US govt reveals details of sunlight study on virus

29 April 2020, by Issam Ahmed

A picture taken on July 6, 2018 shows the bright sun shining over a wheat field in Giesen, northern Germany

The US Department of Homeland Security revealed to AFP on Tuesday new technical details regarding its highly anticipated study into how ultraviolet radiation destroys the new coronavirus, saying that its experiment had accurately mimicked natural sunlight.

A summary of the research was presented last week at the White House, with some scientists calling for caution until a more comprehensive report was made public.

US President Donald Trump raised eyebrows last week when he used his daily live national press briefing to ask whether light could become a medical treatment.

"Supposing we hit the body with a tremendous—whether it's ultraviolet or just very powerful light," he said. "Supposing you brought the light inside the body, which you can do either through the skin or in some other way."

Trump continued on to suggest that people inject disinfectants to cure the virus, an idea that health experts quickly shot down.

DHS official William Bryan had briefed the media that the amount of virus on a non-porous surface shrunk by half in just two minutes when sunlight was present, the temperature was 70-75 degrees Fahrenheit (21-24 Celsius) and humidity was 80 percent.

The amount of virus suspended in air shrunk to half its amount in just 1.5 minutes at room temperature and 20 percent humidity, he added.

These eye-catching results surprised experts because most of the UV light contained in natural sunlight belongs to a subtype called UVA, which causes human skin to tan and age but has not generally been proven harmful to viruses, David Brenner, director of the Center for Radiological Research at Columbia University Medical Center, told AFP.

On the other hand, a part of the spectrum called UVC is particularly adept at warping the genetic material of animal and virus cells and is widely used in sterilizing lamps, but it is not present in sunlight because it is filtered out by the Earth's atmosphere.

Asked for further details on the type of UV light that was used, Lloyd Hough, a DHS scientist overseeing the test, said: "The spectrum of light that was used was designed to approximate natural sunlight that you would expect to see at noon at sea level at a mid-latitude location (e.g., mid-Atlantic, 40 degrees N) on the first day of summer.

"More specifically, it approximates the wavelengths of light predicted by the National Center for Atmospheric Research's (NCAR) Tropospheric Ultraviolet and Visible (TUV) Radiation Model for noon at 40 degrees N latitude at sea level on June 21st in range of 280 and 400 nanometer

wavelengths."

The wavelengths specified pertain only to long- and medium-wave ultraviolet, also known as UVA and UVB—the UV components of sunlight that penetrate the atmosphere—and not UVC.

Paper coming soon

A DHS spokesman added that the test—which was conducted at the National Biodefense Analysis and Countermeasures Center in Maryland—was carried out on droplets of simulated saliva on a stainless steel surface.

Brenner, who is himself performing research into another area of the UV spectrum called far-UVC, which kills microbes without penetrating human skin, said the DHS findings did not comport with previous research.

"There is a peer-reviewed paper in the literature from the FDA (Food and Drug Administration) showing the earlier SARS-CoV virus did not respond to UVA light (though it did respond to UVC light)," he said, adding it is "reasonable to assume that all coronaviruses respond roughly the same way to light."

The results as presented were "straining credulity," he added.

But a DHS spokesman said that study would soon be submitted for peer review and published in scientific journals.

"While the results are still undergoing a rigorous scientific review, we felt it important to share information on the emerging trends that are being identified in our tests," the spokesman said.

APA citation: US govt reveals details of sunlight study on virus (2020, April 29) retrieved 30 April 2021 from https://medicalxpress.com/news/2020-04-govt-reveals-sunlight-virus.html