بسم الله الرحمن الرحيم

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بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد

Bee Honey as a Therapeutic Modality for Children with Functional Dyspepsia

Thesis

Submitted for partial Fulfillment of the Master Degree in Pediatrics

By

Amna Ali Eid Sayed

M.B., B.Ch. (2014)

Faculty of Medicine- Minya University

Under Supervision of

Prof. Dr. Mamdouh Abdulmaksoud Abdulrhman

Professor of Pediatrics

Faculty of Medicine, Ain Shams University

Dr. Yosra Mohamed Mohsen Awad

Lecturer of Pediatrics

Faculty of Medicine, Ain Shams University

Faculty of Medicine

Ain Shams University

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يقول الله تبارك وتعالى:

(وَأَوْحَى رَبُّكَ إِلَى النَّحْلِ أَنِ اتَّخِذِي مِنَ الجِبَالِ بُيُوتًا وَمِنَ الشَّجَرِ وَمِمَّا يَعْرِشُونَ * ثُمَّ كُلِي مِن كُلِّ الثَّمَرَاتِ فَاسْلُكِي سُبُلَ رَبِّكِ ذُلُلاً يَخْرُجُ مِن بُطُونِهَا شَرَابٌ مُّخْتَلِفٌ أَلْوَانُهُ فِيهِ شِفَاءٌ لِّلنَّاسِ إِنَّ فِي ذَلِكَ لآيَةً لِّقَوْمٍ يَتَفَكَّرُونَ)

(سورة النحل آية 68 - 69)

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List of Abbreviations

Abb.	Full term
AG	Anethum graveolens L.
AP-1	Activator protein 1
AP-FGIDs	Abdominal pain–related functional gastrointestinal disorders
CAM	Complementary and alternative medicine
CCK	Cholecystokinin
CCK-AR	Cholecystokinin A receptor
CDI	Clostridium difficile infection
CDQ	The Clinical Dyspepsia Questionnaire
CgA	Chromogranin A
CHM	Chinese herbal medicine
COMT	Catechol-o-methyltransferase
COVID-19	Coronavirus disease-19
COX-1	Cyclooxygenase 1
DHSI	Digestive Health Status Instrument
DSSI	Dyspepsia Symptom Severity Index
EC	Efficacy criteria
EPS	Epigastric pain syndrome
FAPDs	Functional abdominal pain disorders
FD	Functional dyspepsia
FDSD	Functional Dyspepsia Symptom Diary
FGIDs	Functional Gastrointestinal Disorders
FMiT	Fecal microbiota transplantation
FODMAP	Fermentable oligosaccharides, disaccharides, monosaccharides, and polyols
GA	Gastric accommodation
GDNF	Glial cell line–derived neurotrophic factor

List of Abbreviations Cont...

Abb.	Full term
GDNF	Glial cell-derived neurotropic factor
GDSS	Glasgow Dyspepsia Severity Index
GE	Gastric emptying
GI	Glycemic index
GIT	Gastrointestinal tract
GNB3-C825T	Guanine nucleotide binding protein β 3 subunit C825T
GNβ3	G-protein β polypeptide-3
GOS	Global Overall Symptom Scale
GSRS	Gastrointestinal Symptom Rating Scale
H. pylori	*Helicobacter pylori*
H2Ras	Histamine-2 receptor antagonists
IBS	Irritable bowel syndrome
IL-17	Interleukin 17
LDQ	Leeds Dyspepsia Questionnaire
LFD	Low FODMAP diet
LPDS	Leuven Postprandial Distress Scale
MGDS	Modified Glasgow Dyspepsia Severity
MGDSS	Modified Glasgow dyspepsia severity score
MIF	Migration inhibitory factor
NDI	Nepean Dyspepsia Index
NF-κB	Nuclear factor kappa B
NGF	Nerve growth factor
nNOS	Neuronal nitric oxide synthase
NSAIDs	Nonsteroidal anti-inflammatory drugs
PADYQ	Porto Alegre Dyspeptic Symptoms Questionnaire

List of Abbreviations Cont...

Abb.	Full term
PAGI-SYM	Patient Assessment of Upper Gastrointestinal Symptom Severity Index
PDS	Postprandial distress syndrome
PENFS	Percutaneous electric nerve field stimulation
PII	Peak incremental index
PPIs	Proton pump inhibitors
PROM	Patient-reported outcome measures
PYY	Peptide YY
QOL	Quality of life
RANTES	Regulated upon activation, normal T cell expressed and secreted
RCTs	Randomized controlled trials
RNA	Ribonucleic acid
SERT	Serotonin transporter
SF-NDI	Short-form Nepean Dyspepsia Index
SLDQ	Spanish Language Dyspepsia Questionnaire
SODA	Severity of Dyspepsia Assessment
STW5	Iberogast
TA	Trachyspermum ammi L
TCA	Tricyclic antidepressants
TDA	Traditional dietary advice
TEA	Transcutaneous electrical acustimulation
TNF-α	Tumor necrosis factor α
TRPV1	Transient receptor potential cation subfamily V1
VAS	Visual Analogue Scale
ZM	Zataria multiflora Boiss

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INTRODUCTION

Functional Gastrointestinal Disorders '(FGIDs)' define variable combinations of chronic gastrointestinal symptoms that do not have an identified underlying pathophysiology. Without an objective marker, the classification of FGIDs depends on symptoms. FGIDs are common in school-aged Egyptian children/ adolescents; functional dyspepsia (FD) prevalence was 4.6% ***(Ibrahim et al., 2020).***

According to the Rome IV criteria for FD in children, FD was characterized by the presence of one or more bothersome symptoms, including epigastric pain or burning, early satiety, and post-prandial bloating that further track into FD subtypes (post-prandial distress syndrome, epigastric pain syndrome) that may exist alone or overlap with one another, after appropriate evaluation the symptoms cannot be fully explained by another medical condition ***(Hyams et al., 2016).***

The impaired quality of life of patients with FD implies the need for definitive establishment of the diagnosis, followed by symptom-oriented treatment for the duration of the symptomatic interval ***(Madisch et al., 2018).***

The treatment options can be classified as non-pharmacological or pharmacological. The primary goal is to achieve complete remission of the symptoms; if this is not possible, then the abdominal pain and its exacerbated episodes should be minimized ***(Brusaferr et al., 2018).***

Antipsychotics, tricyclic antidepressants, histamine-2 receptor antagonists (H2Ras), standard and low-dose proton pump inhibitors (PPIs), acotiamide and mosapride, were found to be effective for FD ***(Ford et al., 2021; Browne et al., 2018).***

Complementary and alternative (CAM) therapies offer the potential to be considered in alternate and mainstream treatment of FD ***(Chiarioni et al., 2018).***

Synthetic medicines have side effects which leaves researchers to pay more attention to herbal medicine. Honey has been used since ages for medicinal and traditional purposes, and was accepted as a new effective medicine to cure many diseases ***(Zafar et al., 2020).***

Honey supplementation increased gastric emptying time in protein energy malnutrition patients, this delay in gastric emptying time might be primarily a compensatory phenomenon and it was augmented by the use of honey ***(Shaaban et al., 2010).***

Honey as a natural agent has a gastroprotective potential. It provides mucosa healing mainly via its antioxidants, anti-inflammatory, and cellular protective mechanism ***(Fazalda et al., 2018).***

In considerations of scarce knowledge in this field, health attributes of bee honey as a reliable therapy to improve the symptoms of FD in children, deserve seeking for.

In this study we aim to assess the effect of bee honey as an adjuvant therapy among children with FD dyspepsia.

AIM OF THE WORK

- **Primary Objective:**

Effect of bee honey on functional dyspepsia as an adjuvant therapy among dyspepsia suffering children assessed by Modified Glasgow Dyspepsia Severity (MGDS) Score in comparison to age and sex matched controls

- **Secondary Objective:**

Effect of bee honey on recurrence of symptoms one month after stopping medications assessed by MGDS Score