
INFLUENCE OF PH ON THE GROWTH AND MORPHOLOGY OF SPOROTHRIX SCHENCKII

Mendoza M, Alvarado P, Díaz E.
Laboratory of Mycology, Institute of Biomedicine, Caracas, Venezuela

Sporothrix schenckii (Ss) is a pathogenic fungus endemic in Venezuela, with a mycelial or saprophytic phase and a parasitic form that is characterized by the presence of yeast forms and elongated or "cigar" forms. Parameters including temperature, pH, carbon source and aeration influence the growth and morphology of the fungus. Del Valle *et al.* (1983) reported that pH between 4 and 5 at 25° C favored the development of just the mycelial phase, and pH 6 to 8 at 35°C just the yeast phase. Takata and Ishizaki (1983) found a strict relationship between morphology and variation in the content of sugars in culture media. Previous studies in our laboratory with submerged cultures of Ss in Sabouraud (S) and M199 media showed in S, pH 6.7, between 3 and 7 days of culture, a lowering of the pH to 4, with conidia in droplet and cigar forms. In M199 the pH remained neutral and showed conidia in droplet and round forms. Based on these earlier studies, the objective of this study was to determine the effect of pH on the growth and morphology of Ss en M199 and S media. Flasks containing S and M199 media at pH 4, 5, 6, 7, 8 and 9 were inoculated with 1×10^5 conidia/ml and incubated at room temperature for 15 days. Final pH, total conidia, morphology, protein pattern and immunogenic proteins were evaluated. Ss showed good development in both media at all the pHs studied except for pH9, where growth was not observed, indicating that this pH is inhibitory for the development of the fungus. The final pHs of both media were lower than the initial pH except at pH 6, where the final pH increased to 7. Acidification was more notable en S than in M199 at pH 7 and 8. With regard to the morphology, conidia en droplet, round and cigar forms were observed in S medium at all pH levels, independent of the presence of the 55 kDa protein, which was absent at pH4. In M199, pH 4 appeared to be a limiting factor in the formation of cigar forms, and the development of round forms was favored. The pH of the medium and the presence of the 55 kDa component do not appear to be determinant factors in the development of a given morphology of Ss.

Key words: *Sporothrix schenckii*, morphology, pH, growth