

Commentary

Photocatalytic Decomposition of Viruses, Bacteria, Fungi and Odors into Harmless Atoms and Molecules

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Abstract

Photocatalysis breaks down viruses (including coronavirus and all its current and future mutations) into harmless atoms and molecules. The activated surface of titanium dioxide (TiO₂) removes binding electrons from the structures using UV light, which breaks down the structure of the virus into harmless molecules and atoms. UV light with a wavelength of about 365 nm (band A) is used to activate the photocatalytic surface, in contrast to hard radiation with a wavelength of about 200 nm (band C). Hard radiation kills living structures but does not break down into simpler structures.

Keywords: UV LED; Photocatalytic surface; Harmless atoms

The easiest way is to use UV sunlight and paint a photocatalytic substance, for example, on the walls of houses. We use UV light generated by UV LEDs or UV lamps. The advantage of UV LEDs is that a low and safe DC supply voltage of 12 or 24 V can be used. UV lamps for higher outputs use an AC supply with a voltage of 230 V. Fans are used to flow air around the photocatalytic layer. The best activated surface is a helix that has a large surface and low air resistance. I have filed a patent registration for the construction of air purifiers, which work on the principle described above. Testing of prototypes of various constructions has already been performed with very good results. We can only hope that this principle will help slow down or stop the spread of viral disease. Photocatalysis also decomposes harmful bacteria, fungi, unpleasant odors, cigarette smoke and chimney smoke, and harmful gases from cars and motorcycles.

Equipment for Photocatalytic Air Treatment

The device for photocatalytic air treatment comprises a hollow body provided with an air inlet and an air outlet and at least one photocatalytic element arranged in the hollow body between the air inlet and the air outlet. The invention consists in that the photocatalytic element is formed by at least one blade lamella arranged transverse to the air flow direction, at least part of the blade lamella being formed as a surface arranged helically obliquely upwards from the center of the hollow body to its circumference. With respect to the air flow direction, and at least said part of the blade lamella is provided with a photocatalytic layer on one side and/or on the other side, relative to the air flow direction. The vane lamella may be formed by an integral helical body or several discrete vanes, the vane lamellae forming an assembly for helical air flow.

Conclusion

It is certainly less dangerous to break down viruses and bacteria into harmless molecules than to be vaccinated, for example, against coronavirus. It is not known what long term negative consequences vaccination will have on some organs of the human body. Therefore, the use of photocatalytic decomposition of viruses in hospitals and households, etc. is very effective as prevention.

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Conflict of Interest

Author declares there is no conflict of interest.