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3419: Potential dispersion and establishment of red palm mite in Brazil using MaxEnt model

Thursday, September 29, 2016

03:15 PM - 03:30 PM

📍 *Convention Center - Room W331 C*

Introduction: The red palm mite (RPM), *Raoiella indica* (Tenuipalpidae), was described in India and has recently been introduced into the Americas, causing severe damage in coconut and banana. This mite has spread rapidly to several Caribbean countries, USA, Mexico, Venezuela, Colombia and Brazil. In Brazil, RPM is a quarantine pest reported in Roraima, Amazonas, São Paulo, Mato Grosso do Sul and Ceará states. The potential geographical distribution of RPM was modelled using the maximum entropy model (MaxEnt).

Methods: Maxent software was used to project the potential geographic distribution of RPM onto South America. The RPM occurrence data were obtained from literature, online databases and field sampling. Twenty environmental variables, obtained from the WorldClim database (1950–2000), were considered as potential predictors. The jackknife approach was used to assess variables that better explain the distribution.

Results/Conclusion: The environmental variables that most influenced the RPM prediction were minimum temperature of coldest month (22.5%), mean temperature of coldest quarter (20.4%), altitude (17.7%), and temperature seasonality (5.1%). The model predicted suitable areas for RPM in northern Colombia, central and northern Venezuela, Guyana, Suriname, east French Guiana and many parts of Brazil, including Roraima, eastern Amazonas, northern Pará, Amapá and the coastal zones, from Pará to Rio de Janeiro. The extensive suitable habitat and the likelihood of human spread indicate that RPM could have a large economic impact in South America, especially in Brazil. Our results can be useful to adoption of phytosanitary measures to prevent the RPM dispersion.

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