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Anti-norovirus activity of lemongrass essential oil

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This study investigated the effect of lemongrass essential oil (LGEO) on the infectivity and viral replication of norovirus. *Murine norovirus* (MNV), a surrogate of human norovirus, was pre-incubated with LGEO and then used to infect RAW 264.7 cells in a plaque reduction assay. LGEO exhibited a significant reduction in MNV plaque formation in both time and dose dependent manners. qPCR results were in line with those of plaque reduction assay. It was revealed that citral, a single compound in LGEO, showed dramatic reduction in MNV infectivity (-73.09% when using a treatment of 2% v/v). The inhibitory activity of LGEO on viral replication was further investigated in HG23 cells that harbored a human norovirus replicon. LGEO treatment significantly reduced viral replication in HG23 cells, which suggests that LGEO may have dual inhibitory activities that inactivate viral coat proteins required for viral infection and suppress norovirus genome replication in host cells. In animal experiments, oral administration of MNV pre-incubated with LGEO significantly suppressed MNV infectivity *in vivo*. Collectively, these results suggest that LGEO, in particular the LGEO component citral, inactivates norovirus and its subsequent replication in host cells. Thus, LGEO shows promise as method of inhibiting norovirus within the food industry.

Biography

Sung-Joon Lee has completed his PhD from Harvard University and Postdoctoral studies from Stanford University School of Medicine. He is a Professor of Department of Biotechnology in Korea University. He has published more than 120 papers in SCI-listed journals and has been serving as an Editorial Board Member of repute.

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