

## Stability of SARS-CoV-2 in different environmental conditions

### Authors' reply

Reza Dehbandi and Mohammad Ali Zazouli query our Correspondence about the stability of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in different environmental conditions.<sup>1</sup> Rather than testing the cleansing properties of the studied disinfectants, the objective of our work was to reveal the virucidal effects of these disinfectants, specifically their ability to inactivate SARS-CoV-2. We entirely agree with Dehbandi and Zazouli that hand hygiene is a key topic that can help to reduce SARS-CoV-2 transmission. But we want to highlight that we had no intention to use our data to comment on hand hygiene policy. Regarding hand hygiene policy against COVID-19, the interim recommendations by WHO would be a great place to start.

Plain soap is regarded as a low-level disinfectant against enveloped virus.<sup>2</sup> Our findings showed the disinfectant property of plain soap solution against SARS-CoV-2, albeit with lower efficiency compared with the other studied disinfectants. Using soap solution to disinfect SARS-CoV-2

may require longer contact time to achieve the same level of disinfection. Such information would be useful to establish evidence-based SARS-CoV-2 disinfection procedures in settings with extremely limited sources. To decontaminate a surface, we need to apply a disinfectant at an effective concentration and allow an adequate contact time. The selected sampling time points in our study (5, 15, and 30 min) are similar to those normally used in routine surface or instrument decontamination procedures (ie, 5 min or more).<sup>2-4</sup>

At the time we started our experiment (Feb 20, 2020), there was a scarcity of evidence-based information on the effectiveness of various disinfectants to inactivate SARS-CoV-2. Although some work has been published on disinfection of other coronaviruses, whether this could be applied to SARS-CoV-2 had not been established at that time. We reasoned that such information would be extremely useful to control COVID-19. Therefore, we intended to show whether different, commonly used disinfectants and disinfection procedures are effective to inactivate SARS-CoV-2 on contaminated objects. The two different working concentrations of household bleach are recommended for general disinfection (1:99 dilution) and

disinfection when an obvious contaminant is seen (1:49 dilution).<sup>5</sup> Our research showed that household bleach at both working concentrations are effective against SARS-CoV-2. Comparing the effectiveness between these disinfectants was not our primary goal at that time.

We declare no competing interests.

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For the interim hand hygiene recommendations by WHO see <https://www.who.int/who-documents-detail/interim-recommendations-on-obligatory-hand-hygiene-against-transmission-of-covid-19>