

Cytogenetic and Molecular Evidence of Additional Cryptic Diversity in High Elevation Black fly *Simulium feuerborni* (Diptera: Simuliidae) Populations in Southeast Asia

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ABSTRACT

Simulium feuerborni Edwards is geographically widespread in Southeast Asia. Previous cytogenetic study in Thailand revealed that this species is a species complex composed of two cytoforms (A and B). In this study, we cytologically examined specimens obtained from the Cameron Highlands, Malaysia, and Puncak, Java, Indonesia. The results revealed two additional cytoforms (C and D) of *S. feuerborni*. Specimens from Malaysia represent cytoform C, differentiated from other cytoforms by a fixed chromosome inversion on the long arm of chromosome III (IIIL-5). High frequencies of the B chromosome (33–83%) were also observed in this cytoform. Specimens from Indonesia represent the cytoform D. This cytoform is differentiated from others by a fixed chromosome inversion difference on the long arm of chromosome II (IIL-4). Mitochondrial DNA sequences support genetic differentiation among cytoforms A, B, and C. The pairwise F_{ST} values among these cytoforms were highly significantly consistent with the divergent lineages of the cytoforms in a median-joining haplotype network. However, a lack of the sympatric populations prevented us from testing the species status of the cytoforms.

Keywords: polytene chromosome, Simuliidae, *Simulium*, species complex

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