

Suspected calcium oxalate raphide irritation in a black rhinoceros (*Diceros bicornis*) due to ingestion of *Xanthosoma mafaffa*

We wish to record a case of buccal irritation in a black rhinoceros, 'Chewore', due to chewing of *Xanthosoma mafaffa* at the Tashinga Camp, Matusadona National Park, Kariba, Zimbabwe, on 27 April 1995. The rhinoceros was approximately 12 months old and weighed 385 kg. The incident occurred when she ate an ornamental elephant-ear plant from a garden. About half a leaf was chewed and spat out; nothing was swallowed. The time from intake to onset of symptoms, manifested as a flow of white, foamy saliva, was 10–15 minutes. This stopped 15 minutes after 1 l of milk had been given. Five minutes after the salivation had ceased she started flicking her tongue in and out of her mouth as if she was trying to rub something off. This lasted approximately half an hour. She then went to a mud wallow and after first using her horn to dig at the edge, she rubbed her mouth in the mud for about 20 minutes. She was hosed down with water at the same time. After that, she lay down for an hour and then went for a walk. She tried to browse but food was only chewed and spat out, not swallowed. Three hours after chewing the plant she returned from her walk and was fed 3 l milk and then ate 350 g of rhinoceros cubes mixed with a little molasses, after which she started browsing and swallowing. Seven hours after chewing the plant she took another 35 l of milk and by this time appeared normal. She did not groan at all, and apart from being obviously distressed during the incident, showed no other overt signs of illness. The symptoms lasted 3–4 hours and no special treatment was administered.

The causative plant was identified by the National Herbarium of Zimbabwe as *Xanthosoma mafaffa* Schott (family Araceae). According to Purseglove⁷, *Xanthosoma* (new cocoyam, tannia, yautia) has

its origin in the northern parts of South America. *X. mafaffa*, in addition to being an ornamental garden plant, is widely cultivated, particularly in West Africa, on the same scale as *Colocasia esculenta* (true cocoyam, dasheen, madumbe, taro), for its starch-rich tuberous rhizomes. The green leaves are also used as a vegetable². It is, however, essential to boil or bake these plants before eating to destroy raphides that have a severely acrid effect on the buccal mucous membrane⁷.

Members of the Araceae are well-known to contain such calcium oxalate raphides (needle-sharp, grooved crystals up to 250 µ long) that are packed tightly in parallel in special ejector cells in the plant tissues⁴. When mechanical damage occurs, for example when the plant is chewed, the ejector cells explode, releasing masses of the irritating crystals into the mouth. The resultant severe but fortunately transient irritation is ascribed to both the mechanical damage caused by the sharp crystals and penetration of the damaged mucous membrane by the high concentration of free oxalic acid and possibly other irritants contained in these plants³. Raphides and the associated toxins may have an antiherbivory function⁸.

The incident is typical of this intoxication, which occurs quite often in man and has been encountered in this region in puppies and small stock exposed to common araceous garden plants such as *Zantedeschia* and *Colocasia* spp. but which, owing to its transient and non-fatal nature, is not reported. The latent period is some 30 seconds in man (pers. obs., TWN) and this fits in with the history that the leaf was chewed but soon spat out.

The black rhinoceros is known to browse extensively on several of the highly irritant, latex-containing *Euphorbia* spp. such as *E. virosa* in Namibia⁶ and *E. ingens* and *E. grandicornuta* in KwaZulu-

Natal, South Africa (G Hughes and D V Cooper, Natal Parks Board, pers. comm. 1996) without any apparent damage to the buccal mucous membrane. Domestic ruminants⁵ and man⁹, in contrast, are severely affected if they attempt to eat these plants or even have skin contact with the latex. It is, therefore, extraordinary that a relatively much less irritating plant like *X. mafaffa* would have such a clearly irritating effect in this species.

This occurrence again emphasizes the danger of exposing naive game to common garden plants, sometimes with fatal results¹.

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Suspected aflatoxicosis in breeding budgerigars

Towards the end of December 1995/ beginning of January 1996 mortalities occurred in a budgerigar breeding colony

in the Krugersdorp district of the Gauteng Province in South Africa. The flock consisted of ca. 100 birds, including 10

breeding pairs with 18 nestlings. Mortalities were limited to the breeding colony and only adult birds were affected. Four