using a repair method / reinforcement with glass fibres [6], however, when using reinforcement with glass materials plus bar polymers, this reaches the highest value on the MOR [2].

The wood beam (Abeto laminate) reinforced with steel bars [4] represents the highest result of bending resistance.

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