

Identification of rhino from ‘medicinal’ powders and sculptures

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Material suspected of originating from species of Rhinoceros is frequently seized by forensic organisations investigating trade in endangered species. Rhino species, of which there are currently five, are on the verge of extinction in the wild. Trade in Rhino is contrary to CITES and should be investigated if suspected Rhino material is seized. This report details the use of DNA profile to unambiguously identify the presence of Rhino and SEM-EDX to determine that the seizure was from horn material. At present identification of the species is possible by DNA sequencing of the material, such as powdered rhinoceros horns. The unambiguous identification of Rhino products using a 402 bp fragment of cytochrome *b* gene was investigated. This DNA sequence may not only assist in the identification of the unknown sample, but can be used to determine the phylogenetic relationships of rhinoceros species. The results of this phylogenetic study showed that there were four major branches among rhinoceros species from a common origin with the greatest distance between the Indian and the Black Rhino. The amplification of the 402 bp fragment of the cytochrome *b* gene was found to be able to detect rhinoceros DNA even in the ratio of 1:19 with Holstein cow DNA. SEM-EDX was used successfully to determine that the sample was from hair or horn. The method used in this study can be applied in the identification of processed products of rhinoceros horns, such as sculptures, daggers, powders or even mixture powdered prescriptions.

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