

International Conference on
MEDICAL AND CLINICAL MICROBIOLOGY
July 03-04, 2017 Bangkok, Thailand

Isolation and characterisation of multidrug resistant bacteria in faecal samples of primates from urban ecotourism site

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Nature-based tourism has become the fastest growing economic sector in Malaysia, increasing at 35% per annum and contributing 4.8% to the Gross Domestic Product. Whilst ecotourism sites promote close human-nonhuman primate interaction, a lack of educated supervision and awareness can lead to potential healthcare risks. As more than half of all human infections are zoonotic in origin; several pathogens such as *Enterococcus*, *E.coli*, *S.aureus*, *Salmonella spp* and more have been transmitted from nonhuman primates to humans. This is additionally attributed to uncontrolled human activities within the habitats of wild animals leading to the risk of interspecies disease transmission. In this study, macaques are of particular interest because they serve as a reservoir for more than 70 zoonotic diseases. Genetic relatedness between humans and nonhuman primates cause humans to be prone to nonhuman primate infections especially when physical contact occurs. Humans are usually immunologically primitive to some pathogens, yet some ecotourism sites encourage direct contact with macaques through feeding, petting and posing with them for photos. This study was carried out to isolate and characterise Methicillin-Resistant *S. aureus* (MRSA) in the faecal samples of primates at urban ecotourism sites in view of the increased levels of exposure to humans. The objective of this study is to see the prevalence of antimicrobial resistant bacteria in the local primate population, namely the long-tailed macaques (*Macaca fascicularis*) and silver-leaf langurs (*Trachypithecus cristatus*) at Bukit Melawati, Kuala Selangor. MRSA isolated from faecal samples were cultured using ChromMRSA, a selective medium and characterised by antimicrobial susceptibility using the disk diffusion method according to the Clinical and Laboratory Standards Institute (CLSI). Host-enterotype, antibiotic profile, resistant bacteria and monkey species determinants were analysed using Principal Component Analysis (PCA) to identify correlations between these parameters. Findings from this study will help determine the potential risk for contracting such pathogens at the ecotourism sites.

Biography

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