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MPB 3.1: A Useful Medicinal Plants Database of Bangladesh

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ABSTRACT:

Bangladesh is rich with medicinal plants that have been used for centuries in traditional medicine to treat human disease. A comprehensive online database of the medicinal plants in Bangladesh will enable computational approaches towards natural product-based drug discovery. MPB 3.1, a manually curated database of 1208 species of medicinal plants in Bangladesh. This database provides the information respectively scientific name, family, growth habit, used plant parts, and medicinal uses of plants in Bangladesh. Database: https://www.natureinfo.com.bd/mpb

Keyword: *Medicinal plants, Database, Therapeutic uses, Bangladesh.*

INTRODUCTION:

Plants contain an enormous number of active compounds with important pharmacological properties, and their extracts are used for treating various diseases from the earlier period. Medicinal plants are valued as a crucial natural source for the invention and development of the latest drugs and therapeutics [1]. Consistent with estimates, about 75% of the world's population, especially residing within the developing countries use plants as a source of folk medicine for his or her primary health care needs [2]. According to Marinelli estimation in 2005, there are 422,000 plant species available worldwide, out of these 50,000–80,000 flowering plants getting used medicinally. [3].

Bangladesh is a tropical country, it has a very rich diversity of plant species in a wide range of ecosystem compare with its small geographic size. There are about 5000 plant species, of which approximately 1500 plant species are expected as medicinal based on literature survey. Till now 747 plants were listed as medicinally important [4].

Bangladesh is well known for its practice of traditional medicine and ethnopharmacology [5-9]. Till now traditional knowledge of medicinal plants in Bangladesh was limited within book and article, though recently some articles are available online but books are not found. The non-digital nature of this information limited their effective use towards new drug discovery. So, digitization of this knowledge into a comprehensive database of medicinal plants in Bangladesh will enable researchers to apply computational approaches towards drug discovery. India already developed so many medicinal plant databases, China also have established online database for traditional Chinese medicine which includes the therapeutic uses for more than 6000 Chinese medicinal plants[1, 10-17]. Therefore we have built a manually curated database MPB 3.1, containing 1208 medicinal plant species of Bangladesh.

METHODOLOGY

Literature Investigation: To retrieve data, over 500 kinds of literature (published in international and local journals until 2019) were checked claiming information regarding any medicinal values of Bangladeshi plants around the country. The goal of the MPB 3.1 database is to compile ethnopharmacological information on the medicinal plants of Bangladesh. Towards this goal, we manually compiled the medicinal (therapeutic) uses of medicinal plants in Bangladesh from books and published articles in the different journals [18-38].

Database Preparation: To construct MPB 3.1 database, the compiled and curated data was integrated using MySQL (https://www.mysql.com/), a relational database management system that serves as a back-end for resource. The web interface for the database was built using Wordpress (https://wordpress.org), a PHP-based content management system hosted on the Apache server with the MySQL database in the back-end. Users can browse index or query this database easily using any keyword (Fig. 1).

Query Mechanisms: MPB 3.1 offers two different access and search mechanisms: simple query, and browsing.

Search: The simple Search allows searching the whole database for one or more terms in a Google search engine-like manner. In the case of hits, the results are presented as a summary. As this database belongs to www.natureinfo.com.bd domain, it might be user get confused to see the search result. Don't worry; you can browse by index in that case.

Browse by Index [A-Z]: The MPB 3.1 query functionality provides an alphabetical browsing mechanism as the easiest way to gain a first insight into the content of the database. By clicking the demanded letter in the alphabetical strip on top of the browsing site, the user will see the plant list and short information about each plant species along with medicinal uses. We recommend the users to use Browse by Index [A-Z], it is more effective to find out desire information.

Access to this database is free of charge. The content of the database is designed in such a way that scientific users and researchers can benefit.

Figure 1: Screenshot from the web interface on the Medicinal Plants of Bangladesh (MPB 3.1).

CONCLUSION

In Bangladesh, two medicinal plant database information found, one is MPDB 1.0 and another one is MPBD. MPDB 1.0: a medicinal plant database of Bangladesh contains 406 medicinal plants information, but right now not available online [39]. Another website named MPBD is providing information about the beneficial effects of Bangladeshi 900 plants, but some plants are not found in our checklist and Flora of Bangladesh [40-50] as well as some plant information provided in duplicate number. MPB 3.1 includes 1208 medicinal plants using information which is the largest number till now compared with the MPDB 1.0 and MPBD. MPB 3.1 database is completely customized based on the search engine whereby putting any keyword users can find all the related information. In conclusion, the MPB 3.1 database will serve as a valuable resource in herbal drug discovery. This database finds utility to the scientific community for a quick review regarding plants for medicinal plant research and provides enormous scope for the development of herbal drugs using ethnopharmacological information.

Future development: We have a plan to refine and keep updating this database, hopefully, an individual domain will be dedicated to MPB 3.1 in near future, and also increase the number of medicinal plants in Bangladesh through literature survey. Advanced search and retrieval features will also be added to enhance the usability of the web interface in the future.

Conflict of interest: Authors declared that there is no conflict of interest.

Disclaimer: The uses of medicinal plants described in this database are not recommendations, and the authors are not responsible for any liability arising directly or indirectly from the use of information on this website. We sincerely hope that this database will be useful to the people who are interested in the medicinal plants of Bangladesh. Contents of this site are intended for reference and informational purposes only. No content is intended to constitute any medical treatment recommendation. If you think you may be suffering from any medical condition, you must look for immediate medical attention. You should never delay seeking medical recommendation, disregard medical recommendation, or discontinue medical treatment attributable to any data on this web site. Healthcare professionals like Traditional healers and Herbalists are expected to rely on their professional knowledge.

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