

## *Full Length Research Paper*

# **Empirical study on medicinal herbs information system (MHIS) in Malaysia**

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**Nowadays, people are highly concerned about their health and start to recognize that herbs are one of the beneficial ingredients to spice up their life. But most of them do not know which herb can exactly benefit them or how it looks like. This paper presents the medicinal herbs information system (MHIS) design, which is a web-based application system. With this system, herb identification, herbal vocabulary and medicinal usages can provide a professional information station for people to collect herb knowledge and an interactive platform for people to exchange scientific ideas by using local/common language. Finally, in order to ensure the conceptual model is well defined, a set of rules for keyword searching is created to verify preciseness of output produced. The system is being planned to be applied in Taman Pertanian Jubli Perak Kuantan, Malaysia.**

**Key words:** Medicinal herb, information system, Malaysia.

## **INTRODUCTION**

Nowadays, people are very concerned about their health and most of them claim that herbs are one of the ingredients to spice up their life. The word herb can mean almost anything that grows and has medicinal or food flavoring value. In addition, herbs are plants with a long and proud tradition of being used for seasoning, medicine, fragrance, spiritual usage, cosmetic, veterinary and sorcery, etc (Introduction to herbs). For example, culinary herbs are fresh or dried leaves which are used in cooking. Herbs can help in various functions of the body systems. Like it can help as an appetizer, help in the digestive process, and help in the absorption of food (Herbal effect). General usage differs between culinary herbs and medical herbs. Herbs can also be designed as a landscape in a simple garden to make the environment more amazing with numerous herb plants.

There are lots of products that have been produced by using medicinal herbs and the researchers are managing to investigate or research more about medicinal herbs,

especially when many medicinal plants are becoming increasingly rare in the wild. But they are in lack of any proper system to record the data of medicinal herbs. Research network among herbs researchers can be developed through this system. Unlike modern drugs in form of single chemical ingredient, herb medicines usually derives from aqueous extracts of a few herbs and contains hundreds of chemical compounds (Dennis, 2003), and has been successfully applied clinically for thousands of years in East Asian area such as China, Japan and Korea (Yuan and Lin, 2000). Modern clinical trial proved that a complex formulation composed of up to 20 herbs had greater efficacy than single herb used (Oka et al., 1995).

This paper addresses the problems of a design for a collecting herbal information system. It should provide some mechanisms for selecting a set of dynamic and highly confident terms that it can apply for improving searches on the search engine. Therefore, this prototype MHIS is also aimed to help the researchers record and store all the important data. However, the effectiveness of this system can be achieved with the cooperation of herbs researchers to contribute their research findings

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into this system. This system can be used in the related herbs plant center where it can; i) store and manage the herbs data and can be placed at Pejabat Perhutanan Negeri; ii) be available online to make other users see the information of herbs easily and can be used as a courseware tools to help student to recognize the species of herb plant; iii) be used in botany garden or herbs garden.

## LITERATURE REVIEW

### Web site

The Internet users easily share opinions and resources. Consequently, users can collectively contribute to the Web community and generate massive content behind their virtual collaboration (Herbal effect). For a system with collective intelligence, implementing scalability can indeed be challenging, but sensibility comes at variable sophistication levels. Several approaches are dealing with the sensibility, for example, user feedback, recommender systems, search engine, and Mashups. As suggested by Gruber, the true collective intelligence can be considered if the data collected from all those participants is aggregated and recombined to create new knowledge and new ways of learning that individual humans cannot do by themselves (Gruber, 2007).

### Database design

Database system helps an organization to manage or structure their data in a logical way (Noraziah, 2010; Noorhuzaimi, 2008). In addition, database design is a process to produce detailed data model of a database. The detailed data model consists of detailed value parameters, attributes, primary key, foreign key and relationship between entities. The designing of the database needs an excellent developer's understanding of two criteria which are the domain area and database development. Effective database design can assist developer to perform well from the beginning. In addition, it can reduce costs and time during development process. An excellent database development is important to get an optimal performance and high productivity (Michelle, 2007). In order to achieve the quality of system, the designer should work hard in representing information through database design to ensure the database works properly.

### Conceptual modeling

The emphasis of logical database model is on logic, which is a readable method and useful for representing the knowledge (Noraziah, 2009, 2008). This can be done through the conceptual modeling. Conceptual modeling is a process to model data of domain. Conceptual modeling is a well known technique of data modeling. It represents

domain entities, meaning of the data, concepts or terms used by domain experts, function or relationship between concepts. Conceptual model, also known as conceptual level schema, is a part of the process in database design which determines information needs of user (Borgida and Brachman, 2003). It is able to provide an accurate, complete representation of ones' understanding of the domain, with adaptation for different purposes (Storey, 2005).

## METHODOLOGY

Methodologies are comprehensive, multiple-step approaches to systems developments that will guide people's work and influence the quality of the final product. Most methodologies incorporate several development techniques. The systematic procedure by which a complex or scientific task is accomplished is called techniques. Techniques are particular processes that will follow by, to ensure that the work is well thought-out, complete and comprehensible to others (System Development Life Cycle).

The MHIS is a web based application where this system is connected with other system, or connected to the internet. This system was developed based on rational unified process (RUP). The RUP is an iterative software development process created by the rational software cooperation, now a division of IBM. The RUP provides method for managing tasks and developing documentation. The four phases in RUP lifecycle are based on time; each phase may contain multiple iterations. Development of MHIS involves 4 phases of RUP which are; inception phase, elaboration phase, construction phase, and transition phase.

Data dictionary or data repository is a central storehouse of information about the system's data. Data dictionary is used to collect data. The data dictionary also defines and describes all data elements and meaningful combinations of element. There are three (3) tables existing in MHIS which are the herbs info table, add comment/request table and login table. These tables hold the data that is related. Tables 1 to 3 show data dictionary and the items that are defined in MHIS.

Table 1 keeps all information of herbs. It contains nine (9) attributes where description and data type for each attributes were explained in the table. Table 2 keeps all comment or request that is sent by user to admin. It contains five (5) attributes where description and data type for each attributes were explained. Table 3 keeps the id and password of admin. It contains two (2) attributes where description and data type for each attributes were explained in the table.

## RESULT

After completing inception phase, elaboration phase and construction phase, the output of the system is system output. The system output is produced after the system is tested in order to ensure it produces the expected result. Further discussion describes each result that has been produced by the MHIS in the testing activity. Figure 1 to 3 shows the design of interface for medicinal herbs information system.

To insert a new data of herb, view the entire data, searching and login will discovered in this sub topic. The process of insertion a new data into the system by entering the local name, scientific name, family name, benefits of herbs, the feature of herbs, and the picture of

**Table 1.** Data dictionary of herbs information table.

Field Name	Data Type	Length	Description	Constraint
H_ID	INT	7	Unique Id for herbs	FK
HLCLNAME	VARCHAR	35	Local Name for each herbs	
H_SNTCNAME	VARCHAR	35	Scientific name for each Herbs	PK
H_FMLYNAME	VARVHAR	35	Family name for each Herbs	
H_BENEFITS	VARCHAR	200	Benefits of herbs	
H_IMAGE	MEDIUM BLOB		Hold the image location	
H_FEATURE	VARCHAR	50	Describe about the feature of the herbs	
H_DATE	DATE	20	Describe about the date of data herbs that has been recorded	

**Table 2.** Data dictionary of add comm req table.

Field name	Data type	Length	Description	Constraint
ADR_NO	INT	11	Unique Id for comment	PK
ADR FROM	VARCHAR	35	Email user	
ADR_SUBJECT	VARCHAR	30	Subject of mesej	
ADR	TEXT		Mesej that related on herbs info	
ADR_DATE	TIMESTAMP		Date for the current time	

**Table 3.** Data dictionary of login table.

Field name	Data type	Length	Description	Constraint
LID	VARCHAR	10	Id for admin	PK
LPASSWORD	VARCHAR	10	Password for admin	

**Figure 1.** Add new herbs for admin interface.

Masukkan Nama Saintifik Herba Dengan Ejaan yang Betul:

**Keputusan :**

Maklumat Herba Tidak Dijumpai Dalam Pangkalan Data

**Tambah Herba Baru**

<b>Nama Tempatan :</b>	Halia
<b>Nama Vernakular/Lain :</b>	Jahe, Ginger
<b>Nama Saintifik :</b>	Zingiber Officinale
<b>Nama Famili :</b>	Zingiberaceae
<b>Ciri-Ciri Herba :</b>	Menghilangkan bau sesetengah daging seperti daging kambing dan spesies ikan yang berbau hanyir. Halia sesuai tumbuh di kebanyakan iklim dan boleh tumbuh pada semua ketinggian. Halia mudah membiak dengan cara pecahan rizom dan mudah tumbuh dengan subur dikawasan tanah yang mempunyai kelembapan yang tinggi dan mendapat sinar matahari yang cukup. Tumbuhan ini mempunyai batang yang tegak dengan rizom yang tersebar secara mendatar.
	Hilang kanser, kekejangan, malaria, sesak nafas, menangani masalah ginjal, batuk, migrain, sakit gigi, senggugut, sakit tulang

Figure 2. Add new herbs for admin interface.

**Maklumat Herba**



<b>Nama Tempatan :</b>	Halia
<b>Nama Vernakular/Lain :</b>	Jahe, Ginger
<b>Nama Saintifik :</b>	Zingiber Officinale
<b>Nama Famili :</b>	Zingiberaceae
<b>Ciri-Ciri Herba :</b>	Menghilangkan bau sesetengah daging seperti daging kambing dan spesies ikan yang berbau hanyir. Halia sesuai tumbuh di kebanyakan iklim dan boleh tumbuh pada semua ketinggian. Halia mudah membiak dengan cara pecahan rizom dan mudah tumbuh dengan subur dikawasan tanah yang mempunyai kelembapan yang tinggi dan mendapat sinar matahari yang cukup. Tumbuhan ini mempunyai batang yang tegak dengan rizom yang tersebar secara mendatar.
<b>Khasiat/Kegunaan :</b>	Hilang kanser, kekejangan, malaria, sesak nafas, menangani masalah ginjal, batuk, migrain, sakit gigi, senggugut, sakit tulang
<b>Tarikh rekod data :</b>	16/03/2007

Figure 3. View herbs for admin interface.

Figure 4. Inserting new information of herb.

herbs. Before admin insert a new data, they need to search the herbs first to check either the herbs is exist or not. If the herb is not exists, so they can proceed to insert a new data of herb, as shown in Figure 4.

## Conclusion

The advantages of the system from the testing that has been conducted, has proven that this system has its own advantages such as:

- All information of herbs will be stored in a proper database and it is more appropriate approach compared with traditional way where all the data is written on the paper. The data is more secure and more manageable.
- The most important to use this system is to reduce our time and reduce the paper usage. We can access this system anytime and anywhere we prefer.

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