Towards an innovative design approach: Palm tree biomimicry between form and content

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Biomimicry is considered to be a new approach for achieving sustainable architecture, and accordingly smarter futuristic cities. It provides humans with aspiration to view nature as our mentor. Meanwhile, architecture has long drawn from nature as a source of inspiration. The integration between biomimicry and architecture leads to innovative designs inspired by Mother Nature.

The palm tree is considered to be one of the most popular native and local plants in the MENA region. It has been studied by architects and planners and applied in the architectural designs in one-way or another. However, a thorough investigation of that valuable plant has to be carried out for a better understanding of its capabilities. This paper explains how biomimicry can enroll have a role in architecture, and its applications gradual levels. This paper also studies the palm tree by means of form, content and mechanism of the palm tree; in order to recognize its most suitable applications on buildings, which affects the architectural aesthetic and functional values. The results should indicate how positively the palm tree whole system could benefits the architectural environment.