

EFFECT OF SKIN MICROBIAL COMPOSITION OF CATTLE ON BITING PREFERENCE OF MOSQUITOES

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Host selection and biting site preference of blood-feeding insects depend on the host-derived signals, specifically from volatile compounds produced by the metabolic activities of skin microbes. This study aimed to examine the effect of the skin microbiota composition of cattle (*Bos* sp.) on the biting site preference of mosquitoes. Mosquito biting behaviour was observed on three adult cattle across two study locations in the Kandy District (Pallethalawinna, and Sandasiri Dunuwila area), from 1700 h to 2000 h, from July to September 2023. Each cow was sampled six times, and a total of 18 observations were made to record the number of mosquitoes landing on different body sites of cattle. Skin microbial samples were collected from different body sites using sterile cotton swabs. Collected skin microbes were cultured in nutrient broth for 24 hrs. Nutrient agar plates were prepared for different dilutions of the bacterial cultures to visualize the bacterial composition. Isolated colonies on agar plates were identified based on morphological differences. Results indicated a significant difference in mosquito biting preferences across different body parts of cattle ($p = 0.001$). Mosquitoes most preferred the area above the knee [32.5% (249 mosquitoes)], followed by the moderately preferred neck [8.0% (61 mosquitoes)]. The thigh area was least preferred [3.5% (27 mosquitoes)], while the nostril-to-eye region was not bitten by any mosquitoes. The microbiome composition included 18 distinct bacterial morphologies across the four body sites. Five morphologies were unique to the most preferred site, while another five were found in the least preferred sites. Two morphologies were common across all four sites. Additionally, two unique morphologies were identified in moderately preferred and none-bitten sites. These findings revealed a varied mosquito-biting preference with the skin microbiome composition.

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