BIOCHEMICAL STUDIES ON CAMEL MILK

By

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B.Sc. Agric. Cooperation Sci. (Management of Agricultural Projects And marketing), Higher Institute for Agricultural Cooperation., 2003

M.Sc. Agric. Sci. (Biochemistry), Fac. Agric., Cairo Univ., 2012

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APPROVAL SHEET

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Title of Thesis: Biochemical studies on camel milk
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ABSTRACT

The study was carried out to evaluate the effects of camel milk, buffalo milk as diets on lipid fraction of hyperlipidemic and hypercholesterolemic \ Pesticide male albino rats. These were based on those agents contain protein, conjugated linoleic acid (CLA) and appreciable amount of vitamins and minerals which used as lipotropic factors, and antioxidant characters. Blood lipid fractions of hyperlipidemic animals were improved by the antioxidant and protein lipotropic powers of diets.

The investigation was done with milk of camel, buffalo as well as their mixtures to evaluate their effects as hypolipidernic agents which amounted 1.5 ml/ 100 g body weight of the dose. The camel milk and buffalo milk amounted good values of protein, conjugated linoleic acid (CLA) and appreciable amount of vitamins and minerals. The chemical analysis of the camel milk and buffalo milk for the compounds showed present of about 17 compounds varying in their levels in the analysis. It was noticed that compounds such as vitamin A, B, C, Potassium (K), Iron (Fe), Zinc (Zn) and Copper (Cu) were detected in both of camel milk and buffalo milk, but found vitamin E and chloride (Cl) in camel milk. The present studies of the antioxidation dose with camel milk as well as buffalo milk, also their mixture observed hypocholesterolemic and hypolipidcmic power which alleviated the disease and improved function of liver, heart and kidneys, lipids profile, protein profile. The present results observed significant effects on the blood glucose levels of the experimental animals. The obtained results showed that camel milk as well as buffalo milk generally improved in the clinical blood status. Blood lipid fraction such as total lipid, cholesterol and triglycerides as well as HDL-c, LDL-c and VLDL-c. Liver function (AST, ALT and ALP) and kidneys function (uric acid, urea and creatinine) and heart functions (LDH), blood glucose and protein profile (total protein, albumin and globulin), hematological analysis and histological analysis were readjusted around the normal values in hyperlipidemic and hypercholesterolemic rats by the improvements of the present liportopic factors and anti-oxidative agents of camel milk and buffalo milk by which hyperlipidemia and hypercholesterolemia were alleviated. In connection, their antioxidative camel milk observed the best treatment clinical effect concerning biological studies than the other treatments it. Also that mixture produced such synergetic effects which used antioxdative doses of camel milk and buffalo milk. These data of the present studies hypercholesterolemic and hyperlipidemic / Pesticide male albino rats showed that the different diet treatments can be arranged in the following order:

camel milk ≥ Mixture (Camel 75% + Buffalo 25%) > Mixture (Camel 50% + Buffalo 50%) > Mixture (Camel 25% + Buffalo 75%) ≥ Buffalo milk

Key words : camel milk - buffalo milk - hypolipidemia - hypocholesterolemia - Pesticide - emamectin benzoate

DEDICATION

I dedicate this work to whom my heartfelt thanks; to my soul mother and father (late) for their patience and help, as well as to my brother and my sister for all the support they lovely offered along the period of my post-graduation and I can't find adequate words to express my feeling towards them. Also, I wish to express my feeling to my grandfather Aly Mohamed (late), Mohamed Rshad (late), grandmother (late), my dear uncle Ala'a El-Deen and all my friends foe encouragement.

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Grateful deep appreciation is given to my father, my mother, my brother, my sisters Also I feel deeply grateful to my dear country Egypt.

ABBREVIATION, EXPRESSIONS AND SYMMMMBOLS

4-AAP	4-aminoantipyrine
4-AP	Aminophenazone
A.R.C.	Agriculture research centre
ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AST	Aspartate-aminotransferase
ATP	Adenosine triphosphate
b. w.	Body weight
BUF	Buffer
SUB	Substrate
Ca	Calcium
CHD	Coronary heart disease
Cl	Chloride
CLA	Conjugated linoleic acid
Cu	Copper
DNA	Deoxy ribo nucleic acid
EDTA	Ethylene diamine tetra acetic acid
EMB	Emamectin benzoate
EPA	Environmental Protection Agency
Fe	Iron
GK	Glycerol kinase
GLM	General Linear Model procedures
GOD	Glucose oxidase
GPO	Glycerol phosphate oxidase
h.	Hour
Hb	Hemoglobin or Cyanmethemoglobin)
HDL-c	High density lipoprotein - cholesterol
HL	Hyperlipidemic
IDL	Intermediate density lipoprotein
IFCC	International Federation of Clinical Chemistry
IHL	Pesticide Intoxicated Hyper lipidemic
K	Potassium
LC_{50}	Lethal concentration
LD_{50}	Lethal dose

LDH	Lactate dehydrogenase
LDL-c	Low density lipoprotein - cholesterol
LPL	Lipoprotein lipase
Mg	Magnesium
Min	Minute
Na	Sodium
PARP	Poly (ADP-ribose) polymerase
Ph	Phosphors
POD	Peroxidase
RBCs	Red Blood Cell
RNS	Reactive nitrogen species
ROS	Reactive oxygen species
ROW	Relative organs weight
SDF	Soluble dietary fibres
Se	Selenium
SG	Water soluble granules or tablets
SOD	Superoxide dismutase
vLDL-c	Very low density lipoprotein - cholesterol
WBCs	White blood cell
WR	Working reagent
Zn	Zinc