PROCEEDINGS UNJAYA INTERNATIONAL CONFERENCE OF HEALTH SCIENCES

Revealing Malaria Receptive Areas On The Slopes of Merapi: Entomological Evidence From Salak Plantations in Srumbung, Magelang Regency, Central Java

Shinta[1], Ristiyanto[1], Raden Ajeng Wigati[1], Sulistyowati Tuminah[1], Mujianto[1], Mieske Koraag[1], Tri Ramadhani[1]

[1]*Research Center for Public Health and Nutrition, Research Organization for Health, National Research and Innovation Agency, Indonesia*
Corresponding author: shin008@brin.go.id

ABSTRACT

Background: Background: The Menoreh Hills span Kulon Progo (Yogyakarta), Purworejo, and Magelang (Central Java). Although Magelang was declared malaria-free in 2014, cases re-emerged between 2015–2018, including both imported and indigenous cases, indicating persistent transmission risk.
Purpose: This study aimed to confirm the presence of malaria receptive areas based on entomological evidence, to support rational and sustainable control planning.
Methods: A longitudinal, descriptive-exploratory study was conducted in Srumbung Subdistrict, Magelang, from July to September 2018, following WHO guidelines. Data collection included adult mosquito capture and larval habitat observation. Ethical approval was obtained from the Health Research Ethics Committee (LB.02.01/2/KE.056/2018).
Results: Eight Anopheles species were identified in salak plantations on Merapi's slopes: *An. balabacensis*, *An. aconitus*, *An. barbirostris*, *An. flavirostris*, *An. vagus*, *An. maculatus*, *An. kochi*, and *An. bengalinsis*. *An. balabacensis* was dominant, biting throughout the night with peaks at 23:00–24:00 (outdoors) and 02:00–04:00 (indoors). *An. aconitus* was active from 19:00–24:00 and 05:00–06:00, while *An. maculatus* bit only outdoors at 03:00–04:00. Resting sites included stone crevices, leaf litter, and tree roots. Larvae of *An. balabacensis* and *An. maculatus* were found in trenches near salak trees and along the Bebeng River. Water conditions: 22.5 °C, pH 6.8, light intensity 3 candles, larval density 2–10 per dip. The nearest house was 65 meters from breeding sites. *An. balabacensis*, *An. aconitus*, and *An. maculatus* are confirmed malaria vectors.
Conclusion: The environmental conditions in Srumbung's salak plantations support multiple malaria vectors, indicating their potential as receptive areas. Entomological mapping is essential for effective and sustainable malaria control.

Keywords: Malaria; Receptive Area; Salak Pondoh plantation; Menoreh Hills