Data Base on Resources of Mushrooms in Korea

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ABSTRACT

Today information is important for man and total fields. Science field is not exception. Currently information age things of information is only useful for man and total industry. So bioinformation is necessary of biodiversity in broadly wide and detailed information. Among information, bioinformation of biodiversity is important and utilization of living things.

Among them, the mushroom(higher fungi) are an important part in ecosystem as a decomposer responsible for recycling materials. Many living things today, however, have endangered by environmental pollution and ecological destruction.The higher fungi also are not exception. Mushroom has been used for food sources, pharmacy and forests resources from ancient times. Among biodiversity, database of mushroom is very necessary for university, institute and industry.

This DB contains four items of native mushroom(higher fungi) from Korea. first item contain species, genus, family, order class, ad division according to the classification. Second item contain pharmaceutical purpose, food source, culture, toxic, anti-cancer of the application. Third item contain symbiosis, rotten trees of the ecological resources. Fourth item contain geographical distribution and illustrated literature. Information system is also available using KRISTAL II for searches on the WEB in URL http://ruby. kisti. re. kr/~mushroom

Key Words : database, mushroom

INTRODUCTION

It is said that 21C is information age of knowledge. Without a doubt, one of the important parts will be bioinformation in science technology. Therefore, many countries have made every effort as well as investigated fund to dominate this part. The only way to survive in severe competition is to get information our natural source and others. Also, exchanging information between countries can benefit in bioinformation.

It is the beginning of the bioinformation in Korea and fungi is not exception.

The study about fungi has not been achieved exactly and the amount of data is small. Therefore it is not possible to know the diversity of fungi completely. Mushroom forms fruiting body clearly among fungi and functions as a decomposer in an ecosystem.

There are about 25,000 species of mushrooms in the world. In korea it is reported about 2,000 species (Cho,

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2001) but it is need to explain about ecological characteristic, geological distribution and so on exactly. Recently the research get into actively because mushroom is used in food and is known to anticancer resource.

Now DB of Korea is humble. Some are constructed by several commercials. Others are constructed by Cho (1998.1999. 2000) which explain exactly description, pictures, useful, ecological characteristics, distribution. It makes it possible to provide all kinds of data about mushroom from primary students to specialists.

II. MATERIALS AND METHOD

1. Materials : Published papers in Korea, illustrated books and lists.
2. Methods :
    1) KRYSTAL II made by KISTI is used as tool.
    2) Contents : Number of Mushrooms, Korean Common Name, Scientific Name, Genus, Family,Distribution,Useful, Habitat,Ecological, Picture, Books, Spore.
3. Scope of DB
    Ascomycotina   : Pyrenomycetes and
                                Discomycetes,
    Basidiomycotina : Hemenomycetes and
                                Gasteromycetes

III. CONTENTS AND RESULTS

1. Past resaech
    1) Diversity of Mushrooms
        Commercial DB is constructed for income and sales of mushrooms so it is not used publicly. Scientific DB is constructed with 250species, 350, 400 by Cho(1998,1999, 2000) containing explanation about spore and value and so on.

2. Research of Mushroom in Korea

1) Diversity of Mushroom
    First 274 species is reported by Lee(1959), after that 523 by Lee and
    Hong(1985), 885 species by Lee(1990), 1033 species by Forest Institute(1992). Recently 1544 was reported by Lee and Lee (2000). 400 species was reported
    in Northern Korean and 340 species at Mt.Packdu of China. Finally in Korean
    penisula 2000 species was rearranged by Cho(2001).
2) Ecological Characteristic Mushroom
    Ecological Characteristics about mushroom is known only a few species.So information about ecological characteristics such as host, seasons and habit need to research in overall mushrooms.
3) Fungal Resources
    Classification of mushrooms according to food, toxine, pharmacy is not completely accomplished. We can classify a number of mushrooms exactly by using biochemistry research. So it is necessary to work with university, institution for research.
4) Distribution
    Research about distribution of mushroom have been done in 10 national parks. Mushroom develops diverse situations. If research can do continuously, we can know diversity of distribution in mushrooms.

3. Contents of DB
    1) Taxonomical System
        Search can be used by scientific name according to species, genus, family, order, class, division
    2) Korean Common Name
        Korean Common Name is used by the search of Lee and Lee(2000)
    3) Geographical Distribution

Distribution of national parks can be know by clicking on the map using computer.

4) Resources

Search is used for food, pharmaceutical, anti-cancer, toxine, culture, mycorhozal, rotten wood.

5) Ecological characteristics

It makes it possible to search mushrooms according to Broadleave, needle, mixed broadleave and needle, soil, humid and in deatiled rotten wood, fallen leaves, fallen tree. Also habitaion of mushrooms is used with solitary, clustered
and cespitose for search

6) Illustrated color books

It makes it possible to search using published books with author, cooporation, published year, diversity.

4. Object of DB

In 2000 year, DB of total 1000 species were constructed with 2000 pictures,spores and basidia. Nothern Korean mushrooms will be constructed with 1000 species until 2003 year. Therefore DB of mushrooms in Korean(cotained northern Korea) will be constructed with 2000 species.

5. DB of Mushrooms in future

1) Contribution to people : original picture and information of mushrooms

2) Information of Mushrooms : useful information from primary school student to specialist

3) Industry : Mushrooms are used material of food and pharmacy

4) Public using : DB contributes people who do not know about mushroom in the view of general, so they can like mushrooms.

5) Prevent from poisonous mushroom : A lot

people know about characteristics of poisonous mushroom.

6) DB of North Korea Mushroom : To prevent confusion between two countries for examples, scientific glossary, description of mushroom.

6. Final Object of DB

1) English : All over the world service

2) Exchange information : Scientific exchange was contributed to the countries

3) Convenient DB : All people are used convenient

4) Center of world : Information of mushrooms in the world are collected in Korea

IV. CONCLUSIONS

1. Diversity of Mushrooms in Korea : It is possible to know the diversity in Korea

2. Identification of mushrooms : Many people know about characteristics of mushrooms

3. Contribution of national industry : Information can bo provided all kinds of industries.

4. Development of medical-pharmacy : Mushroom is used materials of new antibiotic.

5. Food resources : Mushroom contributes national health.

6. Contribution of national economy : It is not necessary to import foreign mushroom.

7. Information exchange : DB of mushroom to foreign contributed.

8. Reduction of unification cost : It helps to prevent people confusing from learn exact name, glossary, description.

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