POSTER PRESENTATIONS

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PROPHYLACTIC POTENTIAL OF KELULUT HONEY AGAINST SARS-CoV-2 VIA ACE-2 BINDING INHIBITION

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Background: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has caused a global health crisis. Despite vaccination efforts, the virus continues to evolve, decreasing the effectiveness of current vaccines. Angiotensin-converting enzyme 2 (ACE-2) is a crucial protein that facilitates SARS-CoV-2 entry into host cells. Our prior in silico docking and molecular dynamics simulation studies indicated that a compound called 4,4'-Stilbenedicarboxamidine (SDC) binds strongly to ACE-2, surpassing MLN 4760, a known ACE-2 inhibitor. This study aims to assess the potential of local *kelulut* honey (KH) and SDC in inhibiting the spike protein-ACE-2 interaction.

Methods: An ELISA assay using the SARS-CoV-2 S1 RBD: ACE-2 Inhibitory Screening Assay Kit (BPS Bioscience, US) was performed following the manufacturer's instructions. KH and SDC were tested at multiple concentrations in triplicate, with MLN 4760 serving as the reference.

Results: KH, MLN 4760, and SDC significantly inhibited spike-ACE-2 binding, with an Emax of 82.66 ± 0.24 %, 59.81 ± 8.00 %, and 19.74 ± 0.40 %, respectively. The IC50 values of KH, MLN 4760, and SDC were 0.17 % (v/v), 55.44 µM, and 19.20 µM, respectively. At 100 µM, SDC was found to inhibit spike-ACE-2 binding by 19.74 %, which was significantly lower ($P<0.05$) than MLN 4760 at 59.81%.

Conclusions: KH inhibits the interaction between the spike protein and ACE-2, supporting its prophylactic use against SARS-CoV-2. The higher inhibitory efficacy of KH in its absolute form compared to SDC is presumably due to the interaction of multiple bioactive constituents in KH, rather than the effect of SDC alone.

Keywords: Angiotensin Converting Enzyme 2, ACE-2, COVID-19, *Kelulut* Honey, SARS-CoV-2.