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

Photocatalysis breaks down viruses (including coronavirus and all its current and future mutations) into harmless atoms and molecules. The activated surface of titanium dioxide (TiO_2) 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. 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.

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.

Speaker Biography

Pavel Osmera, a teacher at the Institute of Automation and Computer Science, Dept. of Applied Computer Science, Brno University of technology. Scientific activities: physical chemistry, evolutionary optimization. His research areas are physical chemistry, evolutionary optimization, Nanomaterials.

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