Technology to eliminate fungus from surgical materials

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Specialists in Mexico have developed a system that combines antifungal properties of different materials. This scientific product destroys microorganisms that proliferate in the living systems and confers protection in the case of a weakened immune system.

The development, part of the doctoral thesis by student Tania Segura,

titled" Antifungals Bioinspired Systems," is useful for its implementation in medical devices such as catheters. This is because specialists at UNAM managed to apply a component called ergosterol to certain surgical materials, which retain drugs such as natamycin, histamiycin or vancomycin that eliminate different types of fungi.

"The human body has several types of fungal colonies in various parts of the body such as the feet, mouth and generally all the cavities, the most common being the Candida species. These microorganisms, which generally pose no risk, are dangerous when the immune system is weak. In such conditions, they reproduce at a much higher rate than usual. This commonly occurs in situations such as surgery or when it is necessary to introduce some kind of devices or catheters, "explained Burillo Amezcua.

Burillo Amezcua, who is the founder of the Laboratory of Macromolecular Chemistry and Radiation at UNAM, explained that when the antifungal bioinspired system contacts the skin or an organ contaminated with fungi, ergosterol, an antifungal agent, immediately attacks harmful microorganisms.

"For example, the application of a catheter could jeopardize a patient if the medical instrument is contaminated with fungi. But if the medical tool is formed from an antifungal bioinspired system, the system contains histamine or some other antifungal drug, killing the microorganisms," said the specialist. She added that although functionalization with ergosterol has been conducted on silicone films, it is possible to implement it in other materials such as polyolefins or polyvinyl chloride used in urinary catheters.

The testing of this system was developed in collaboration with Carmen Alvarez Lorenzano and Angel Conchiero, Spanish specialists from the Faculty of Pharmacy at the University of Santiago de Compostela, Spain. According to Burillo Amezcua, both institutions share a patent, and the development will be presented shortly to entrepreneurs of the pharmaceutical industry.

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