Research Paper

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Functional Software on Traditional Therapeutic Foods of Tamilnadu- An Efficacy Study

Health care

KEYWORDS : Traditional foods, Therapeutic conditions, Therapeutic foods, Folk medicine.

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ABSTRACT

Reintroducing the forgotten arts of culinary skills with Therapeutic value addition in unison with technology will help the food lovers to make a healthy choice during disease and convalescent period. With the objectives to develop and evaluate a database on traditional therapeutic recipes of Tamilnadu, original Traditional therapeutic recipes (150) were surveyed and classified for nine therapeutic conditions namely Cold (15), Cough (16), Constipation (33), Diabetes (12), Febrile condition (4), Indigestion (4), Ulcer (15), Multi Therapeutic condition (47) and during Convalescent period (4) and were standardized. The standardized recipes were further tested for its acceptability by a panel of 20 members using a "Score card". A user friendly database "Med Food" was developed by the investigator with four inbuilt module namely Thera food, Recipe Park, Nutri Sort and Glossopedia using the programme Visual Basic 2010 and the database was evaluated. The data base was on the whole rated to be effective and user friendly.

Introduction

India recently is witnessing a mammoth change in its health status. With the advent of degenerative diseases, the population of India faces the challenges of increased life expectancy on one hand and escalating incident of communicable and non – communicable diseases on other hand. The forefather's of Indian medicine believed nature as a cure for any disease condition System of medicine like siddha, Ayurveda and Unnani are being repeatedly explored even today. Traditional medicine may include formalized aspects of folk medicine, i.e. longstanding remedies passed on and practiced by lame people. Practices known as traditional medicines include Ayurveda, Siddha , Unani, ancient Iranian medicine, Irani, Islamic medicine, traditional Vietnamese medicine, traditional Chinese medicine, acupuncture, Muti, Ifá, traditional African medicine, and many other forms of healing method (World Health Organization, 2009).

Traditional foods (also known as indigenous recipes or folk recipes) comprise knowledge systems that are developed over generations within various societies before the era of

modernization. Traditional recipes purely relies on health practices and approaches of putting together plants, herbs, spices and fleshly foods in singular or in combination with a belief to treat and prevent illness or to maintain health and well being. As per the quotes of Hippocrates ***"Let food be thy medicine and medicine be thy food".*** Indian home with special reference to mother's of yester years of Tamilnadu have to their credits of using a variety of traditional recipes like Thuthuvalai rasam, Karpuravalli rasam, Ponnakanni keerai poriyal, Nattu kozhi soup, vazhathandu soup, Tulsi tea, Ingi thuvaiyal, Sukku malli coffee, Milagu paal (pepper milk), Chola dosai so on to cure or relive symptoms of diseases condition or to rejuvenate and to maintain good health.

Lack of systematic procedures, tedious methods of preparation, long working hours and frequent dinning out has given the current generation a little reluctance in adopting these recipes in their homes. It is also true that the current working women and homemakers are computer savy and greatly explore the information technology for multiple purposes ranging from education, entertainment and health information.

The role of information technology in creating awareness on health, nutrition and quality of living is highly commendable.

Health Information Technology (Health IT) involves the exchange of health information in an electronic environment. Extensive use of health IT within the health care industry will improve the quality of health care, prevent medical errors, reduce health care costs, increase administrative efficiencies, decrease paperwork and expand access to affordable health care. It is in perative that the privacy and security of electronic health information be ensured as this information is maintained and transmitted electronically.

Health Information Technology (HIT) provides the framework to describe the comprehensive management of health information across computerized systems and it can secure exchange of information between health professional and general public. Since HIT is in general increasingly viewed as the most promising tool for improving the overall quality, safety and efficiency of the health delivery system (Chaudhry et al., 2006), development of software on tradition therapeutic foods will not only help in promotion and popularization of these unexplored art of culinary skills to wide sector of population, but will also help in preserving our traditional values and will be a promising tool to transform the culinary skills to the future generation of this digital era. Also with health foods being given priority even in commercial food service outlets, reintroducing this forgotten arts of culinary skills with therapeutic value addition in unisen with technology will help the food lovers to make a healthy choice. Thus the study entitled "Development and Evaluation of Database on Traditional therapeutic recipes of Tamilnadu-India"was undertaken with following objectives.

General objectives

The general objective of the study is to develop and evaluate a database on traditional therapeutic recipes of Tamilnadu-India.

Specific objectives

The specific objectives of the study is to

- Collect traditional therapeutic recipes of Tamilnadu
- Standardize and categorize the traditional therapeutic recipes for specific therapeutic condition.
- Develop a database on traditional therapeutic recipes of Tamilnadu and
- Evaluate the developed database for its adaptability and its usage

Methodology

The Methodology pertaining to the study entitled **"Development and Evaluation of Database on Traditional Therapeutic Recepies of Tamil Nadu"** is

a. Collection of Traditional Therapeutic Recipes

India culture and heritage is filled with multiples of unique-

ness, naturality, goodness and identity that are specific to each region. Be its values, customs or its own food habit- Tamil Nadu a known state for its mixture of flavours in food, has many traditional foods of high therapeutic values. Lack of systemic procedures and the advent of frequent eating out culture has made these traditional foods to take a back seat. To retrieve and popularize the health benefits of these traditional therapeutic foods an interactive database was developed by the investigator.

To Collect the original traditional therapeutic recipes hundred women between the ages of **50 to 65** years from the rural parts of Coimbatore Tamil nadu (India)were interviewed using a structured Performa. A total of **150,** traditional therapeutic recipes with known potential therapeutic benefits were collected.

b. Categorization of Recipes

All the **150** traditional therapeutic recepies were categorized as vegetarian **(132)** and non- vegetarian recipes **(18)** Initially the therapeutic recipes were classified for **nine** therapeutic conditions namely Cold (15), Cough (16), Constipation (33), Diabetes (12),Febrile condition (4), Indigestion (4), Ulcer (15), Multi therapeutic condition (47) and during convalescent period (4).

c. Standardization of Traditional Therapeutic Recipes

All **150** traditional therapeutic recipes were standardized for one portion. The standardized recipes were further tested for its acceptability by a panel of 2**0** members using a **"**Score card"The recipes which obtained a maximum score between 20 to 25were rated as highly acceptable, 15 to 20 as acceptable and the score below 15 were rated as not acceptability. Since, all the standardized recipes obtained a score in the range of 15 to 25, all the **150**recepies were included for development of database.

To enable the database users for quick and efficient adaptability - a structured recipes format was developed by the investigator**,** which includes information like ingredients, cooking methods, portion size, and weight per portions.

d. Development of Database

A user friendly database ***"Med Food" was developed by the investigator. The data collected were created into database using the program Visual Basic 2010.*** Microsoft Visual Basic is a computer programming environment used to create graphical application for the Microsoft Windows family of operating systems. It uses a computer language of the same name, like every computer language and also give instructions to a computer.

Thus the data base ***"Med Food"*** was developed with four inbuilt module

Module I - ***"Thera Foods"***
Module II - ***"Nutri Sort"***
Module III - ***"Recipe Park***
Module IV - ***"Glosopedia"***

Module I -"*Thera Foods"*

The module I "***Thera Foods"*** of the database, flashes a total of 150 traditional therapeutic recipes of Tamilnadu. All the 150 traditional therapeutic recipes were categorized for nine therapeutic conditions namely cold, cough, constipation, diabetics, febrile condition, indigestion, ulcer, and during convalescent period. For each therapeutic condition the recipes were categorized meal wise. The recipe under each therapeutic condition is presented in a structured recipe format developed by the investigator, which enables the viewer to view the entire recipe for its ingredients, method of preparation, cooking time, weight per portion, duration of pre preparation along with the nutritive value.

Module II-*"Nutri Sort"*

The module "***Nutri sort"*** was developed with the intention to help the viewer to make a quick and nutritious choice among the selected tradition therapeutic recipes. Thus all the 150 traditional therapeutic recipes were categorized as energy rich, energy restricted, protein rich, iron rich and calcium rich recipes. According to their nutrient content ,meal wise categorization of recipes will be displayed .For each selected recipe the nutritive value for 13 nutrient content(both macro and micro nutrients) will be flashed.

Module III-*"Recipe Park"*

Recipe Park is a Recipe bank which contains all 150 traditional therapeutic recipes. The recipes park also enables the user to add/update more traditional recipes that they come across in future. A click on the add on button provided in this modules will help the user to store endless number of recipes of therapeutic values.

Module IV - *"Glosopedia"*

To make the database instrusting and informative three components were built in this module namely pictures, Videos and Glossary

Picture: To enable the user to view and easily identify the traditional therapeutic ingredient, the photograph of the ingredients along with their regional name is given.

Video Clip: To instruct user's on the skills of cleaning and processing certain traditional foods like Mullikaai, Thuthuvalai, Modakathan, Mosamosathan leaves, Plantain flower etc., and video clippings of pre-preparation procedure was built inside the database. This can help the user to adopt correct procedure of processing and cleaning.

Glossary: The regional and the scientific names of the ingredients is given as glossary.

e. Evaluation of a Database

As a means of popularization of the database and to evaluate its adaptability, **20** adolescences with or without the basic computer skills were selected using convenience sampling. The developed database was demonstrated in batches to a group of **10** members in each batch and the adolescences were asked to use the database. Using aTest sheet the database was evaluated for its content, usability, flexibility and its adaptability.

Result and Discussion- Feature of the Software "Med Food"

The investigator developed a user friendly database ***"Med Food"***using the programme Visual Basic 2010.



Screen shot of Home page - *"Med Foods"*

The Home page of the database ***"Med Food"*** has four optional buttons namely ***Thera Foods, Nutri Sort, Recipe Park and Glossopedia***. A click on each button connects the user to the relevant screen. If the user clicks the module I ***"Thera Foods"***the database will take the user to the next screen shot of Thera food. The menu bar is a short cut that appears on all the screens and navigates the user to the choose content of his / her interest.

Module I – *"Thera Foods"*



Screen Shot of Module I – Opening Window of "Thera foods"

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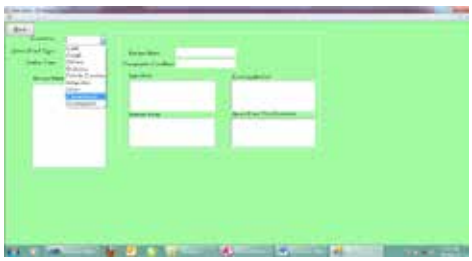
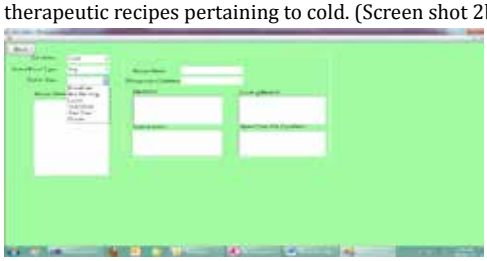
The screen shot of the ***"Thera Foods"*** have three options, namely ***recipes, Nutritive value and Glossopedia.*** A click on the recipes will lead the user to the next screen of the screen shot of the Module I **"Thera foods".**



Screen shot 2a. – Display of Therapeutic Condition

The screen shot 2 has five windows namely ***conditions, selection of food type, meal time recipes and recipe format***. A click on the down arrow of **"*condition"*** will enlist nine therapeutic conditions namely Cold, Cough, Constipation, Diabetes, Febrile condition, Indigestion, Ulcer, Multi therapeutic condition and during convalescent period (screen shot 2a).A click on the specific therapeutic condition, e.g. cold will connect the user to the therapeutic recipes pertaining to cold. (Screen shot 2b)



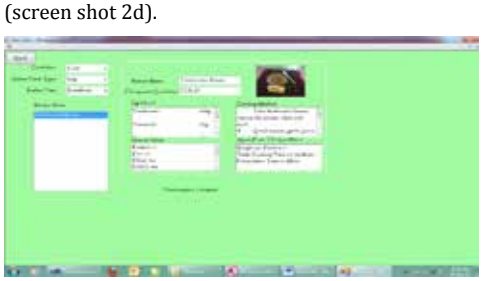
Screen Shot 2b. – Display of Meal wise Categorization

After selecting the therapeutic condition the user should click on the down arrow option of **"*select food type*".** The above option enables the user to select **"*vegetarian or non-vegetarian*"** foods. A click on the option "***vegetarian***" will select vegetarian recipes. Clicking the down arrow of the meal time will drop the text corner with the option for meal wise categorization namely Breakfast/ Dinner, Mid-morning, Lunch, side dish and Tea time.



Screen Shot 2c. – Display of List of Recipes Selected for each Meal

Selection of a particular meal will enable the user to view the list of recipes for that particular therapeutic condition selected i.e., if the user selects the option for the Breakfast the database will suggest a list of therapeutic breakfast items in the **"*recipe name*"** (screenshot 2c) window option for that particular therapeutic condition (cold). A click on the listed recipe takes the user to the recipe format displaying the corresponding recipe (screen shot 2d).

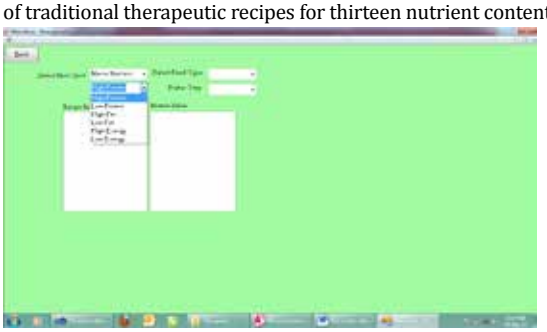


Screen Shot 2d. – Display of Entire Recipe

This screen on recipes format gives option for viewing the ingredients, cooking methods, nutritive value, details on portion size, duration of cooking and pre-preparation time. The text box and scroll bar on each aspect enable the user to read the entire content of the recipes and the nutritive value. Placing the cursor on the '*' symbol present in the recipe format will enable the user to read a pop-up message highlighting the bioactive component present in the ingredient that is believed or proved to have therapeutic values.

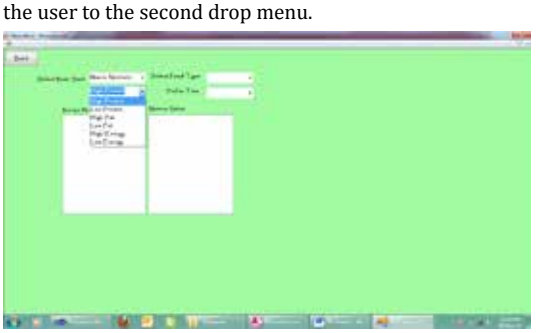
Module II: Nutri sort

Nutri sort module projects the information on the nutritive value of traditional therapeutic recipes for thirteen nutrient content



Screen Shot 3. – Display of Option Module II – "*Nutri Sort*" for Micro and Macro nutrients

Nutri sort has five text boxes. A click on the first drop menu of "***Select Nutrisort***" will display option for macro and micro nutrients. The user can select any one of the options by a mere click. If a user selects option ***"Macro"*** the list of macro nutrient namely Energy, protein, fat and carbohydrate will be listed .On selecting a particular nutrient eg.,protein the database will link the user to the second drop menu.



Screen Shot 3a. – Display of Recipes Categorized for Nutrient Content

A click on the second drop menu (screen shot 3a) will list the option for recipes categorized for nutrient content namely, high protein, low protein. Like wise the data base will enlist option such as high fat, low fat, energy rich and energy restricted on their selection.. Similarly selection of micro nutrients, will list out options for iron rich and calcium rich recipes.

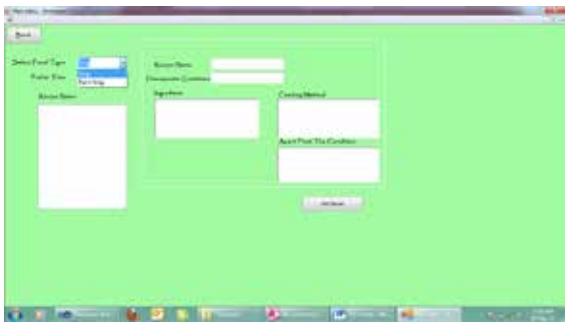
On clicking a particular button eg. High Protein the user can view the list of recipes for the nutrient selected (Screen shot 3b).



Screen Shot 3b. – Display the List of Nutrient Contents of Recipe Selected

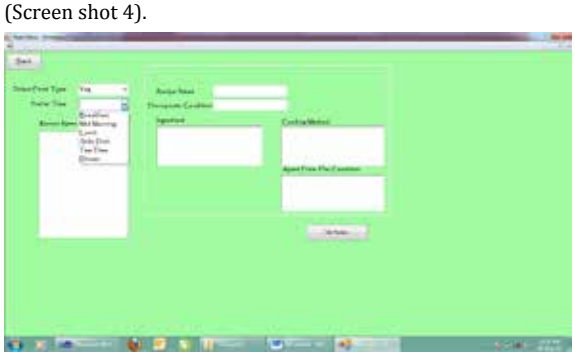
A click on a particular listed recipes will flash the nutrient content of the selected recipes for 13 nutrients namely energy, protein, carbohydrate, fat, fiber, calcium, iron, phosphorus, carotene, thiamine, riboflavin, niacin and vitamin C (screen shot 3b).

Module III Recipe Park:
Recipe Park module will give the entire detail about the recipes



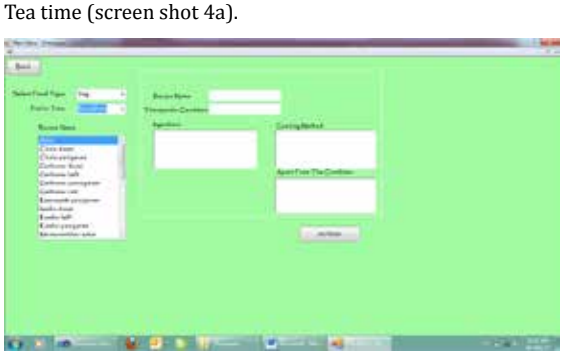
Screen Shot 4 – Display the type of recipes selected

A click on the "***recipe park***" will open four window with option for select food type, meal time, recipe name and recipe format (Screen shot 4).



Screen shot 4a – Display of Meal wise Categorization of Recipes

A click on the down arrow of the ***"select food type"*** enables the user to select **"*vegetarian or non-vegetarian*"** recipes. A click on the option "***vegetarian"*** will enable the user to select vegetarian recipes. Clicking the down arrow of the meal time will drop the text corner with option for meal wise categorization namely Breakfast / Dinner, Mid morning, Lunch, side dish and Tea time (screen shot 4a).



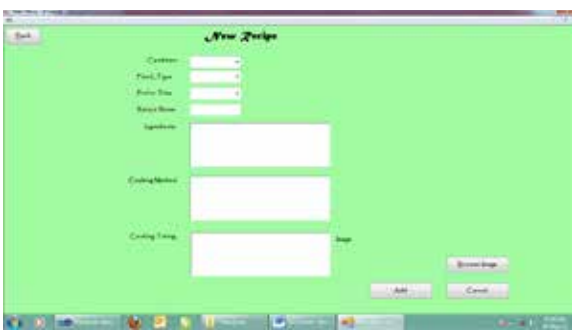
Screen Shot 4b – Display of List of Recipes Selected for Each Meal

Selection of a particular "***meal time"*** will enable the user to view the list of recipes for that particular Nutrient selected i.e., if the user selects the option for the "***Breakfast",*** the database will suggest a list of therapeutic breakfast items in the **"*recipe name*"** with window option for that particular nutrient (high protein). A click on the listed recipe takes the user to the recipe format displaying the corresponding recipe (screen shot 4b).



Screen Shot 4c – Display of Recipe Format for the Recipe Selected

A click on the particular recipe will enable the user to view entire recipe (screen shot 4c). A click on the option 'add on recipe' will lead database user to the next screen shot.



Screen shot 4d – Window for 'add-on' recipes

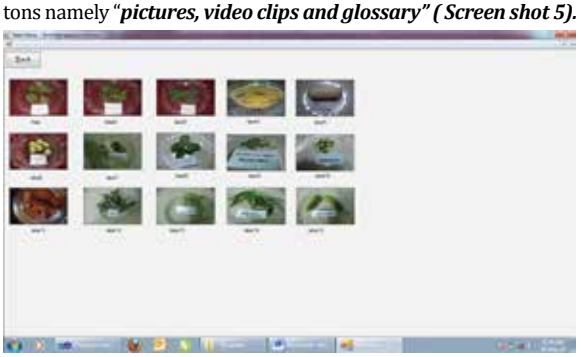
This screen shot of new recipe will enable the user to add on endless number of new recipes that they come across in near future. The text box given in the window will enable the user to type the recipes. A click on the button '**add**' will navigate the user to store the new recipes typed. The **'cancel'** button will delete the stored recipe.

Module IV –Glossopedia
Glossopedia module will give detail about pictures, video clips and glossaries for the recipes



Screen Shot 5 – Module IV – Opening Window of Glossopedia

Module IV Glossopedia- the opening screen of the has three buttons namely "***pictures, video clips and glossary" (Screen shot 5).***



Screen Shot 5a – Module IV Display of Image Selected

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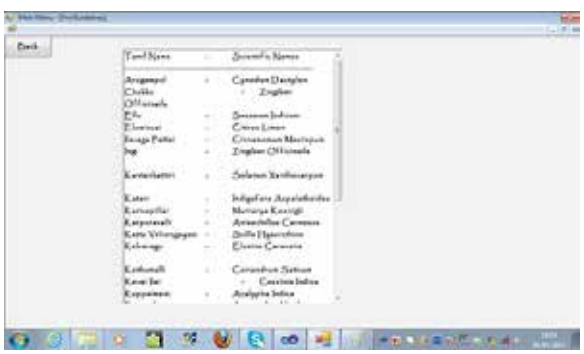
A click on the picture button will flash the image of the original ingredients. Even if the user is not familiar with the name of the ingredients, the pictures will help in the quick identification of the original ingredients.



Screen Shot 5b – Display of Video Clips for Pre-preparation Techniques

Clicking on the video clips flashes a video demonstration for cleaning and pre preparation methods of certain traditional ingredients like cleaning, Vazhaipoo, mullikkai, mosamosa leaves etc.,



Screen Shot 5c – Display of Glossary Terms for Ingredients Selected

A click on the glossary gives botanical and scientific names of traditional therapeutic ingredients/ foods used in the software.

Evaluation of the Software "Med Foof" (Table II)
The following Table (II) represents the evaluation of database by panel members

S. No	Content	Ratings					
		Excellent	Very good	Good	Fair	Poor	Total
1	Usefulness of a Database	7	10	3	-	-	20
2	Attractiveness of a Database	11	6	3	-	-	20
3	Easy Accessibility of a Database	10	6	4	-	-	20
4	Clarity of picture in Glossopedia	13	2	5	-	-	20
5	Data fulfill your requirements	8	9	3	-	-	20
6	Glossopedia part in Database	11	7	2	-	-	20
7	Nutri sort gives the information of nutritive value	8	9	3	-	-	20
8	Module I Thera food contain therapeutic condition	6	8	6	-	-	20
9	Suitability of a Database	9	8	3	-	-	20
10	Easy Adaptability of the Database	11	6	3	-	-	20

The database was rated as Excellent by seven members for its usefullness. Ten members scored the data base as excellent for its easy accessibility. Suitability of database was rated as Excellent and very good by nine and eight members respectively.

CONCLUSION
The advent of westernization and frequent dinning out practice has made the tradition foods to take their back seat. Tamilnadu as such has a numerous traditional therapeutic foods with potential's to cure and relieve symptoms of various disease conditions (communicable and non- communicable). Reinventing our forgotten traditional therapeutic foods will unfold numerous hidden health treasures for our future generation. Hence the developed database ***"Med Food"*** can serve as a promotional tool to popularize and educate our younger generation on the traditional therapeutic systems of medication in the form of recipes. The developed database can serve as resources for the food industry who wish to re- introduce the traditional therapeutic recipes into the commercial market (Hotel Industry). The dietary departments in hospital can also be benefited from this database since it purely relies on therapeutic foods for various disease conditions.

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