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## SYSTEMIC MYCOTIC DISEASE AND SUBSEQUENT ITRACONAZOLE TESTING IN THE SOUTHERN BLACK RHINOCEROS (*Diceros bicornis minor*)

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### Abstract

A 16-yr-old male southern black rhinoceros (*Diceros bicornis minor*) developed raised lesions of the dermis concurrent with a severe and sudden drop in body condition. Over several weeks, lesions progressed to large, open, cavitated sores and new lesions developed, typically one every few days. Within 1 mo of the initial lesion, three other black rhinoceroses also began to develop grossly similar lesions with loss of condition. Skin biopsies were consistent with mycotic dermatitis, and due to the deep vascular and perivascular presence of fungal organisms, suggestive of hematogenous spread. Molecular diagnostics confirmed *Curvularia*, a hypomycete facultative pathogen, in several samples. Due to the high cost and high dose volume of brand name itraconazole, the animals were treated with compounded itraconazole for 3-6 mo until on resolution of signs. All four animals improved while on itraconazole treatment and the lesions resolved. Blood samples and skin biopsies were evaluated by ultra-performance liquid chromatography with tandem mass spectrometry for itraconazole and its active metabolite, hydroxyitraconazole, concentrations were not detected (< 0.002 µg/ml). Drug concentrations in the compounded formulation were 85% of what was expected based on pharmacy labeling, indicating lack of drug absorption rather than poor formulation strength. This is the first report of a *Curvularia* species causing disease in rhinoceros. It is also the first report to confirm that compounded itraconazole dosed at published equine dosages (5 mg/kg q24hr) does not reach measurable levels in plasma or skin in black rhinoceroses.

**Key words:** *Curvularia*, *Diceros bicornis minor*, fungal dermatitis, itraconazole, southern black rhinoceros, systemic fungal mycosis

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