Ain Shams University
Faculty of Engineering
Structural Engineering Department

Production of Reinforcing Bars from Local Natural Fibers and Use of them as Reinforcement for Concrete Slabs

By

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A Thesis

Submitted in Partial Fulfillment for Requirements of the Degree of
Master of Science in Structural Engineering

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STATEMENT

This thesis is submitted as a partial fulfillment of the degree of Master of science in Civil Engineering (Structure), Faculty of Engineering, Ain Shams University.

The author carried out the work included in this thesis, and no part of it has been submitted for a degree or a qualification at any other scientific entity.

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ(١) خَلَقَ الإِنْسَانَ مِنْ عَلَقٍ(٢) اقْرَأْ وَرَبُّكَ الأَكْرَمُ(٣) الَّذِي عَلَّمَ بِالْقَلَمِ(٤) عَلَّمَ الإِنْسَانَ مَا لم يعلم(٥))

صدق الله العظيم

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ABSTRACT

Title of the thesis:

Production of Reinforcing Bars from Local Natural Fibers and Use of them as Reinforcement for Concrete Slabs

Submitted by: Marwan Salem Mohammed Eshkandali

Submitted by: Dr. Ahmed Fathy Abdel - Aziz

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Considered the use of natural fiber in reinforcing with addition of components to polymers one application at the present time in many engineering fields. Where the researchers experiments adding plants fiber with or industrial fiber as an alternative source of reinforcing to improve the properties mechanical of mortar and concrete. It is the worth saying the use of natural fibers, which can be obtained at relatively low cost especially the least growth areas saluting unable to get the building materials for traditional Because of few availability and high cost.. It is consider one promising alternatives in the area of the desired environmental employment strong use of manpower and technology available including improving environmental sustainability. It aims to experimental study of the behavior and properties of some types of natural fibers for local production reinforcing of concrete elements. As the review of previous researches to know the techniques used in this field and study the production of rods for concrete reinforcement of

natural fibers and the appointment of local physical properties and mechanical have been practical application reinforcing slabs of concrete bars manufactured locally to study the pattern of behavior in the bending load.

The study reached the laboratory to the results highlight the excellence bars of natural fibers made from the sisal of saluting the tensile stress and modulus of elasticity properties compared to other types of fibers with other features very low and improve environmental sustainability.

It was clear from the possibility of studying of using reinforcing bars made of hybrid combination of sisal and glass of reinforced concrete slabs with the need for more studies on the behavior of reinforced concrete slabs natural fibers in the long period.

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