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Effects of Post Ingestion and Physical Conditions on PCR Amplification of Host Blood Meal DNA in Mosquitoes

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Abstract:

Identification of host blood meal in haematophagous arthropods is an important element in their rule in transmission of vector borne diseases. The effects of post ingestion and physical conditions that killed mosquitoes are stored on the success of detecting blood meal DNA of Anopheles stephensi and Culex quinquefasiatus was investigated by polymerase chain reaction (PCR) amplification at the human mitochondrial DNA cytochromeB (CytB) gene. Host DNA extracted from the blood meal up to 33 h post ingestion in both species acts as an efficient template for PCR amplification. However more DNA concentration needs for meals digested longer time. Successful PCR amplification among meals digested for 36 h dropping to a faint band. There were no differences between PCR success rate for sampled stored at +4° C or -20° C, but less successful products were observed in samples kept at 4° C for periods longer than 30 h digestion. The results of this study is important in malaria epidemiological studies to provide valuable information about the degree of contact between human hosts and mosquito vectors, impact of vectors controls such bed nets and repellents, and the transmission dynamics of human malaria and other vector-borne diseases.

Keywords:

Blood meal ، Culex quinquefasiatus ، CytochromeB ، Vector-borne diseases

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