

# CONTENTS

	Page
1 INTRODUCTION	1
2 REVIEW OF LITERATURE	4
3 MATERIALS AND METHODS	69
MATERIALS	69
METHODS	71
4 RESULTS	74
5 DISCUSSION	123
6 SUMMARY	165
7 CONCLUSION	168
8 REFERENCES	169
9 ARABIC SUMMARY	

## SUMMARY

Trace elements are micronutrients required in very small amounts to build living tissues and maintain the chemical reactions of the life processes.

The one humped camel (*Camelus dromedarius*) is a multipurpose animal and is the preferable animal in Bedouin regions. A total number of 290 camels of both sexes their ages ranged from 2 to 10 years belonged to New-Valley Governorate, which represented by ElKharga Oasis, El Dakhla Oasis and El Farafra Oasis, constituted the material of this study. All camels were subjected to careful clinical and laboratory examination to prove their healthy and reproductive status, in addition to study the most important diseases affecting camels and their prevalence in this area. According to ages, sexes, reproductive status and diseased conditions 146 camels were selected and classified into:

- |   |      |
|---|------|
| <b>1) Group I: Healthy camels:</b>                | (72) |
| <i>a) According to age and sex:</i>               | (46) |
| 1- Young male camels (2-4 years)                  | (12) |
| 2- Young female camels (2-4 years)                | (12) |
| 3- Adult male camels (6-10 years)                 | (10) |
| 4- Adult female camels (6-10 years)               | (12) |
| <i>b) According to reproductive status:</i>       | (26) |
| 1- Early pregnancy                                | (8)  |
| 2- Med pregnancy                                  | (9)  |
| 3- Late pregnancy                                 | (9)  |
| <b>2) Group II: Diseased camels:</b>              | (74) |
| 1- Camels suffered from dietetic scour            | (14) |
| 2- Camel infested with gastro intestinal parasite | (18) |
| 3- Camel infested with trypanosomiasis            | (16) |

4- Camel infested with filariasis	(20)
4- Camels infested with mange mites	(6)

Blood samples were taken from each camel for:

**A- Hematological studies which include:**

1- Red blood cell count (RBCs)	$\times 10^6 / \mu\text{l}$ .
2- Haemoglobin concentration (Hb)	g %
3- Packed cell volume (PCV)	%

**B- Determination of trace elements in blood serum as:**

1- Blood serum copper (Cu)	$\mu\text{g} / \text{dl}$
2- Blood serum iron (Fe)	$\mu\text{g} / \text{dl}$
3- Blood serum manganese (Mn)	$\mu\text{g} / \text{dl}$
4- Blood serum zinc (Zn)	$\mu\text{g} / \text{dl}$
5- Blood serum iodine (I)	$\mu\text{g} / \text{dl}$
6- Blood serum molybdenum (Mo)	$\mu\text{g} / \text{dl}$
7- Blood serum cobalt (Co)	$\mu\text{g} / \text{dl}$

*The study showed some important results, which include:*

**1- Disease prevalence and clinical signs:**

The study demonstrated the clinical signs of the most predominant diseases affecting camels in New-Valley Governorate and their prevalence rates as following:

1- dietetic diarrhoea	4.83 %
2- gastrointestinal parasitic infestations	33.45 %
3- trypanosomiasis	6.55 %
4- filariasis	14.83 %
5- mange mite infestations	2.07 %

**2- Haematological parameters:**

The haematological examinations of healthy camels showed that the over all mean value of RBCs was  $7.088 \pm 0.209 \times 10^6 / \mu\text{l}$ ., Hb was  $11.65 \pm 0.287$  g % and PCV was  $30.3 \pm 0.708$  %. The values in non-

pregnant she-camel were  $7.6 \pm 0.42 \times 10^6 / \mu\text{l}$ ,  $12.06 \pm 0.66 \text{ g } \%$  and  $33.16 \pm 1.38 \%$  respectively.

Age, sex and reproductive status had variable influences on these parameters. Gastrointestinal parasites, trypanosomiasis and filariasis revealed highly significant reduction on these indices while the dietetic diarrhoea and mange infestations showed less effects.

### 3- Blood trace elements parameters:

The study declared that the over all mean values of blood serum copper, iron, manganese, zinc, iodine, molybdenum and cobalt were  $81.48 \pm 2.86$ ,  $120.95 \pm 3.95$ ,  $104.73 \pm 2.76$ ,  $51.23 \pm 1.25$ ,  $2.93 \pm 0.167$ ,  $21.93 \pm 0.992$  and  $2.26 \pm 0.098 \mu\text{g} / \text{dl}$  respectively. these values were within the normal ranges for copper, iron, zinc, molybdenum and cobalt but were higher for manganese and lower for iodine. The registered values in non-pregnant she-camels were  $72.167 \pm 4.995$ ,  $128.0 \pm 7.35$ ,  $109.91 \pm 4.19$ ,  $54.25 \pm 3.14$ ,  $2.9 \pm 0.35$ ,  $23.9 \pm 1.685$  and  $2.34 \pm 0.166 \mu\text{g} / \text{dl}$  respectively. These mean values in pregnant she-camels became  $86.61 \pm 3.4$ ,  $106.5 \pm 4.1$ ,  $91.53 \pm 4.23$ ,  $58.61 \pm 2.49$ ,  $3.26 \pm 0.21$ ,  $26.69 \pm 1.47$  and  $1.99 \pm 0.117 \mu\text{g} / \text{dl}$  respectively.

Age, sex and reproductive status exhibit variable degrees on the mean values of the studied trace elements. The effects of some diseases on the mean values of blood serum trace elements were variable from non-significant to highly significant effect.

The study also declared that camels suffering from gastrointestinal parasites, trypanosomiasis, filariasis, dietetic diarrhoea and mange infestations showed a significant decrease in the levels of blood serum copper, iron, manganese, zinc, molybdenum and cobalt. Meanwhile, blood serum iodine showed a non-significant decrease under the effect of these diseases.

## CONCLUSIONS

In despite of both trypanosomiasis and mange mite infestation were considered globally as the most serious endemic diseases of camels, filariasis recorded for the first time in camels in New Valley Governorate and were shown to be a very deleterious disease of camels in desert areas and must be considered in parallel to the former diseases.

The study had settled an idea on the behaviour of trace elements in camels reared in the New-Valley Governorate and showed that camel's adaptation to harsh conditions involves its resistance to mineral under-nutrition and it considered one aspect of this adaptation. So that, camels have potency for tolerance and maintenance of the reduction of trace mineral in stressed environment.

Routine periodical examination and monitoring of serum microelements of camel herds is recommended in order to diagnose and disseminate between clinical and subclinical diseases of camels. Also, correct diagnosis leads to evaluate the treatment of diseased animals, which included traditional treatment associated with additional treatment. Additional treatment include such disturbed blood serum trace elements associated with routine traditional treatment to such condition.