BIOMIMICRY BASED ON LEPIDOPTERS AS AN INSPIRATION FOR THE DESIGN AND CONSTRUCTION OF AN ECOLOGICAL PROTOTYPE.

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Abstract

The materials to make ecological or environmentally friendly buildings are called ecomaterials, either because they come from sustainable crops or from sustainable production processes Al plantear actividades de bioingeniería ambiental y arquitectura sostenible, nos dimos a la tarea de buscar materiales que fueran aptos para utilizar en construcciones que fueran sostenibles, es decir, con una funcionalidad ecológica; inspirados en la naturaleza.

As defined by the concept of biomimicry (Rinaldi, 2007) is "The science that [...] reference to the process of understanding and applying to human problems, solutions coming from nature in the form of biological principles, biomaterials, or of any other nature"

Colombia is one of the countries with the greatest diversity of diurnal butterflies, with approximately 3,500 species described so far, of which 300 are endemic (Heppner, 1991). This wealth is due to the topographical variety, combined with its geographical position, which includes habitats linked to the Amazon, rainy plains, Andean altitudes, deserts and forests. Specifically in the eastern plains, this convergence of ecosystems provides special environments that allow great variability of lepidopteran species. What facilitates the approach of environmental projects of environmental bioengineering, sustainable architecture and bioclimatic that are related to the analysis and characterization of native species. These actions are fundamental to carry out biomimicry activities based on our biodiversity.

If we want to biomimetize in the three levels the natural form, the natural process and the natural system, we must start by doing what all well-adapted organisms have learned to do, which is to create conditions.(Benyus, 2008)

The constructed prototype comes from the bioinspiration of the lepidopters, and the biomimetic base of the structure was based on the wing of the butterfly, both for its design and for its construction.

Keywords— biomimicry, prototype, ecomaterials, environmental bioengineering, sustainable architecture.

Professional Biography (100-150 words)

Lina Fernanda Mojica Sánchez: Colombian environmental engineer specializing in the formulation and evaluation of projects from UNIMETA. Master in Environment and Sustainable Development at the age of 33 years old from Manizales University. She is the director of the Environmental Research Department - CIAM, which promotes the approach and execution of proposals for sustainable development



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