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MICROBIOLOGICAL ASSESSMENT OF HANDS OF MIGRANT FOOD HANDLERS IN EAST COAST PENINSULAR MALAYSIA

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In Malaysia, due to increased labour demands in food establishments, a large proportion of migrants are employed as food handlers. However, it is not known if the workers were given adequate knowledge of food safety in food handling. This raises the risk of food contamination especially in meal preparation and food serving. Therefore the objective of the present study was to evaluate various hygiene indicators and levels of bacterial contamination from hands of food handlers by determining the Aerobic bacteria (AC), Escherichia coli Coliforms (EC) and Staphylococcus aureus counts using 3M Quick Swab and 3M Petrifilm approaches. Hand swabs were collected from 80 migrant food handlers (Nepal (44), Bangladesh (13), Myanmar (9), India (7), Indonesia (6) and Thailand (1)) randomly selected from fourteen different food premises. The ‘acceptable’ level of bacterial counts <1.3 log10 CFU was used for AC, <1.0 log10 CFU for Enterobacteriaceae counts and <1.0 log10 CFU for S. aureus counts based on previous literature. Microbial analyses demonstrated that all hand swabs were tested positive for AC (ranged between 0.70 and 3.54 log10 CFU) and 25% were positive for coliforms (ranged between 0.70 and 3.54 log10 CFU). However, E. coli was not found while 60% were positive for S. aureus, ranged between 0.70 and 3.72 log10 CFU. Overall, this preliminary data revealed that the bacterial contamination exceeded the standard and there is a need for enhancement in knowledge for personal hygiene of the migrant food handlers by the relevant authorities.

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CHARACTERIZATION OF TWO INFECTIONOUS CLONES OF CHIKUNGUNYA VIRUS IN Aedes aegypti AND Ae. albopictus FROM MALAYSIA

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Chikungunya virus (CHIKV) is an arthropod-borne virus transmitted through Aedes aegypti and Ae. albopictus to cause fever and arthralgia. CHIKV has recently re-emerged to cause unprecedented outbreaks worldwide, including Malaysia. Adaptation of CHIKV to local populations of mosquito vectors has been described. We characterized adaptation of strains of CHIKV from two sublineages of the Central East African genotype to local Aedes mosquitoes from Malaysia. The strains were LR2006-OPI1 (ICRES1) of the Indian Ocean sublineage, and SGP011 of the Indian sublineage, which is closely related to Malaysian strains. Infectious clones of both viral strains were generated and used to orally infect 3-day-old female Ae. aegypti and Ae. albopictus mosquitoes. The rates of midgut infection, dissemination to salivary glands, and replication kinetics were assessed by plaque assay for up to 10 days post-infection (dpi). Both Aedes vectors were highly competent for both virus strains, although there were no significant differences in viral replication. Both viruses were able to disseminate to the salivary glands of both mosquitoes as early as 1-2 dpi. SGP011 demonstrated a significantly higher rate of midgut infection in Ae. albopictus compared to Ae. aegypti (p<0.01). In conclusion, there was no clear evidence in the mosquito parameters studied of additive vector adaptation by SGP011 compared to ICRES1. However, the increased infectivity of SGP011 in the midgut of Ae. albopictus may have improved its ability to become established in rural areas of Malaysia, where Ae. albopictus predominates, and where the majority of CHIKV cases occurred.