Using Nano- Silver Antimicrobial Technology to Obtain Hygienic Indoor Environment.

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Abstract:
Recent studies showed that for indoor environment, surface contamination can be treated by utilizing antimicrobial silver nano- particles coating to get rid of the organic materials and microbial growth. Silver nanoparticles are ideal antimicrobial material because of their high efficacy against a wide range of microbes and their nano size which is similar to the size of the cells. This enables them to easily attack the cells and pass through the membrane leading to alteration in the cell membrane properties which in turn disrupt vital cellular functions. Problem: People spend long time in indoor environment such as working places, living, schools, kindergartens, houses and hospitals. The quality of indoor environment becomes an important topic. Indoor infection is due to contamination of materials used in wall, floor, furniture, upholstery, adhesives and latex paint. Such contamination can provide a good environment for different microbes (bacteria, viruses, fungi and other organisms) to grow and transmit infections diseases to occupier of indoor environment. Objective: Aim of the research is to provide a healthy environment free of contaminants and microbes vectors through the use of "anti- microbial nano-technology " by creating a new vision for the design and the use of the surface of the interior environment at low cost and long lasting effectivity while keeping the functional and the aesthetic and healthy aspects of the interior decorations.

Results:
1- Applications of Nano antimicrobial technology in the indoor environment is expected to show a significant boom in the coming years due to the international urge for “more green” in indoor environment. Better understanding of the properties of indoor environment material at nano scale can lead to improvement of the function of the material and its application. For example when adding the nano silver particles, to the nano ZnO particles in the correct proportions and methods, the obtained material can increase the antimicrobial activity, rate of durability and many other properties. So, its application as “a self sterilizing antimicrobial surface coating will reduce the surface consumption and lengthen the life cycle of its material usage, and reserve its cosmetic shape. 2- In the trends of indoor environmental protection, the development of interior decoration and furniture industry must focus on safety and health. The choices of consumer in interior decoration, furniture and upholstery will go up from the perceptual to rational, from the style and structure to the safety and health. Thus, the popularity of nano-antimicrobial interior decoration, furniture and upholstery is expected to be realized. 3- It is urgent to work out an advanced nano antimicrobial technology which is of practical significance to create out and stabilize nano-antimicrobial interior decoration and furniture purchasing consumer’s trust. It is also important not to exaggerate the nano- antimicrobial effect and mislead the consumers, resulting in the unstable of nano- antimicrobial industry of interior decoration, furniture and upholstery.

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