



WILL RINSING MY HANDS, MOUTH, & NASAL PASSAGE WITH COCONUT OIL DISSOLVE THE VIRUS ENVELOPE AND PREVENT INFECTION?

Since 'like dissolves like', a polar or charged substance can dissolve other polar substances, and nonpolar substances can dissolve other nonpolar substances. This means that polar lipids can dissolve the outermost layer (called the envelope) of a coronavirus, which is made up of a fat-like (polar) substance. Soaps can also achieve this. In other words, both polar lipids and soaps can form the "micelles" that are required to dissolve and break polar phospholipid bilayers, like those in cell membranes and the envelope of a coronavirus. Coconut oil, on the other hand, consists only of nonpolar fatty acids, which form globules (instead of micelles) when mixed with water. Even in ionised, charged states, these fatty acids do not form micelles efficiently due to their chemical structure. What about soaps that use coconut oil as a base? The oil in these soaps is 'saponified', or changed to a different chemical structure through a chemical reaction. So applying coconut oil to one's hands would not affect SARS-CoV-2 (see **Box 1**).

Box 1. Did you know?

The World Health Organisation (WHO) advises washing hands with either soap and water, or alcohol-based sanitizers. Soap is currently the only recommended way to destroy the envelope of SARS-CoV-2. Sanitizers with alcohol work in a completely different manner, by damaging the proteins in this fat layer.

While some fats (like those in coconut oil) may have antimicrobial properties against some bacterial species in lab tests, there is no evidence that they can impact viruses. One study indicates that a chemical derived from lauric acid is effective against many viruses, including coronaviruses. While lauric acid is a major constituent (49%) of coconut oil, this 'antiviral' derivative is not found in coconut oil. So there is no evidence to suggest that coconut oil may inactivate SARS-CoV-2.

Notes:

1. This response was first published on the Indian Scientists' Response to CoViD-19 (ISRC) website.
2. Source of the image used in the background of the article title: <https://www.pikrepo.com/fnnic/coconut>.

Indian Scientists' Response to CoViD-19 (ISRC) is a group of more than 500 Indian scientists, engineers, technologists, doctors, public health researchers, science communicators, journalists and students who voluntarily came together in response to the COVID-19 pandemic. This group can be contacted at indscicov@gmail.com.