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Shedding light on the myths of ultraviolet radiation in the Covid-19 pandemic

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The rapidly evolving knowledge base surrounding the Covid-19 pandemic has led to anxiety and cognitive dissonance. Misinformation about the role of ultraviolet (UV) radiation has spread rapidly, including statements from the President of the United States of America in April 2020. Myths related to SARS-CoV-2 and UV radiation are being widely shared on social media. [1] #uvKillsCovid19 and #UVdisinfection have emerged as new search terms on Twitter. It has erroneously been claimed that sunlight and tanning beds, which contain UVA

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and UVB, eradicate Covid-19 via ultraviolet radiation. [2] UVA and UVB are poorly virucidal. UVC is shorter wavelength (Figure 1), and is absorbed by atmospheric ozone, but man-made sources exist. Even a very brief exposure to UVC induces photo-dimerisation of thymine, therefore disrupting nucleic acid replication and rendering micro-organisms non-viable. [3]

Sunlight that reaches earth contains only UVA and UVB and is ineffective in eradicating SARS-CoV-2. Analysis of Google Trends shows that the search term 'sunlight coronavirus' had exponential growth in April 2020 (Figure 2), with a relative search index of 100 on April 24th. The search 'sunlight kill coronavirus' is one of the highest trending Google searches related to Covid-19 globally.

Tanning salons have tried to remain open in several countries during the pandemic by claiming that their devices destroy SARS-CoV-2. Tanning beds use UVA for immediate tanning and UVB for delayed tanning, emitting no UV-C whatsoever. [4]

UV disinfection lamps have been marketed as hand sanitisers. [2] These germicidal lamps use UVC and are toxic to the human skin and cornea, potentially causing radiation dermatitis, skin cancer, and visual impairment.

Germicidal irradiation using UVC may have a role in the fight against Covid-19 as a useful mechanism to disinfect and reuse personal protective equipment as well as the sterilisation of medical instruments. [5] UVC germicidal bulbs may also be useful in the disinfection of air and water but should not be used in any application with potential exposure to humans.

Multiple myths are circulating about the role of UV radiation against SARS-CoV-2. It is important to highlight the ineffective nature of UVA and UVB and the potentially harmful nature of UVC.

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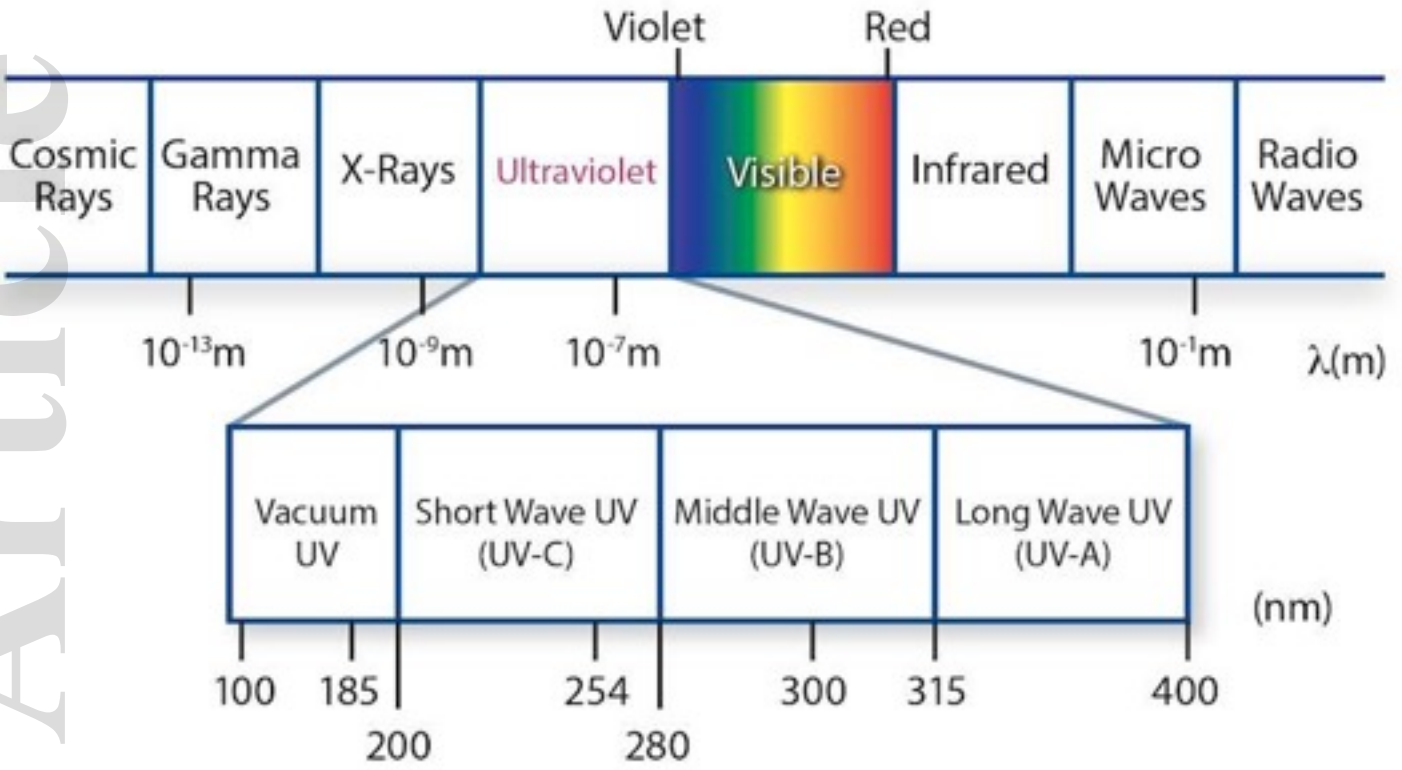
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Figure Legends

Figure 1: The electromagnetic spectrum with ultraviolet highlighted.

Figure 2: Interest over time for search term ‘sunlight coronavirus’ on Google Trends.

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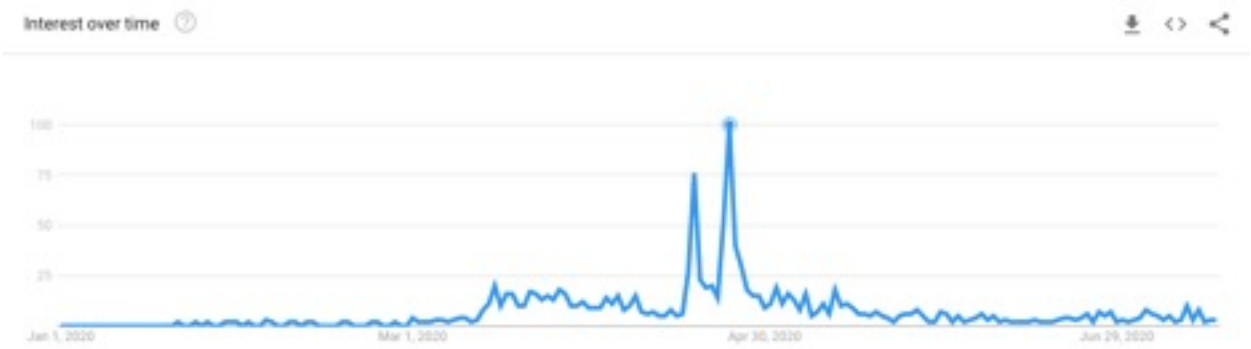


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