

# Geographical distribution and ecological niche modeling of the etiological agents of human sporotrichosis in Venezuela

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## Abstract

The geographical distribution and ecological niche of the two circulating species of the *Sporothrix* genus in Venezuela was established. For this, 68 isolates of *Sporothrix* spp. from patients of different regions of the country were analyzed. A molecular taxonomy analysis was conducted using a fragment of the calmodulin gene (CAL), and ITS regions, confirming the presence of *S. schenckii* (62%) and *S. globosa* (38%). Computational models of ecological niche for each species were obtained by the maximum entropy method using the MaxEnt software, which predicted the best environmental conditions for the presence of the two species. These models predict that the main variables influencing the presence of *S. schenckii* were altitude and annual mean temperature, while for *S. globosa*, the more influential variable was the land use, with 82% of *S. globosa* located at urban areas vs 56% for *S. schenckii*. The results here presented could contribute to understand the specific environmental factors that might modulate the occurrence of *Sporothrix* spp. as well as its transmission. To our knowledge, our analyses show for the first time *Sporothrix* spp.-specific ecological niche data, a valuable tool to promote evidence-based public health policymaking within endemic areas of sporotrichosis.

## Palabras clave

**Palabras clave de autor:** [Ecological niche modeling](#); [Sporotrichosis](#); [MaxEnt](#); [Sporothrix globosa](#); [Sporothrix schenckii](#)

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