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Natural Nanotechnology

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Abstract: Studying the nature permit a rapid progress of nanoscience and nanotechnology. Moreover, Bioinspired nanomaterials with enhanced surface coatings are progressively being utilized for several bio-applications. We believe that nanotechnology is the best solutions for production problems. Nanomaterials provide a harmonious with nature thus create improved outcomes.

Keywords: Nature; Nanotechnology; Unique properties

However nanotechnology is represented as an honestly recent human development, truly nature is the inspirational model of nano-designs as nature full of nanometric architectural structures. They support the essential roles of a variety of life systems, from microorganisms to plants, sands to mountains. In fact, Thoughtful utilization of the principles of nanoscience can be outlined to natural structures

The color of several types of insects is produced by sets of carefully spaced nanometric slits. Created from sugars as chitosan and or proteins, the widths of between each slit are manipulate light to achieve certain colors or effects. The color can be varied by simply changing the size and shape of the slits, and by filling the pores with liquids. We can say that the optical enhancement or invisibility is gained from the fact that certain colors could be selectively canceled out or strengthened in nanostructure to provide an indeed unique optical characteristic.

Adhesion and self-cleansing effect could be greatly inspired from gecko's foot. The active adhesive coating of the gecko's foot is composed from nanometric branched layer of bristles named spatula, which are very flexible and non-sticky with self-cleaning feature. The intricate patterns increase the total surface area thus enhance adhesion, while the self-cleansing effects are induced by the energetic disequilibrium created among the adhesive forces attracting a mud particle to the substrate and those attracting the same particle to one or more spatula.

Moreover, nature's advances, scientists and engineers to create a material with anti-bacterial activity by inspire the nature. Sharks have been swimming in the oceans without challenging accumulation of bacteria or algae on their surface. This is for the reason that the nano-patterns on the shark's skin and deflect the of barnacles, algae, and bacteria and prevent their accumulation. scientists and bioengineers have initiated to integrate nanopattern feature onto high-traffic surfaces to promote anti-bacterial activity.

The leaves of the lotus flower display tremendously repellent properties to water and dirt due to the nanostructures on the leaf surface. These structures allow the plant to have extremely self-cleaning function. The nano-projections on leaves of the lotus flower act as bumps of a hydrophobic, waxy material that allow the leaf to trap only air which create a

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super-hydrophobic surface, therefore, tiny pockets will be filled with air, to which water is only weakly attracted. These air pockets serve as a barrier, preventing water from intermingling with the solid surface underneath. Consequently, the water's attraction to each other is less than its attraction to the leaf surface, and it forms minute droplets that roll off the leaf instead of spreading over the leaf. Finally, the water droplets pick up dirt on the lotus leaf providing clean surface.

In the arena of environmental nanotechnology, thoughts on the innovation of engineered nanomaterials differ; some scientists have confidence in that many engineered nanomaterials are indeed unique, while others are convinced that we are simply fabricating structures already intended in nature. In the current article, we present some examples of natural materials and structures that inspired to provide nano-production and solution to industrial problems, thus we can say that nanotechnology is a nature's gift.

Finally, I believed that the synthesize nanomaterials and other nanostructure that attempt to reproduce nature's achievements. Natural materials' unique properties and their hierarchical nanoscale architecture could be successfully utilized to create a novel design that bioinspired structural materials.