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IIT-H creates its own hand sanitizer

19 March 2020 | News

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Indian Institute of Technology Hyderabad Researchers have developed their own hand sanitizer, in line with the standards recommended by World Health Organization (WHO) and Centers for Disease Control (CDC), a Federal Health Agency in the U.S, for the Institute Community.

Around ten liters of this hand sanitizer have already been deployed in the campus for the benefit of the students, staff and faculty at locations such as faculty lounge, Shiru Café, meeting halls and laboratories, among other areas. This makes it more likely that people will use it and this will help stop the spread of germs and promote good health and hygiene.

This has been developed by Dr. Shivakalyani Adepu, who was a Research Scholar at the Department of Materials Science and Metallurgical Engineering, IIT Hyderabad along with Dr. Mudrika Khandelwal, Associate Professor, Department of Materials Science and Metallurgical Engineering, IIT Hyderabad.

Speaking about their effort, by Dr. Mudrika Khandelwal said, “My research group has always believed in doing scientific research and outreach for the benefit of society. This is our small contribution at the time of need. I am glad we would make this happen and hope to make similar contributions in the future.”

The composition of this hand sanitizer is 70 per cent isopropanol with glycerol, polypropylene glycol to increase the viscosity and reduce the volatility so that the sanitizer stays on skin to allow action, as well as lemongrass oil for antimicrobial activity and therapeutic aroma. The 70 per cent IPA solution penetrates the cell wall, coagulates all proteins, and therefore the microorganism dies.

Adding on, Dr. Shivakalyani Adepu said, “This was done purely to support the community at this time when it is critical to adopt safe and hygienic practices. We have not thought of commercialization. Our motto is to help people around us. We can assure that these are as safe as any commercial sanitizer, and possibly more effective. Our laboratory conducts a lot of microbiological studies and we have tested these kinds of materials before and have been using the same for several years now. Its efficacy is well known and has been reported.”

According to WHO and CDC, hands account for transmitting nearly 80 per cent of the infections due to frequent touching of eyes, nose, mouth and ears which leads to the entry of germs. Nearly one in five people do not regularly wash their hands. Of those who do, 70 per cent do not use soap. The alcohol-based hand sanitizers kill most bacteria, and fungi, and stop some viruses, present on hands within 30 seconds of application.

If 70 percent of alcohol is poured to a single-celled organism, the diluted alcohol also coagulates the protein, but at a slower rate, so that it penetrates all the way through the cell before coagulation can block it. Then the entire cell is coagulated and the organism dies.