

Serious new COVID-related smoking threat discovered by researchers

3 March 2021



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Ben-Gurion University of the Negev Researchers (BGU) have found for the first time that cigarette smoke toxicity impacts the protective biofilm in the lungs, particularly concerning when paired with COVID-19 respiratory issues.

Though many health factors are known about smoking, little is known about the overall toxicity potential of its ingredients. Researchers developed a new smoke testing system called a bacterial panel with genetically modified bioluminescent bacteria to measure both filtered and unfiltered cigarette smoke's complex molecular mixture.

According to the new study published in the journal *Talanta*, the researchers found that cigarette smoke affects communication between bacteria, which can affect microorganisms in the body and cause a [negative effect](#) on the formation of biofilm, which protects lung bacterial colonies. The study examined 12 distinct types of commercial cigarettes of varying prices bought at local Israeli stores, revealing that filters helped somewhat in lowering toxicity.

"The experiment proved that the filter is a [crucial element](#) in reducing the harm of smoking so therefore, new filters need to be developed to reduce toxicity," explains Prof. Robert Marks, head of the BGU Avram and Stella Goldstein-Goren Department of Biotechnology Engineering.

Prof. Robert Marks is a leading expert in the study of genetically engineered bacteria. His work focuses on finding the specific mechanisms of toxins in a variety of materials and their impact on the environment.

Tobacco companies, [research organizations](#), and academics can use the bacterial panel and its accompanying system to cost-effectively monitor the overall toxicity of various commercial cigarettes and test their filter effectiveness.

"The recently developed smoke testing system, based on our bacterial panel, is a new system for researchers that need to analyze [toxicity](#) of smoke at a reasonable cost," says Prof. Marks.

More information: Tim Axelrod et al, Cigarette smoke toxicity modes of action estimated by a bioluminescent bioreporter bacterial panel, *Talanta* (2021). [DOI: 10.1016/j.talanta.2020.122076](https://doi.org/10.1016/j.talanta.2020.122076)

Provided by American Associates, Ben-Gurion University of the Negev

APA citation: Serious new COVID-related smoking threat discovered by researchers (2021, March 3)
retrieved 9 October 2022 from <https://medicalxpress.com/news/2021-03-covid-related-threat.html>

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