

Food Technology and Therapeutic Nutrition in the Biology Textbooks of the Intermediate Stage

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Received 19 June 2018 • Revised 20 August 2018 • Accepted 23 September 2018

ABSTRACT

The aim of the study is to analyze the content of biology textbook for the intermediate stage through using the criteria of food technology and therapeutic nutrition, which is prepared by the two researchers. The method of content analysis has been adopted to accomplish the paper aim. The results show that the biology textbook (Human being and Health) for the third intermediate school is the highest in repetitions about (59) of (%53,3). The dietary habits have been emphasized within the textbooks of principles of biology for the intermediate stage where the repetitions are (70) with (%63,6). The researchers introduced some recommendations including the necessity to include biology textbooks concepts and ideas about food technology and therapeutic nutrition. Also, some suggestions introduced as conducting similar studies on the textbooks of biology for the secondary and primary stages.

Keywords: food, technology, nutrition, therapeutic, biology

INTRODUCTION

The Study Problem

The science of food technology and therapeutic nutrition is considered one of the modern sciences, which acquires a wide range of reputation in the fields of health and education. This science and its applications contributed actively in improving the individual's food and food habits, which should be followed. These habits include they quality, quantity, even colour of the food, what should be given or forbidden and what should be avoided as medications for some diseases. Food has a relation with the individual's general health and his safety from diseases in which the type of food is the main cause for them. The major organized sources of knowledge, which introduce this information positively are school textbooks because they are the basic elements in the educational process especially biology textbooks that associated directly or indirectly with the contents and the fields of food technology and therapeutic nutrition. Moreover, the age has the same significance where the intermediate stage represents a transitional stage aims to help students depending on himself, equip him with knowledge, sound behavior and desired habits in society as food technology and therapeutic nutrition. Based on what is mentioned above, the researchers wonder about the possibility of including the concepts of food technology and therapeutic nutrition in the principles of biology textbook (1st intermediate stage) and biology textbooks (3rd intermediate stage)?.

The Significance of the Paper

The inclusive and rapid scientific development in various fields of life has almost enabled man to control over the aspects that affect on his entity and existence as inventions, discoveries and justifications that pave the way for his future existence. Moreover, it enables him to set up a mechanism to lead him to change and adjustment of the quality of life type man aspires for. Health is the final achievement and certain scale that reflects practical reality of life level. Health can be defined as the situation of the completed physical, mental and social safety. So, health should be completed through its other correct procedures by health education and reinforce the individual's role

Contribution of this paper to the literature

- Student teachers` diagnostic competences change and develop in the Intermediate Stage
- Internship and the mentor at school have a high influence on the development of student in` in the Biology Textbooks
- Must focus should be make on reflection during the Student in the Intermediate Stage

in life. Health is part and parcel of social and economic development. Good health may enable individuals to develop their physical and mental abilities. It allows individuals to livesocial, economic and cultural productive life adopted with their environment, ideas and desires. Food is a mixture of various elements. When food is eaten, man will be able to develop and maintain his health. Man`s health and his food are associated with each other and walk in two parallel lines. Each one affects on the other. If food decreases or increases whether in quality or quantity, it will affect on man`s health. If man`s health condition deteriorates due to temporary or chronic disease, this will influence on his food and the processes of food metabolism inside the body (Shahata, 1999).

Among the basics and dimensions of sound health is that the individuals have health awareness including food culture and proper food habits. The reasons that led to think about food culture on the international level are the relationship of food with immunity and the association between the individual`s foods level with the individual`s ability to produce. Food is the source of energy and man can`t work efficiently if energy balance is in disorder (Fakhro, 2003). The lack of health and food awareness is one of the most important factors that help increasing nutrient and health problems in Arab societies. What aggravates this problem is the huge amount of health and nutrient information, which people exposed to whether it comes from newspapers, media and internet. Most of this information is not complete or sometimes wrong. In this respect, there should be some sort of sound planning for health and nutrient education so as to protect society from misguided or wrong health information. Despite the development in the nutrient awareness programmes on the relationship between food and health, there are several societies never render this knowledge into action and behavior, cited in (Fakhro, 2003). The religion of Islam has accurately refers to the worldly life and organizes peoples` livings through holy Qura`n and holy Prophet`s hadiths that, if followed, maintain their health, "Children of Adam, take your adornment at every place of prayer. Eat and drink, and do not waste. He does not love the wasteful." (Fakhro, 2003), and prophet`s (PBUHP) hadith, "You owe a duty to your body and the right of the body is to feed it if gets hungry, rest it if gets tired, clean it if gets dirty, secure it from disease, heal it if gets sick, never bear what is unbearable". In the issues of food and nutrition, Islam does not stop at the point for the allowed or forbidden foods only, but it puts a system for food including its time, quantity, quality and the way of eating the food. The bad system of food, excessive eating or wasting it and imbalance of nutrients may lead to some diseases. Moreover, the way of eating, quality and cleanness of food have a direct impact on good digestion and metabolism of the food elements. The importance of food for man comes from its importance of developing man`s immunity against diseases, forming antibodies, different hormones and generating energy for various activities. The proper nutrition is one of the basics for human body and soul health. The good nutrition is the basic of human`s ability to resist diseases, and based on this perspective, the significance of nutrition on mental and psychological aspects becomes clear. Moreover, it affects the man`s way of enjoyment of his life as an individual or society. Doctors have agree on whenever treatment is possible through food, medications are abandoned, and whenever treatment is possible by the simple, complex is abandoned. Also, it is said that each malady can be treated by food and diet, and medications should attempted (Aqeel, 2003).

Nutrition is associated with food and its components closely. It is clear from the definitions of food. It is defined as the substance that is eaten by living human being to grow and maintain his health and prevent diseases (Kamash, 2011). Nutrition is defined as a group of processes that human body gets on the necessary elements for his activity, development, regenerate his cells and improve man`s health standard (Saba, 1998). A balanced diet is of highly significant role in each stage of man`s life especially during adolescence stage. The adolescent in this stage needs extra quantities of necessary elements so as the body is able to cope with the changes that prepare him for adulthood. The adolescent stage is characterized by its rapid development in the body associated with sexual development, which necessitates additional and adequate quantity of food. Also, adolescence is associated with high physical activity especially practicing sports and hobbies and this requires much of energy (Al-Sultan, 2004). A balanced food is important for growth and health, which maintains health and ensures sound life and individual`s active participation in society. Man`s health and food are two concurrent elements, each affects on the other. The qualitative and quantitative shortage or increase of food may affect on man`s health. Also, disease influences on man`s ability to eat food so balanced dietary should be observed in such conditions in order to enable the man to develop and maintain his health along his life from childhood till adulthood (Ali, 2008). Based on what is mentioned above, treatment by using food depends on two important elements; the first is the ability to meet man`s nutritional needs and the balance of diet. The second is the compounds that are included in the food, which prove their health benefits.

Among the wise sayings in the field of using and treating diseases is Ibn Al Nafis's "your health is in organizing your food and beware of using medications only in the case of dire need" (Mohammed, 2006). Food is a malady and a remedy where many studies refer to the direct relationship between food and types of cancers. Whenever meat and lipids increase, cancers cases increase. Women who depend on using fat, meat and cows' products are subject to catch breast, womb and ovaries cancer. For men, they are subject to prostatitis. Also, food is considered the sole treatment for some diseases as obesity, lack of protein and diabetes. Mosa, (2010) shows the treatment benefits for some nutritional elements like onion and garlic. They both work on decreasing blood sugar and fat in blood, and garlic has stronger effect on minimizing lipids, blood sugar and cholesterol and it helps reducing blood pressure by %17 (Mosa, 2010). Other food types that have treatment abilities is the honey, which is used to heal burns, wounds and ulcerations without leaving any signs. Honey is able to kill germs, bacteria and able to produce collagen that helps healing wounds without any scars. Apple contains pectin that helps digestion, degassing and prevents constipation. Doctors recommend lemon to prevent diseases as influenza, heart diseases, arteries and cancer. In addition lemon is a major source for vitamin C in which the shortage of it in the body leads to several symptoms as fatigue, exhaustion, weak immunity and late wounds healing. Studies refer to the relationship between the individual's nutritional situation and the efficiency of his/ her immunity system. Reinforcement of nutritional elements may strengthen immunity system giving special attention to the high concentration of food elements, which affect negatively on the immunity system (Abdulqadir, 2004). Hippocrates said that, "Make your food your medication.treat every patient with the plants of his/ her land, it is more curable for him/her." (Aqeel, 2009). Some see that food technology and therapeutic nutrition is the science that treats diseases by natural nutrition. Arif, (2009) Therapeutic nutrition aims to use food as a medication for several diseases to:

- 1- Enhance patient's health situation and prevents him from malnutrition.
- 2- Alleviate disease symptoms.
- 3- Prevent disease complications (Abdulwahab, 2002).

Also, food technology and therapeutic nutrition aims at maintaining the individual's health and nutritional condition. The secondary goals focus on the following points:

- 1- Control the disease symptoms that the patient complains from.
- 2- Help minimizing or preventing complications.
- 3- Shorten convalescence period and the patient's stay in the hospital.
- 4- Prevent malnutrition.

Food technology and therapeutic nutrition has some basics:

- 1- Nutritional system works on alleviating malnutrition resulting from disease and compensating the body organs to benefit from food.
- 2- Coordination between what the patient's food and his/her medications.
- 3- The nutritional system should include the basic food elements except the ones that should be decreased or prevented.
- 4- Persuade the patient and his family of the importance of the nutritional system.
- 5- The nutritional system should stop deterioration of the patient's situation or minimize the possibility of decline or complications.
- 6- The nutritional system should work on adjusting disorders of body components based on the nutritional important elements.
- 7- Help increasing the patient's appetite and decreasing his/her repellency from food and overcomes the complaint.
- 8- Return as quick as possible to the usual food. (Abdulwahab, 2002).

Also, education through its various fields plays the crucial role in the life of the individual especially the educational one where it introduces guided educational programmes. These programmes seek to build up an educated person who is able to learn to be able to run his own life and future in economic and social levels whether individually or collectively. We focus on the psychological and health aspects through one of its sources, which is the school curriculum. The wider concept of curriculum includes all activities the students can practice. It also includes all the experiences they get under supervision of school. In modern sense, curriculum means all educational experiences prepared by the school for the students whether they are inside or outside experiences, which aim to achieve the students' integrated development and adjust their behaviours according to the educational goals (Qatami, 2010). School textbook is the major element that curriculum depends on rendering activities that teachers want to introduce for the students so that they can achieve the desired goal, and biology textbooks are among them. Ambo et al. (2015) mentioned that the most important conditions for selecting school textbook of teaching sciences are that the book should focus on developing tendencies, attitudes, appreciation, care,

Table 1. Number of analyzed pages in the textbooks of Biology for Intermediate stage

| No. | Textbook | No. of chapters | No. of analyzed pages |
|-----|---|-----------------|-----------------------|
| 1 | Principles of biology/ 1 st intermediate stage | 8 | 148 out of 176 |
| 2 | Biology for 2 nd intermediate stage | 9 | 166 out of 192 |
| 3 | Biology (human and his health) for 3 rd intermediate stage | 14 | 182 out of 218 |
| | Total | 31 | 496 out of 586 |

problem-solving, sciences learning skills, sciences role in society, scientific culture and solving contemporary problems including food technology and therapeutic nutrition. (Ambo et al., 2015). Fakhro (2003) cited in (Al-Sultan, 2004) mentions that the analysis of school textbook is a necessary process for three considerations: The first, the analysis of school textbook is means to recognize the quality and eligibility of the school textbook, the second, we live in a changeable world and this change and progress need reconsideration in the content of these books, the third, the process of writing school textbooks is not an easy job, it is a complex process where certain interwoven and interdependent criteria should be taken into consideration. Human work is subject to faults and defects so it is necessary to analyze and revise these books to identify the aberration and faults and correct them.

The Aim of the Study

The study aims to identify the reality of food technology and therapeutic nutrition in the textbooks of the principles and biology for the intermediate stage.

Limits of the study:

The present study is limited to the biology textbooks for the intermediate stage:

- 1- Textbook of the principles of biology for 1st intermediate stage, edition 2, 2012.
- 2- Textbook of biology for the 2nd intermediate stage, ed. 4, 2013.
- 3- Textbook of biology (human being and his health) for the 3rd intermediate stage, ed. 2, 2012.

Terms of the study:

Nutrition: it is a science that studies food and other nutritional elements included in the composition of the food, their reaction and relation with health and disease in addition to the processes during the digestion, absorption of food, and how the body transports and casts remains outside the body (Abdulqadir, 2004).

- Nutrition is a group of biological processes that human body used to generate energy, growth, reproduction and maintain health and life.
- Food technology and therapeutic Nutrition defined by WHO as “using food as a therapeutic means to fight disease and take care of the patients, which form basic element in treatment and fight disease in addition to medications”.
- The two researchers define food technology and therapeutic nutrition as the process of providing the body with necessary nutrients to ensure the body needs of all elements, which are necessary for the body biological processes including growth, motion and enhance the immunity system to fight diseases, and other biological processes that human body depends in all its life stages.

METHODOLOGY

In order to achieve the paper goal (The Reality of food technology and Therapeutic Nutrition in the textbooks of Biology for intermediate school). The researchers follow the approach of content analysis, which describes the manifest content logically, objectively and quantitatively in the light of the analysis unit used where the content can be encapsulated and compared (Abdulrahman & Zangana, 2007). The central goal of analyzing the content is to classify words, phrases and other units from the text into limited number of meaningful categories, which have relationship with the researchers' hypothesis. Also, analyzing the content into some strict systematic procedures through investigation and verification of the written data.

Study Population

The population includes all three textbooks of biology for the intermediate stage in Iraq for the academic year 2013-2014. The total of analyzed pages are (496) page, where questions, introduction, bibliographies, diagrams and pictures as shown in [Table 1](#).

Table 2. Fields of the standard food technology and therapeutic nutrition and number of items

| No. | Field | No. of items |
|-----|--------------------------------|--------------|
| 1 | Concepts of basic nutrition | 9 |
| 2 | The importance of food | 8 |
| 3 | Nutrition not medication | 8 |
| 4 | Food habits | 13 |
| 5 | Diversity of food | 9 |
| 6 | Nutrition and mental processes | 6 |
| 7 | Nutrition and tumors | 4 |
| 8 | International attitudes | 5 |
| 9 | Food and colours | 7 |
| 10 | Food and public culture | 10 |

The Research Tool

In order to achieve the research goal, it is necessary to build up a standard for the food technology and therapeutic nutrition, which should be included in the subjects of biology textbooks for the intermediate stage, which helps analyzing the content. The researchers tackles the following steps:

- 1- The researchers examined some papers and researches that investigated food, food habits, educational nutrition and treatment with food.
- 2- Make a questionnaire to explore the views of some specialists in the fields of biology, education, psychology and some teachers of biology.

In the light of what is mentioned above and the experience of the two researchers, they build up a standard for the food technology and therapeutic nutrition. It has been introduced for some specialists in biology, public health, education, psychology and teaching biology to get their views and remarks about the items of the standard, which includes (79) items distributed on (10) fields as shown in [Table 2](#).

Instrument Validity

Validity in the analysis content is of high significance because it means that the application of analysis content is included, on one side, all elements of analysis, and on the other side the clarity of its items and words so as to be understood for everyone uses in the same approach. (Obaidat, 1998). In order to ensure the instrument validity of the analysis, it is presented to a group of jury, [Annex 1](#), and they all agreed upon its reliability and the instrument validity. The tool includes (71) item distributed on the tenth fields of the standard, [Annex 1](#).

Steps of Analysis

Registration unit is the smallest one in which the repetition of the phenomena appears. It is the smallest part in the content chosen by the researcher and submitted to counting and measuring. The appearance, absence or repetition indicate something that used to plan the analysis results like a word, sentence or an item (Atifa, 2012). The two researchers adopt the explicit idea as the registration unit and they use repetition as a unit count to know the ideas after reading the subject and identifying the items that include ideas and types, then fill the analysis table with the results through giving one repetition for every idea carries implicit meaning whether it is a concept or an explicit idea about food technology and therapeutic nutrition that is included in the standard prepared for this purpose. The idea is considered the most used unit of analysis units due to its size in which it is a simple sentence or compound one expresses a specific idea. It is large enough to give a meaning and small enough to minimize the possibility of classifying it for several concepts (Al-Salman & Al-Hiti, 1987). Repetition is the most widely used method of count in the content analysis. Through this unit, it is possible to count how many times the category appears or the unit in the content. The researcher who uses this method has to assume two things: the first is the repetition or appearance of a category or a unit, means a real reflection for the importance of this category or the unit. The second issue is that each unit of analysis units has the same weight in every part of the content under analysis (Atifa, 2012).

Validity of Analysis

It is the appropriateness of the used measuring style for a certain phenomenon or the topic that researchers want to analyze, and the ability of this approach to provide required information. To prove this, the researchers

Table 3. The textbook of the Principles of Biology for 1st intermediate stage

| No. | Field | Repetition | Percentage |
|-------|--------------------------------|------------|------------|
| 1 | Basic concepts of nutrition | 2 | %9.5 |
| 2 | Importance of food | - | %0 |
| 3 | Food not medication | - | %0 |
| 4 | Food habits | 13 | %61.9 |
| 5 | Diversity of food | 2 | %9.5 |
| 6 | Nutrition and mental processes | - | %0 |
| 7 | Nutrition and tumours | 3 | %14.3 |
| 8 | International attitudes | - | %0 |
| 9 | Food and colours | 1 | %4.7 |
| 10 | Food and public culture | - | %0 |
| Total | | 21 | %99.9 |

present an analysis sample for two juries in the field of teaching methods of biology*. The coefficient of concordance between the two is %85 (Abdulrahman & Zangna, 2007).

- Prof. Abdulkareem Abdulsamad Al-Sudani, PhD/ college of education/ Al-Qadisiyah university
- Assist. Prof. Nebal Abbas Hadi/ College of education / Al-Qadisiyah University.

Analysis Reliability

It is the measuring of information independency from the tools of measuring. Whatever the disagreement among the analyzers or the analysis time is changed, the encoding of data is the major problem they have to face. The researcher may encode the data of certain content, but when they get back to the same content to re-encode it, he will get different results. So it is necessary to have objective conditions in the analysis process, which necessitates a degree of reliability in the approach or the analysis tool (Atifa, 2012). The researchers follow the individuals reliability (consistency among the analyzers) to get analysis reliability. The researchers re-analyzed some chapters of the textbook (Principles of Biology) for 2nd intermediate stage after (20) days to find out reliability by time agreement and using Holsti equation where the agreement coefficient is %78 (Al-Imam et al., 1990).

Statistical Treatment

The researchers use Holsti equation for analysis reliability.

$$R = \frac{2(C1+2)}{C1 + C2}$$

R: is reliability coefficient

C1+2: number of agreed on answers between analysts

C2: number of answers of the second analysis

2-Percentage.

RESULTS AND INTERPRETATION

Results of the three textbooks analysis will be presented according to standard of food technology and therapeutic nutrition prepared for this paper, then explain it to reach the conclusions and recommendations as the following:

First: The textbook of the Principles of Biology for 1st intermediate stage as in **Table 3**.

It is clear from **Table 3** that most subjects of the textbook (principles of Biology) for 1st intermediate stage lack the concepts and items of the food technology and therapeutic nutrition. The following fields (importance of food, food not medication, nutrition and the mental processes, International attitudes and food and public culture) do not show any repetition or a percentage. Other fields get small proportion, the fields (concepts of basic nutrition, diversity of food, nutrition and tumours and food and colours) get (1, 3, 2, 2) respectively with a percent (%4.7, %14.3, %9.5, %9.5) respectively. The field of food habits get the highest repetition by (13) repetitions and (%61.9). The researchers see in these results a kind of weakness because the textbook does not pay attention to the food technology and therapeutic nutrition. The textbook includes chapters introduced with general introductions about biology and a sequential and simple preface for the basic for biology. The repetitions focused on the field of food habits in the second chapter of the book (Air, Water and soil) and chapter six (How the organisms' bodies work?).

Second: As far as the textbook of the 2nd intermediate stage, **Table 4** shows the repetitions.

Table 4. Repetitions and percentage of the food technology and therapeutic nutrition in the biology textbook of the 2nd intermediate stage

| No. | The field | Repetition | Percentage |
|-------|--------------------------------|------------|------------|
| 1 | Basic concepts of nutrition | 2 | %6.6 |
| 2 | Importance of food | - | %0 |
| 3 | Food not medication | 2 | %6.6 |
| 4 | Food habits | 19 | %63.3 |
| 5 | Diversity of food | 3 | %10 |
| 6 | Nutrition and mental processes | - | %0 |
| 7 | Nutrition and tumours | 3 | %10 |
| 8 | International attitudes | - | %0 |
| 9 | Food and colours | 1 | %3.3 |
| 10 | Food and public culture | - | %0 |
| Total | | 30 | %99.8 |

Table 5. Repetitions and percentage of the food technology and therapeutic nutrition in the biology textbook (Man and his health) of the 3rd intermediate stage

| No. | The field | Repetition | Percentage |
|-------|--------------------------------|------------|------------|
| 1 | Basic concepts of nutrition | 1 | %1.7 |
| 2 | Importance of food | 3 | %5 |
| 3 | Food not medication | 3 | %5 |
| 4 | Food habits | 38 | %64.4 |
| 5 | Diversity of food | 7 | %11.8 |
| 6 | Nutrition and mental processes | - | %0 |
| 7 | Nutrition and tumours | 5 | %8.4 |
| 8 | International attitudes | - | %0 |
| 9 | Food and colours | - | %0 |
| 10 | Food and public culture | 2 | %3.3 |
| Total | | 59 | %99.6 |

Table 4 shows that most of the biology textbook for 2nd intermediate stage chapters lack the concepts and items of the food technology and therapeutic nutrition. The following fields (importance of food, nutrition and the mental processes, International attitudes and food and public culture) do not show any repetition or a percentage according to the prepared standard. Also, percentage and repetition of the following fields (concepts of basic nutrition, food not medication, diversity of food, nutrition and tumours and food and colours) decreased, they get (2, 2, 3, 3, 1) respectively with a percent (%6.6, %6.6, %10, %10, %3.3) respectively. The field of food habits get the highest repetition by (19) repetitions and (%63.3), and this reflects the focus of the textbook on the general basics of classifying living organisms in a simple way as manifested in chapter 4 (botany/Vascular plants) and chapter 7 (animal divisions).

Third: In respect to the biology textbook (Human and his health) for the 3rd intermediate stage as shown in the **Table 5**.

Table 5 shows that the biology textbook (Man and his health) for 3rd intermediate stage has focused moderately on the meaning of the food technology and therapeutic nutrition standard though the fields (nutrition and the mental processes, International attitudes and food and colours) do not show any repetition or a proportion. Other fields have a minimum number of repetition (concepts of basic nutrition, food and public culture, importance of food, food not medication, diversity of food, nutrition and tumours) they get (1, 2, 3, 3, 5, 7) repetitions respectively with a percent (%1.7, %3.3, %5, %5, %8.4, %11.8) respectively. The field of food habits get the highest repetition by (38) repetitions and (%64.4). The researchers attributed these results to the nature of the chapter's subjects in which they tackle the human body, organs and the diseases of these organs. Moreover, the book dedicated an independent chapter (14) for food and another chapter for diseases, treatment and the way of preventing them, which requires to abide to the instructions and practices to achieve this goal.

Fourth: All textbooks of biology as in **Table 6**.

Table 6. Repetitions and percentage of the food technology and therapeutic nutrition in all biology textbooks of the intermediate stage

| No. | Field | 1 st interme. | 2 nd Intern. | 3 rd intermm. | Total repetitions | Total percentage |
|-----|--------------------------------|--------------------------|-------------------------|--------------------------|-------------------|------------------|
| 1 | Basic concepts of nutrition | 2 | 2 | 1 | 5 | %4.5 |
| 2 | Importance of food | - | - | 3 | 3 | %2.7 |
| 3 | Food not medication | - | 2 | 3 | 5 | %4.5 |
| 4 | Food habits | 13 | 19 | 38 | 70 | %63.6 |
| 5 | Diversity of food | 2 | 3 | 7 | 12 | %10.9 |
| 6 | Nutrition and mental processes | - | - | - | - | %0 |
| 7 | Nutrition and tumours | 3 | 3 | 5 | 11 | %10 |
| 8 | International attitudes | - | - | - | - | %0 |
| 9 | Food and colours | 1 | 1 | - | 2 | %1.8 |
| 10 | Food and public culture | - | - | 2 | 2 | %1.8 |
| | Total | %21 | %30 | %59 | %53.6 | 99.8 |
| | percentage | %19 | %27.3 | %53.6 | %100 | |

It is clear that all biology textbooks do not pay attention to the items of the food technology and therapeutic nutrition standard prepared for this paper. The biology textbook (Man and his health) for the 3rd intermediate stage gives more attention than other textbooks, then comes the biology textbook for the 2nd year and finally biology textbooks for the 1st intermediate stage. As far as the fields of food technology and therapeutic nutrition standard, food habits has gained more attention with (70) repetitions and (%63.6), food diversity (12) repetitions and (%10.9), food and tumours (11) repetitions and (%10) then concepts of basic nutrition and food not medication (5) repetitions and (%4.5) for both of them (Macrae et al., 1993). The field of Food importance gets (3) repetitions and (%2.7) and the fields of food and colours and food and public culture get (2) repetitions and (%1.8). While the fields of food and mental processes and international attitudes do not any repetitions in all, which indicate the weakness of these sides.

RECOMMENDATIONS

- 1- The necessity of including the textbooks of intermediate stage and other stages with the concepts about food technology and therapeutic nutrition.
- 2- Hold seminars for the teachers of biology to discuss the issues of food technology and therapeutic nutrition.
- 3- Design a guide for the teachers of the sciences and biology about the benefits of the food technology and therapeutic nutrition.
- 4- Hold a conference on the level of academic education to adopt the international directions in this field.

Suggestions:

- 1- Conduct a similar study on the biology textbooks for the secondary stage or the textbooks of sciences in the primary stage.
- 2- Conduct a study to design a symposium about the items of the food technology and therapeutic nutrition.
- 3- Conduct a study about the attitudes of the teachers of biology regarding food technology and therapeutic nutrition.

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ANNEX 1

Jury Names

| No | Name | Title | Specialization | Place of work |
|----|---------------------------|--------------|-----------------------------------|---|
| 1 | Dr. AbdulkareemAbdulsamad | Prof. | Methods of teaching Biology | College of Education/ Alq-Qadisiyah university |
| 2 | Dr. Kareem Balasim | Assist Prof. | Methods of teaching Biology | College of Education/ Alq-Qadisiyah university |
| 3 | Dr. Ali Raheem | Assist Prof. | Methods of teaching Biology | College of Education/ Alq-Qadisiyah university |
| 4 | Dr.IhsanHameed | Assist Prof | Methods of teaching Biology | College of Education/ Alq-Qadisiyah university |
| 5 | Dr.NemaAbdulsamad | Assist Prof | Methods of teaching Biology | College of Education/ Alq-Qadisiyah university |
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ANNEX 2

Standard of Therapeutic Nutrition Final Form

| No | Field and Items | valid | invalid | Amendment |
|-----------------|---|-------|---------|-----------|
| 1 st | Basic Concepts of Nutrition | | | |
| 1 | Therapeutic Nutrition is a science that studies the relationship between food and the health of mind and body | | | |
| 2 | Therapeutic Nutrition philosophy is the quality of life not the quantity of life. | | | |
| 3 | Body is like a car, which performs well due to good fuel and the fuel of man is his food. | | | |
| 4 | The body accepts natural food and deals with it | | | |
| 5 | A week in a month of vegetarian food keeps you away of modern diseases. | | | |
| 6 | Royal food is the second title for the therapeutic nutrition. | | | |
| 7 | therapeutic nutrition does not believe in the idea of chronic diseases but it deals with them as urgent negative situation. | | | |
| 2 nd | Food importance | | | |
| 8 | Man's health depends on his food. It is of great importance and requires an attempt. | | | |
| 9 | The impact of food is a topic, which needs scientific investigation. | | | |
| 10 | Health and sickness are nutritional decisions in the hand of man. | | | |
| 11 | A sound mind is in a sound body. | | | |
| 12 | Food is a culture and a style of life and a civilized behavior. | | | |
| 3 rd | Food not medication | | | |
| 13 | Most of time food and medication have the same origin | | | |
| 14 | Most of foods have certain healing features. | | | |
| 15 | Radish is the sweeper of the stomach | | | |
| 16 | Garlic and onion are the pillars of immunity | | | |
| 17 | Eating dates keep you away from some diseases as anemia and fragilitasossium | | | |
| 18 | Healing is not possible unless there is harmony between daily food and medication. | | | |
| 19 | The consequences of Food therapy can be treated on the contrary with the chemical medication | | | |
| 20 | The strongest pillars of treating diseases is to be away from causes of diseases. | | | |
| 21 | Drinking too much of water and other liquids especially with diarrhea and calculus. | | | |
| 22 | | | | |
| 4 th | Food habits | | | |
| 23 | In our food habits, there are what reinforce health and harm it. | | | |
| 24 | Your body has right on you. Take responsibility to satisfy your body's needs | | | |
| 25 | Eat you food while you are comfortable. | | | |
| 26 | Eating your food while standing makes you closer to disease | | | |
| 27 | Eating and Drinking before two hours of sleep time | | | |
| 28 | Chewing food carefully is sufficient to get rid of its poisonous effects. | | | |
| 29 | Stomach and kidney need rest as you need sleep | | | |
| 30 | Your breakfast is obligatory and supper is light one | | | |
| 31 | Canned food is the source of catching diseases. | | | |
| 32 | Drinking liquids undermines your immunity system. | | | |
| 33 | Fast Nutrition weakens body immunity. | | | |
| 34 | Drinking tea after your meal is a waste of your time. | | | |
| 35 | A week in a month of vegetarian food keeps you away of modern diseases | | | |

| No | Field and Items | valid | invalid | Amendment |
|------------------|--|-------|---------|-----------|
| 5 th | Food diversity | | | |
| 36 | Eating fruits and vegetables in their season ensure your vitamins and minerals | | | |
| 37 | Brown bread, rice, honey, apple and banana prevent you from nerves disease | | | |
| 38 | Pomegranate juice with its core is the best treatment for stomach ulcer andhelminth | | | |
| 39 | Decrease fruits and vegetables that contain calcic salts (spinach and tomato) especially for calculus sick people. | | | |
| 40 | Eating rocket and clover exceeds the benefits of milk to treat bones weakness. | | | |
| 41 | Carrot, apricot, liver and fish protect you from eyes, skin and glands diseases | | | |
| 42 | Roots vegetables (cauliflower, turnip etc. are active to fight cancer. | | | |
| 6 th | Nutrition and Mental Processes | | | |
| 43 | Brain represents %2 of body weight and needs for %20 of body energy | | | |
| 44 | Memory is influenced more by the type of your food than genetic reasons. | | | |
| 45 | Honey, grape and unsalted nuts are used to activate mental processes. | | | |
| 46 | Eating sesame for the forgetful people accelerates getting memories back. | | | |
| 47 | Banana and carrot to charge your ability to focus and tranquility | | | |
| 48 | Fish stimulatessecretion of chemical transporter serotonin. | | | |
| 7 th | Nutrition and Tumours | | | |
| 49 | Cancer, in most times is a disorder in nutrition rather than a surgical issue. | | | |
| 50 | Excessive eating of food is the basis for the diseases of digestion system. | | | |
| 51 | Severe shortage of vitamin A starts with ulcer and stomach tumours. | | | |
| 52 | Half letter of red beet daily raises the immunity of cancer patients. | | | |
| 8 th | International Attitudes | | | |
| 53 | Medication manufacturing mafia arepromoters for the idea of chronic diseases. | | | |
| 54 | The motto of the medication trade is a life- long disease and a life-long medication. | | | |
| 55 | The most updated medical programmes call for therapeutic nutrition. | | | |
| 9 th | Food and Colours | | | |
| 56 | Fruits of Orange colour fight free roots | | | |
| 57 | Green colour of vegetable is for fighting body cells aging. | | | |
| 58 | White colour of food supports the work of brain | | | |
| 59 | Red colour in our food is the basis for health | | | |
| 60 | Liver exhausted several times more than its natural work when eating cola, pepsi and artificially coloured food. | | | |
| 10 th | Food and Public Culture | | | |
| 61 | Your food is you choice and you are the decision maker in your health in sickness | | | |
| 62 | The time of eating is as important as the effect of your food | | | |
| 63 | Rapid and severe weight loss has catastrophic consequences | | | |
| 64 | Slenderizing pills and diuretic medications are harmful for health | | | |
| 65 | An apple or its vinegar support your immunity | | | |
| 66 | Good breathe is as important as chewing your food | | | |
| 67 | Walking bare-foot on grass, sand or gravels activates blood circulation, it food complement. | | | |
| 68 | The metal of cooking utensils and food preserving is a hidden weapon in there are the harmful, beneficial and the neutral. | | | |
| 69 | Read for prevention and treatment and make sure you have a positive role. | | | |
| 70 | Stimulate you energy by mentioning God's name exalted is He and thanking Him for what you eat and drink. | | | |
| 71 | Moderate fasting is a therapeutic nutritional system and a continuous health. | | | |