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Decontamination of face masks with steam for mask reuse in fighting the pandemic COVID-19: experimental supports

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Abstract

The COVID-19 pandemic caused by the novel coronavirus SARS-CoV-2 has claimed many lives worldwide. Wearing medical masks or N95 masks (namely N95 respirators) can slow the virus spread and reduce the infection risk. Reuse of these masks can minimize waste, protect the environment, and help to solve the current imminent shortage of masks. Disinfection of used masks is needed for reuse of them with safety, but improper decontamination can damage the blocking structure of masks. In this study, we demonstrated, using avian coronavirus of infectious bronchitis virus to mimic SARS-CoV-2, that medical masks and N95 masks remained their blocking efficacy after being steamed on boiling water even for 2 hours. We also demonstrated that three brands of medical masks blocked over 99% viruses in aerosols. The avian coronavirus was completely inactivated after being steamed for 5 minutes. Together, this study suggested that medical masks are adequate for use on most social occasions, and both medical masks and N95 masks can be reused for a few days with steam decontamination between use.

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