



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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The Effect of Clover Honey Supplementation on the Anthropometric Measurements and Lipid Profile of Malnourished Infants and Children

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

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List of Abbreviations

Abb.	Full term
APO B100	Apolipoprotein B100
ASCVD	Atherosclerotic cardiovascular disease
BMI	Body mass index
CAD	Coronary artery disease
CD	Cluster of differentiation
CETP	Cholesterol ester transfer protein
CVD	Cardiovascular disease
DALYS	Disability adjusted life years
DHS	Demographic health survey
FCS	Familial chylomicronemia syndrome
FH	Familial hypercholesterolemia
GERD	Gastroesophageal reflux disease
GH	Growth hormone
GI	Gastrointestinal
HDL	High-density lipoproteins
HFA	Height for age
HMG-CoA	3-hydroxy-3-methylglutaryl co enzyme A
IGF-1	Insulin-like growth factor-1
IUGR	Intrauterine growth retardation
LCAT	Lecithin cholesterol acyltransferase
LDL	Low-density lipoproteins
LDLR	LDL-receptor-
LPL	Lipoprotein lipase
MAM	Moderate acute malnutrition
MI	Myocardial infarction
MUAC	Mid-upper-arm circumference

List of Abbreviations Cont...

Abb.	Full term
ORS	Oral rehydration solution
PEM	Protein-energy malnutrition
RUSF	Ready-to-use supplemental food
RUTF	Ready- to-use therapeutic foods
SAM	Severe acute malnutrition
T3	Tri-iodothyroxine
TC	Total cholesterol
TG	Triglycerides
VLDL	Very low-density lipoprotein
WFA	Weight for age
WFH	Weight for height

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INTRODUCTION

Severe acute malnutrition (SAM) remains a substantial global health problem. Each year, SAM affects more than 18 million children, most living in low income settings. SAM contributes to 45% of all deaths in children less than 5 years of age world wide (*Black et al., 2013*).

Studies have found that intrauterine and/or early life malnutrition may predispose the fetus and infants to metabolic disorders including dyslipidemia (*Lussana et al., 2008*).

Since ancient times, honey has been used as a medicinal food. Honey was mentioned in several religious books, mainly in **Quran** (*Purbafrani et al., 2014; Saxena et al., 2010*).

Honey is a natural sweetener, containing mainly monosaccharaides (up to 80%), disaccharides (3–5%), water (17–20%) and a wide range of minor constituents such as vitamins, minerals, proteins, amino acids, enzymes and phytochemicals, mainly phenolic acids and flavonoids (*Escuredo et al., 2014*).

Honey has been shown to improve lipid profile, particularly cholesterol level in obese children. The exact mechanism of honey in the improvement of this risk factor has not been clearly determined. However, phenolic compounds present in honey are reportedly associated with improvement of coronary vasodilation, prevention of blood clots and protection of LDL-cholesterol from oxidation (*Nguyen et al., 2019*).