THE COMPOSITION OF THE MILK OF THE BLACK RHINOCEROS

by R. E. Greed

Director of Bristol Zoo, Great Britain

ROGER, born in the Bristol Zoo on 22nd August 1958, was the first African Black Rhinoceros (*Diceros bicornis*) born in captivity in Great Britain. He was taken away from his mother, 'Stephanie', and sent to the Chester Zoo when he was nineteen months old. At this time he was still suckling. After he had been separated from his mother, the keeper noticed that Stephanie's udder was very tense and milk was being ejected from the teats. He was able to milk her without much difficulty and about 300 ml. of milk were collected each time on 2nd and 3rd day after removal of the youngster. These samples were placed in polythene bottles quickly deep frozen and sent to the National Institute for Research in Dairying at Shinfield for analysis. This work was carried out under the direction of Dr S. K. Kon who was assisted by R. Aschaffenburg, Margaret E. Gregory, S. J. Rowland and S. Y. Thompson of the Institute and Miss Vanda M. Kon of the Pathology Department of the University of Bristol, who supplied, in addition to other information, details of the rhinoceros diet. The notable feature about the composition of this milk is the extremely low fat content.

TABLE 1:
THE MAJOR CONSTITUENTS

Fat	Trace
Solids-not-fat	8·10%
Lactose	6·06%
Protein (Total N × 6·38)	1·54%
Casein (N × 6·38)	1·11%
Soluble proteins (N × 6·38)	0·29%
Non-protein N	0·02%
Ash	0·34%
Calcium	0·06%
Phosphorus	0·04%
Sodium	0·04%
Potassium	0·09%
Chloride	0·08%

TABLE 2:
THE VITAMIN CONTENT*

Chemical assay		
Fat soluble vitamins		*Not measurable*
Riboflavin	free	0·44
	total	0·58
Thiamine	free	0·07
	total	0·85
Ascorbic acid	total	17·00
Microbiological assay		
Biotin		0·005
Nicotinic acid		0·09
Pantothenate		3·40
Riboflavin		0·15
Thiamine		0·73
Vitamin B^6		0·04
Vitamin B^{12}		0·005

*expressed in μg/ml. milk

COMPOSITION OF THE MILK OF THE GIRAFFE

by R. E. Greed

Director of Bristol Zoo, Great Britain

TABLE 1:
THE CONSTITUENTS OTHER THAN VITAMINS

	g. per 100 g.
Fat	12·50
Solids-not-fat	10·44
Lactose	3·41
Protein (Total N × 6·38)	5·76
Casein (N × 6·38)	4·80
Soluble proteins (N × 6·38)	0·80
Non-protein N	0·023
Ash	0·90
Calcium	0·154
Phosphorus	0·104
Sodium	0·100
Potassium	0·100
Chloride	0·134
Magnesium	
	mg. per 100 g.
Iron	0·16

TABLE 2:
THE VITAMIN CONTENT

Chemical assay	μg/g fat
Vitamin A	6·1
Carotenoids	none
a-tocopherol	2·7
	μg/ml. milk
Thiamine free	0·57
total	0·66
Microbiological assay	μg/ml. milk
Biotin	0·009
Nicotinic acid	2·10
Ca-d-Pantothenate	2·18
Riboflavin	1·53
Thiamine	0·43
Vitamin B^6 (pyridoxal)	0·54
Vitamin B^{12}	0·011