

## **Feeding Tannins to Captive Black Rhinoceros (*Diceros bicornis*): Results of a Pilot Study**

M. Clauss, T. Froeschle, M. Lechner-Doll, J.-M. Hatt, U. Ganslosser, E.S. Dierenfeld  
Institute of Animal Physiology, Physiological Chemistry and Animal Nutrition,  
Munich, Germany;

Zoological Institute I, Friedrich-Alexander-University, Erlangen, Germany;  
Institute of Zoo Biology and Wildlife Research (IZW) Berlin, Germany; Division of Zoo  
Animals and Exotic Pets, University of Zurich, Switzerland; Zoological Institute I,  
Friedrich-Alexander-University, Erlangen, Germany;  
Wildlife Conservation Society, New York

It has been postulated that the lack of tannins in captive diets for black rhinoceros (*Diceros bicornis*) might be responsible for the occurrence of iron overload in captive specimens. In theory, the presence of iron-chelating tannins in natural diets might have induced the evolution of an especially effective iron absorption mechanism in the species, which would lead to excessive iron uptake in the absence of such chelators. In order to investigate this problem, 5 captive rhinos were fed two diets, one with and one without a tannic acid supplement. Feed intake and faecal output were measured for two 5-day periods, respectively. Additionally, the use of several markers (Co-EDTA, Cr-mordanted fibre, n-alkane C36) as pulse-dose and steady state markers was assessed. The animals accepted the tannic acid-supplemented food without hesitation. Measured passage rates suggest that a 4-day collection period should result in total recovery of a pulse-dose marker. Iron concentration of faeces did not differ significantly between treatments and was apparently influenced by soil intake from the enclosure. We conclude that it is feasible to produce tannin-containing feeds for the further evaluation of iron metabolism in black rhinos. Either animals should be kept indoors during trials to prevent soil intake, or an iron isotope should be applied as a pulse-dose marker to compare recoveries between treatments. Additionally, we will present data on digestibilities and marker recoveries.