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Assessing Antimicrobial Activity of Various Plant Extracts on Midgutmicroflora of Aedesaegypti

Authors : V. Baweja, K. K. Gupta, V. Dubey, C. Keshavam

Abstract : Antimicrobial activity of six indigenous plants such as Tulsi Ocimum sanctum, Neem Azadirachta indica, Aloe vera, Turmeric Curcuma longa, Lantana Lantana camara, and Clove Syzygium aromaticum was assessed against the gut microbiota of the dengue fever mosquito Aedes aegypti, keeping in view that the presence of midgut bacteria may affect the ability of the vector to transmit pathogens. Eleven different types of bacterial clones were isolated from the midgut of lab-reared fourth instar larvae of Aedes aegypti and were grown on LB agar medium at an optimum temperature of 25 ºC. Identification of these bacteria was done on the basis of their colony characteristic such as colony size, shape, opacity, elevation, consistency, and growth. Light microscopic studies of the gut microbiota revealed dominance of Gram-negative cocci over gram positive cocci and bacilli and Gram-negative bacilli. Identification of species was done by chemical characterization of the colonies. Crude extracts of all test plants were screened for their antimicrobial activities against gut microbiota by disc diffusion assay. The zone of exclusion seen after 24 hr of incubation in different assays revealed the most potent antibacterial activities in neem followed by clove and turmeric. Lantana and Aloe vera were least effective.

Keywords : plant extract, aedes, dengue, antimicrobial activity
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