

## Herbal Identification and its Benefits using Production Rules Approach

**Roslina Abd Hamid, Nor Azhar Ahmad, Rahmah  
Mokhtar, Fauziah Zainuddin, Hester Liong King Huat**

Fakulti Sistem Komputer & Kejuruteraan Perisian, Universiti Malaysia  
Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, MALAYSIA  
roslina@ump.edu.my, nazhar@ump.edu.my, drrahmah@ump.edu.my,  
fauziah@ump.edu.my, hesterliong@gmail.com

**Highlights:** Expert System on defining herbs, using Production Rules is the system will solve a problem of using conventional procedures. By using physicals structure, identifying herbs is not too difficult. Moreover, it can provide a list of herb benefits focusing herbs in Malaysia. Rule-based derived from the rules for herbs knowledge domain. Thus, the system can learn from its experience by using factual knowledge based. The system has the capability to derive new case on new findings. Therefore, this system will help to identify herbs easier. This system also can be implemented in others knowledge domain.

**Key words:** *Herbs, Production Rules, Herbs Knowledge Domain*



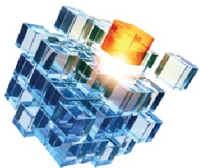


## Introduction

Computing world today is advancing day by day. It is because the human being is not limited to something extraordinary. In fact, research in this field has resulted in a branch in the area of computer science, namely artificial intelligence. This system used artificial intelligence in herb knowledge domain identification. The approaches being used is production rules were, the prediction or the result based on the characteristics of each herbs in herbs knowledge domain (Hanson, 1993).

## E-Herbs Development Framework

Prototype model exploration applied in this system. Each stage or phase has been implemented to get good results. Starting from planning, knowledge analysis, design, development, implementation, test, and maintenance phase. **Figure 1** shows the project flow.



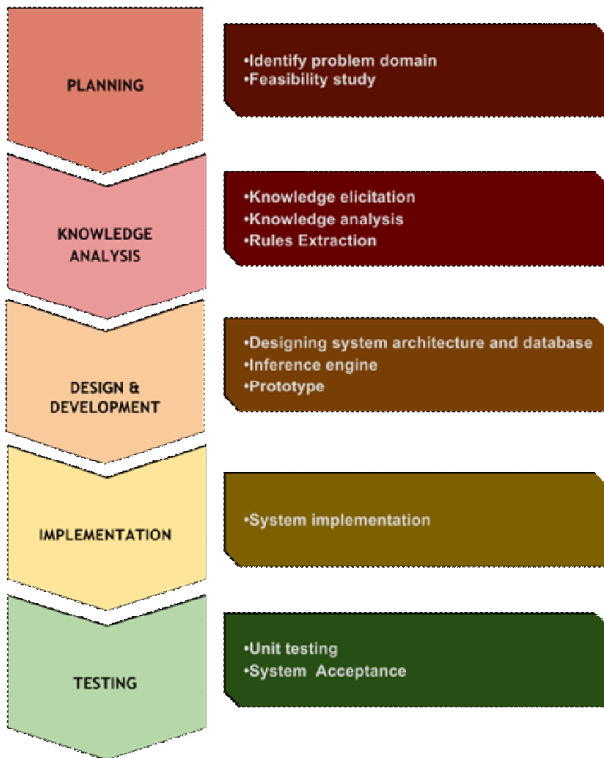


Figure 1: E-Herbs Development Flow

In producing production rules, the features of the herbs are classified based on Production Rules as shown in **Table 1**. (Azhar, 2004).



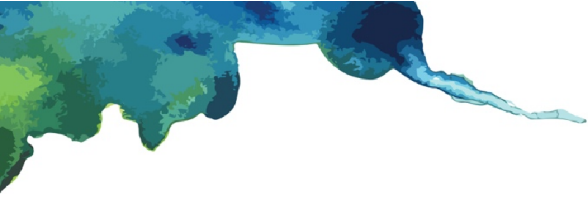


Table 1 : Production Rules

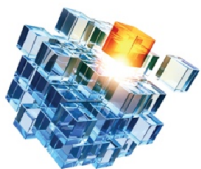
IF LeafShape : Linear
AND LeafMargin : Entire
AND LeafApice : Mucronate
AND LeafArrangement : Equitant
AND LeafBase : Sheathing
THEN Family : Pandanaceae

### Result and Discussion

System development based on expert knowledge completed. To identify herbs, the user must answer a set of questions given by the system. Thus the system shall compare to existing rules in the system. If the input does not match with the current knowledge, then the system shall execute Production Rules. Table 2 shows the testing result on the system. The result shows 75% of system output are correctly match to human knowledge..

Table 2 : Testing Result

HERB	OUTPUT	HUMAN KNOWLEDGE	MATCHING (T/F)
Jerangau	Jerangau	Jerangau	True
Lidah Buaya	Lidah Buaya	Lidah Buaya	True
Cekur	Tutup Bumi	Cekur	False
Lengkuas	Lengkuas	Lengkuas	True
Hempedu Bumi	Hempedu Bumi	Hempedu Bumi	True
Kaduk	Sireh	Kaduk	False
Pegaga	Pegaga	Pegaga	True
Kunyit	Kunyit	Kunyit	True



The user also can search herbs benefit by key-in the herbs scientific name or common name. The domain expert does Knowledge enrichment; they need to log in and key-in information of the new herbs into the system. This system helps the user to identify Malaysian herbs and search its benefit.

### **Advantages**

- i. Introduce approaches of E-herbs identification
- ii. Increase community knowledge of herbs in Malaysia
- iii. As the problem solver to public in gaining their knowledge about herbs
- iv. Increase of awareness among Malaysians towards alternative remedies

### **Commercial Values**

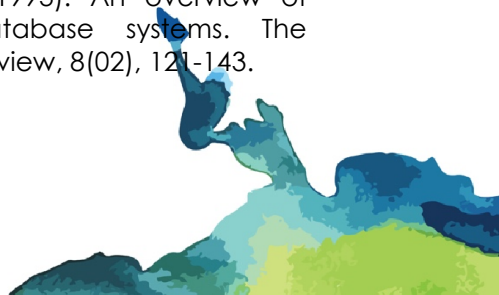
The technique introduced into the system can be applied and sold to the eLearning society and development. This system could be implement as a tool for the student to identify another domain, such as identification of animal based on their features (Mohamad Roslan, 2012).

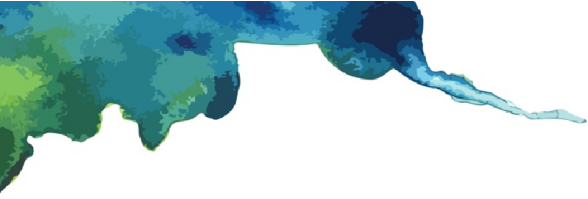
### **Acknowledgement**

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