MALARIA VECTOR ANALYSIS AT BREEDING SITE IN BONDOWOSO AREA BASED ON FUZZY INFERENCE SYSTEM

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ABSTRACT

Malaria is an infectious disease caused by the Plasmodium parasite and transmitted through the bite of a female Anopheles mosquito. Bondowoso Regency is one of the malaria-endemic areas in East Java. This study aims to identify the potential breeding sites of Anopheles mosquitoes based on environmental parameters such as water temperature, pH, and salinity, using the Sugeno-type Fuzzy Inference System (FIS). Data were collected from 25 health facility locations and analyzed using MATLAB. The system produces a clear classification of either "potential" or "not potential." Evaluation results showed an accuracy of 64% and a recall value of 100%, meaning all locations with malaria cases were successfully identified by the system as potential areas. To facilitate the presentation of results, a simple website was also developed to display the 25 sample points, system prediction results, and classification of areas based on the potential presence of malaria vectors. These findings indicate that the Fuzzy Sugeno method is quite effective and can serve as a useful tool to support decision-making based on environmental data.

Key words: *Malaria, Anopheles sp., Breeding site, Fuzzy Sugeno, Temperature, pH, Salinity*