ฐานข้อมูลพิพิธภัณฑ์ใลเคน มหาวิทยาลัยรามคำแหง

LICHEN HERBARIUM DATABASE AT RAMKHAMHAENG UNIVERSITY

พิมพา นิรงค์บุตร, กวินนาถ บัวเรื่อง, กัณฑรีย์ บุญประกอบ และ เอก แสงวิเชียร

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บทคัดย่อ: ฐานข้อมูลพิพิธภัณฑ์ ใลเคนมหาวิทยาลัยรามคำแหง ได้เริ่มรวบรวบข้อมูล เข้าฐานข้อมูล เมื่อปี พ.ศ. 2549 ปัจจุบันได้เก็บรวบรวมตัวอย่าง ใลเคนไว้มากกว่า 40,000 ตัวอย่าง ทั้งจากประเทศไทย และอีก 43 ประเทศทั่วโลก ฐานข้อมูลของซอ ฟต์แวร์ ที่ใช้จัดการคือ Microsoft Access ซึ่งการรวบรวม ข้อมูล นี้มี จุดประสงค์เพื่อการบันทึกรายละเอียดของตัวอย่างไว้เป็นหลักฐานเพื่อให้ ง่าย และสะดวกต่อการยืมตัวอย่าง หรือนำตัวอย่างไปอ้างอิงในการจัดจำแนกตัวอย่างอื่น ตัวอย่างทุกชิ้นที่เก็บรวบรวมไว้ในพิพิธภัณฑ์ ไลเคน นั้นจำเป็นต้องมีรหัส RAMK ซึ่งเป็นรหัสประจำ ของพิพิธภัณฑ์ ปัจจุบันได้ทำการลงรหัส RAMK แล้ว จำนวน 10,369 ตัวอย่างจากอุทยานแห่งชาติเขาใหญ่ ซึ่งฐานข้อมูลนี้เป็นประโยชน์อย่างยิ่ง ในการศึกษาทาง นิเวศวิทยา และอนุกรมวิธานของไลเคน

Abstract: The lichen herbarium database at Ramkhamhaeng University was initiated in 2006. Currently, it contains data collection of approximately 40,000 specimens which were collected from Thailand and 43 other countries around the world. All specimens have been registered for RAMK code which now consisted of 10,369 from Khao Yai National Park. These specimens had already registered with RAMK code by Microsoft Access software. The main purpose of this database construction is to organize data and minimize the time for retrieving information. It was also used for data traversing instead of typing specimen labels, loan invoices and species lists individually. Data can now be entered once and used in a multitude of applications. This database should be value for ecological and taxonomical studies of the Thai lichens.

Introduction: The herbarium is one of important places in natural history studies. It should have good database management system for easy and convenience uses. Lichen database system at Ramkhamhaeng University started in 2006 after several years of collection of lichen specimens. Presently, there are approximately 40,000 lichen specimens collected. They are mainly from Thailand, with some from 43 countries around the world. To create searchable database, software program Access was selected to manage data. It can help the researchers who need to check or compare the specimens with the herbarium database. The herbarium also houses 31 type specimens of new species described from Thailand.

Methodology: The data model for this database was designed by using Microsoft Access software. Databases of the collections are in table format consists of Collector name, Collection number, date of collection, locality, province, substrate, forest type, altitude, and other as shown in (Fig. 1). Forms were created at the beginning of data entry and contain the code necessary to perform the required tasks. Lichen names were referred from (http://www.indexfungorum.org) as well as plant scientific names from the Thai plant names [1]. Authoritative lists on standard use of author's abbreviations refer to [2] and [3].

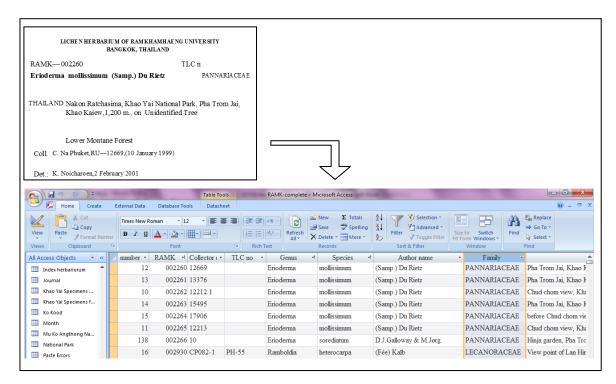


Figure 1. Information on data base of lichens at RAMK herbarium, with example of envelop label retrieved from the data table. * The data model was designed by using Microsoft Access software

Results, Discussion, and Conclusion: Currently 10,369 lichen samples deposited at RU herbarium have been recorded in the RAMK database. More specimens will be included in the system, however, the process is time consuming and requirement of intensive manpower. After all, the lichenologists and people who are interested in lichen can use this database to facilitate their works.

1. Taxon Information

Records of taxon can be created in separate fields of table (i.e., family, genus, species and author name). A set of queries can be updated by the request from user. By storing the latest identifications in one set of fields, queries can be easily written to search and sort the data for further analysis.

2. Locality Data

Locality data is entered using a look-up table. Use of look-up tables helps eliminate spelling errors, which can hinder key word searches. Querying localities can be done by key word searches or latitude and longitude criteria. These databases allow users to type in city names, trail names, or other landmarks to retrieve, in many cases, exact coordinates for that landmark. Locality coordinates in specimen databases can be used with ease to create distribution maps if the data are handled in a certain way. When localities are need to be plotted on maps, the coordinates in decimal form are then easily exported from the database to the plotting program and maps are generated.

3. Habitat, Microhabitat and Substrate Data

Data on habitat, microhabitat and substrates are also collected and included in collection database. They are also handled by mains tables. Standardized, these data are particularly

valuable for ecological and substrate studies. For example "Which lichen species are growing on the bark of *Cibotium subavenium* in the area around Khao Yai National Park" can easily be searched.

4. Collectors and collection numbers

When all lichen samples were collected, the collection can recorded the number details as their own styles but after data were transferred to herbarium all of them would receive the RAMK number to standardize.

5. Thin Layer Chromatography

Although not common in herbarium databases, it is useful in lichenology to include the results of thin layer chromatography tests within a herbarium database application. By creating queries that compare TLC data with locality or habitat data, researchers can discover patterns in chemotypes that may not have otherwise been detected.

References:

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Keywords: lichen, herbarium management, database, Microsoft Access 2007, RAMK

Website address: http://www.ru.ac.th/lichen/herbarium/startaherbarium.html

Acknowledgments: The authors would like to thank the Thai Government for supporting this project.