

## Design of Korean medicine portal

Sang-Kyun Kim

Korea Institute of Oriental Medicine, South Korea

E-mail : skkim@kiom.re.kr

### 1. Introduction

With the recent rising interest in Korean medicine, more and more people search and utilize knowledge pertaining to Korean medicine. Information on Korean medicine available via the Internet is mainly provided by large-scale portal sites or blogs. This information, however, has unclear sources and furthermore is not well-organized, thus causing confusion among the information users. A person can obtain organized knowledge of Korean medicine through Korean medicine books. The specialized books of Korean medicine are written with technical terms in Chinese characters. Therefore, only oriental medicine majors can understand these books while the general public has difficulties understanding them. Therefore, it is necessary to provide information that is easy to understand so that those not specialized in Korean medicine can gain understanding of this area.

In the biomedical field, numerous actively running research portals that gather and process research information are available at home and abroad[1]. These portals offer not only research information but also a space for community building among local biologists. Researchers voluntarily open and share their information through the community, accordingly contributing to creative research activities. Additionally, in the case of science, research portals that are actively accessed by users have been solidly established[2].

However, unlike other fields, the Korean medicine field lacks a community where people can share knowledge and communicate with each other. While Korean medicine communities are run by academic societies, individuals, and companies, they are only open to doctors of Korean medicine and hence the general public cannot access these communities. It is therefore necessary to build portals where all those interested in Korean medicine can open and share information about Korean medicine and interact with each other.

This study is carried out to design a knowledge portal for the Korean medicine field that enables users to gain all available information on oriental medicine. To this end, the Korean medicine portal should be designed to have the following two functions: (i) accumulate and provide knowledge about Korean medicine for the general public; and (ii) build an open community in which those interested in oriental medicine can gather and share information and communicate with each other.

### 2. Designing a knowledge portal for Korean medicine

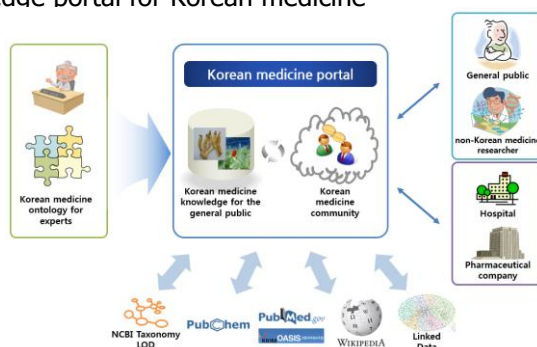


Figure 1. Architecture of knowledge portal for Korean medicine

Figure 1 displays the architecture of the knowledge portal for Korean medicine designed in this study. The Korean medicine knowledge for the general public is built based on the Korean medicine ontology that was established as a part of the “Ontology-based Traditional Korean Medicine Knowledge Framework” project carried out from 2009 to 2013[3]. The Korean medicine ontology standardizes knowledge over Korean medicine via the application of Web Ontology Language (OWL) with an emphasis on medicinal materials, formulas, diseases, acupuncture, and moxibustion. Information offered by the Korean medicine ontology is described in special terms, making it difficult for the general public to understand. Hence, this study provides a straightforward explanation of the information written in Chinese after interpreting it in Korean, and the converted relationship between ontology information is changed to a natural language-based sentence.

The Korean medicine community is composed of various message boards and pages used by the general public, researchers, and doctors of Korean medicine. Table 1 describes menus introduced in the knowledge portal in Korean medicine. The menus include a general message board of notice & announcement, questions, trend, and vote, a research information board of papers, knowledge sharing, and analysis data, and a clinical board of company & products introduction, oriental medical clinic search, flea market, and job posting. Anyone is allowed to post and share information on all boards except the announcement board. In addition, incentives will be offered for active involvement, thereby activating the portal.

[Table 1] Menu of knowledge portal

| News/Notice          | Information on Korean Medicine | Researcher         | Clinic                   | Community                    | Job Post                         |
|----------------------|--------------------------------|--------------------|--------------------------|------------------------------|----------------------------------|
| Announcement         | Medicinal material knowledge   | Excellent papers   | Introduction of clinics  | Free board                   | Help-Wanted                      |
| Korean Medicine News | Q&A                            | Research questions | Introduction of company  | Vote                         | Works-Wanted                     |
| Academic Conference  | Korean medicine books          | Knowledge sharing  | Introduction of products | Used products market         | Transfer & acquisition of clinic |
| Education            |                                | Trend analysis     |                          | Introduction of best members |                                  |
| Business             |                                |                    |                          |                              |                                  |

Research team members and voluntary users should be encouraged to prepare contents in the Korean medicine portal. However, databases that are related to Korean medicine, such as databases of plants, compounds, and papers, are available at home and abroad. In this study, the portal in Korean medicine is linked to these databases. Medicinal material has a Latin name but species are classified based on a scientific name. It is possible to make a connection to the NCBI Taxonomy database[4] with the use of a scientific name. As the medicinal material has components, it is possible to make a connection to a PubChem Compound database[5] with the use of components, based on which non-Korean medicine researchers or pharmaceutical companies can utilize the portal. Medical study results that are published on domestic and international journals can be connected to papers about Korean medicine knowledge, thereby providing help to researchers of Korean medicine[6][7]. It is planned that information in the Korean medicine knowledge portal will be identified through a URI. Hence, connection to the URI of Wikipedia or Linked data (LOD) can enhance utilization of information.

### 3. Conclusion

This study designed a knowledge portal for Korean medicine with the aim of sharing knowledge and boosting communication among relevant parties. Unlike the existing portals where Korean medicine knowledge was aimed only at experts, this knowledge portal for Korean medicine builds knowledge for the general public. Additionally, a community was designed where knowledge on Korean medicine can be shared by the general public and researchers interested in Korean medicine and doctors of Korean medicine. With the advancement of the Web, opening and sharing of information and communication and cooperation among people have become more important. Active participation by people working in the Korean medicine field is vital in activating the portal. The authors plan to conduct a study to formulate a detailed strategy for advancing the Korean medicine knowledge portal in the future.

### 4. Acknowledgement

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### 5. References

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