

September 04, 2013 Holiday Inn Orlando International Airport, Orlando, FL, USA

Seasonal abundance of *Anopheles* mosquitoes and their association with meteorological factors and malaria incidence in Bangladesh

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The malaria situation in Bangladesh is complicated due to suitable environment, high species diversity and species complexes with many sibling species. The relationship between climatic factors and mosquito abundance is very important to determine parasite activity levels and, therefore, disease risk. Therefore, this study was conducted to investigate the seasonal abundance of anophelines and their association with meteorological variables and disease transmission in two malaria endemic areas of Bangladesh. Monthly mosquito sampling was done from January, 2011 to January, 2012. Pearson correlation and canonical correspondence analyses (CCA) were computed to investigate the associations with species abundance and rainfall, temperature, humidity and malaria cases. A total of 2,443 female anophelines, representing 22 species were captured. *Anopheles vagus* and *An. philippinensis* were the dominant species present almost throughout the year with highest peaks in March and smallest peaks in September but *An. baimaii* and *An. willmori* were found during monsoon (July -September) only. Lag rainfall and relative humidity were the most significant variables influencing *An. baimaii, An. willmori, An. vagus,* and *An. subpictus* density in Kumari area. Abundance of these four species positively related to malaria cases. The density of other *Anopheles* species negatively associated with rainfall, humidity. The effects of temperature were not found as a significant variable on the abundance of anophelines mosquitoes in Bangladesh. Our study demonstrates that the nature of relationship between malaria transmission dynamics is essential for predicting disease outbreaks and vector control in the region.

Biography

Kabirul Bashar has completed his Ph.D. at the age of 36 years from Kanazawa University, Japan and postdoctoral studies from Aristotle University, Greece. He is the Associate Professor of Jagangirnagar University, Bangladesh. He has published more than 16 papers in reputed journals. Nobuko Tuno is the Associate Professor of Kanazawa University, Japan. She has more than 30 publications in reputed journals.

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