Geographic Information System (GIS) like a tool to entomological surveillance: measuring territory receptivity to Anopheles subgenus Nyssorhynchus on Rio de Janeiro state

Hermano G. Albuquerque1,2, Paulo C. Peiter1, Luciano M. Toledo 2, Jeronimo A.F. Alencar, Paulo C. Sabroza2, Cristina G. Dias3, Jefferson P.C. Santos2, Martha C. Suárez-Mutis1


When malaria cases are diagnosed outside of the infection territory, It’s called Imported. imported malaria could be a major problem if it happens in areas with receptivity to infection. Receptivity area is a territory with presence of vector and environmental conditions to favor malaria transmission. The main malaria vectors in Brazil belong to subgenus Nyssorhynchus. Rio de Janeiro state has many species of this subgenus and recorded a massive presence of mainly malaria vector, Anopheles darling (Root, 1926), in the past. This study aims to construct a spatial analysis with GIS, about subgenus Nyssorrhynchus breeding niche, like a dimension of territory receptivity, on the scale of Rio de Janeiro state. A multi-criteria analysis was made, which consist in classify and assign weights to different kind of information systems. Each dataset was classified in categories relatives to their data distribution. It was used four datasets: geomorphological, pluviosity, temperature and vegetation. The model predicted five receptivity classes: very low, low, medium, high and very high. Highest cover class of the receptivity model was the “High”, with cover of 18,020 Km² or 41.2% Rio de Janeiro state territory. Most important class on receptivity model is “Very high”, because these areas have ideal environmental and climatological factors to harbor Anopheles Nyssorrhynchus breeding niche. This class cover 601.7 Km² or 1.4% of Rio de Janeiro state territory. The areas with very high probability of Nyssorrhynchus breeding niche presence have a characteristic of highest temperatures and incidence of rains on Rio de Janeiro state, even as the ideal topography is the lowlands regions. Anopheles Nyssorrhynchus breeding niche model even has a forest dimension. Areas around forest have microclimatic conditions to favor the breeding niche presence. This analysis is important to detect the main areas with malaria receptivity to entomological surveillance in Rio de Janeiro state.

Palavras-chave: malaria, receptivity, GIS.

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