

Bioassay to Determine the Potency of Miconazole in Pharmaceutical Formulations

Larissa GUIDOLIN ¹, Leticia L. M. ALMEIDA ¹, Luis A. ESMERINO ² & Fernanda M. BARBOZA ^{3*}

¹ Graduate Program in Pharmaceutical Sciences,

² Department of Clinical and Toxicological Analysis, &

³ Department of Pharmaceutical Sciences, State University of Ponta Grossa,
4748 Carlos Cavalcanti Avenida, 84030-900 Ponta Grossa, PR, Brazil

SUMMARY. The bioassay was used to determine the antimicrobial potency of miconazole in the form of pharmaceutical powder. *Candida albicans* ATCC 10231 was used as the test microorganism. Solutions with concentrations of 0.312, 0.625, 1.25, 2.5, and 5.0 mg/mL were used to obtain the standard curve. Inert filter paper disks were impregnated with 10 μ L of these solutions. The average diameters of the inhibition halos were 15.67, 17, 19.33, 21, and 22.33 mm. Two commercial samples (A and B) of miconazole powder, with a stated potency of 20 mg/g, were analyzed. Solutions with a concentration of 1 mg/mL were used for the analysis. The potencies determined were 107% for sample A and 93% for sample B. It was concluded that the analyzed samples presented potency values within the recommended limits (90-110%). The results showed that bioassay method was adequate and economical for the dosage of antimicrobials.

RESUMEN. Se usó el bioensayo para determinar la potencia antimicrobiana de miconazol en forma de polvo farmacéutico. *Candida albicans* ATCC 10231 se utilizó como microorganismo de prueba. Se usaron soluciones con concentraciones de 0,312, 0,625, 1,25, 2,5 y 5,0 mg/mL para obtener la curva estándar. Los discos de papel de filtro inertes se impregnaron con 10 μ L de estas soluciones. Los diámetros promedio de los halos de inhibición fueron 15,67, 17, 19,33, 21 y 22,33 mm. Se analizaron dos muestras comerciales (A y B) de miconazol en polvo, con una potencia establecida de 20 mg/g. Se usaron soluciones con una concentración de 1 mg/mL para el análisis. Las potencias determinadas fueron 107% para la muestra A y 93% para la muestra B. Se concluyó que las muestras analizadas presentaron valores de potencia dentro de los límites recomendados (90-110%). Los resultados mostraron que el método de bioensayo fue adecuado y económico para la dosificación de antimicrobianos.

KEY WORDS: bioassay, miconazole, mycoses.

* Author to whom correspondence should be addressed. E-mail: fer_barboza@hotmail.com