Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Coronavirus disease 2019: Affordable alternatives of household disinfectants for community

The coronavirus disease 2019 (COVID-19) outbreak highlights the urgency for measures to prevent the spread of the novel coronavirus. Healthcare providers who are at high risk of cross-contamination[1,2] and occupational exposure is a concern, and thus, it is critical to address these measures. The members of the family Coronaviridae, including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), are enveloped and persistent on inanimate surfaces for several hours to several days and it is essential to have proven disinfectants.[3] Some products, such as hypochlorite, hydrogen peroxide, 70% alcoholic solution, peracetic acid, quaternary ammonium, and phenolics compounds, have been cited as effective alternatives for the enveloped virus.[2,4]

In addition, it is important to seek affordable household products for the entire population that are in a vulnerable economic situation, unemployed, or unable to work.[5] Disinfectants presenting phenolic compounds seem to be a good cost benefit alternative. The o-phenylphenol compound used alone has low effectivity but the additional detergent, including sodium lauryl sulfate, or ethanol seems to increase its efficacy against the human coronaviruses 229E (HCoV) after 5 min of its use.[6] However, Geller et al. [7] demonstrated that only some phenolic compounds and combinations were effective against HCoV (Table 1).

There is still a lack of published studies proving its efficacy against SARS-CoV-2. Nevertheless, Health Canada and the United States Environmental Protection Agency listed several examples of disinfectants to be used during the pandemic of COVID-19, including phenolic compounds.[8,9] Therefore, admitting that phenolic compounds have equal efficacy in HCoV and SARS-CoV-2, it could be another affordable option to be used during the pandemic for the entire population.

To avoid confusion among the public in deciding which commercialized household products to use, adequate studies about which compounds and combinations of phenols would be effective against SARS-CoV-2 are necessary to examine. Agencies must publish accessible manuals, relevant instructions, and precautions during manipulation of these products due to the number of increased domestic accidents during quarantine.[10]

Author statements

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Table 1
Phenols compounds, combinations, and its efficacy against HCoV.

Phenols	pH at used concentration	Efficacy against HCoV
o-phenylphenol (200pm)	-	no
o-phenylphenol (200pm) + sodium lauryl sulfate (0.6%)	-	yes
o-phenylphenol (200pm) + ethanol (70%)	-	yes
o-phenylphenol (200pm) + isopropyl alcohol (5%)	-	yes
o-phenylphenol (0.02%) + o-benzyl-chlorophenol (0.03%) + p-tert-amylphenol (0.01%)	9	no
o-phenylphenol (0.02%) + o-benzyl-chlorophenol (0.03%) + p-tert-amylpheno (0.01%) + SDS (0.60%)	9	yes
o-phenylphenol (0.02%) + benzyl-chlorophenol (0.03%) + p-tert-amylphenol (0.01%) + ethanol (70%)	9	yes
Sodium o-benzyl-p-chlorophenate (0.50%) + sodium dodecyl sulfate (0.60%)	13	yes

(adapted from Wolff et al., 2005; Geller et al., 2012).[6,7]
HCoV, human coronaviruses 229E; SDS, Sodium dodecyl sulfate.

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