

Unit 7: Identification process in Plant systematic

Botanical gardens (cont...)

- **Roles of Botanical Garden**
- **Important Botanical Gardens of the World and India**

A botanical garden is an area set aside and maintained by an organization for growing various groups of plants for study, aesthetic, conservation, economic, educational, recreational and scientific purposes. Botanical gardens also include herbarium, research laboratories and collection of photographs, paintings, illustrations, reprints, etc.

Roles of Botanical Garden:

- 1. Aesthetic and recreation:** Botanical Garden attracts a large number of visitors for observation of general plant diversity and provides aesthetically pleasing environment.
- 2. Provide material for botanical research:** Botanical gardens generally have a wide range of species growing together and offer ready material for botanical research.
- 3. On-site teaching:** Botanical gardens can be used for self-instruction or demonstration. They serve as research centres in various fields, and facilitate taxonomic studies by preserved and live plants. Botanical gardens also provide valuable information on various plants, local flora, bonsai, rare plants etc.
- 4. Supports Integrated research projects:** Botanical gardens with rich living material can support broad-based research projects which can integrate information from diverse fields as anatomy, embryology, phytochemistry, cytology, physiology and ecology.
- 5. Conservation:** Role in conserving genetic diversity and also in conserving rare and endangered species.
- 6. Seed exchange:** Supply of seed or planting material for research.
- 7. Herbarium and library:** Several major botanical gardens of the world also have herbaria and libraries which offer taxonomic material for research at a single venue.
- 8. Public services:** Botanical gardens provide information to the general public on identification of native and exotic species and methods of propagation and also supply plant material through sale or exchange.

Major botanical gardens of world:**Royal Botanic Gardens, Kew** (More popularly known as '**Kew Gardens**):

Finest botanical garden and botanical research and resource centre in the world. The garden has a Research and Educational excellent herbarium and library. Originally the garden covered an area of 120 ha. The living collections at Kew are most diverse with 351 families, 5465 genera and over 28,000 species growing successfully.

Kew Herbarium, undoubtedly the most famous herbarium of the world, maintains over 6 million specimens of vascular plants and fungi from every country in the world. There are over 275,000 type specimens as well.

The library at Kew is very extensive with over 750,000 books and journals a resource for all Kew's research work.

Kew Bulletin and *Index Kewensis* are its two continuing premier publications. Kew maintains databases on plant names, taxonomic literature, economic botany, plants for arid lands and on plant groups of special economic and conservation value.

Missouri Botanical Garden, USA: Considered one of the top three botanical gardens in the world, the Missouri Botanical Garden is a National Historical Landmark and a centre for botanical research, education and horticultural display.

The garden covers 79 acres and operates the world's most active tropical botany research programme. The Garden plays a leading role in strategies of conservation and sustainable living. The garden is known for its **Climatron®** conservatory, a geodesic greenhouse dome with climatic control, supporting a vibrant tropical rainforest. It also has a **Japanese Garden**. The Missouri Botanic Garden is one of the world's leading research centres for botanical exploration and research, with nearly 25 major flora projects. The information is shared via website **TROPICOS**, the world's largest database, containing more than 920,000 scientific plant names and over 1,800,000 specimen records.

New York Botanical Garden, USA: The New York Botanical Garden has remarkable diversity of tropical, temperate, and desert flora. The Garden is also a major educational institution for visitors, teachers and school children. It operates one of the world's largest plant research and conservation programme, including researchers, scientists working in the Garden's state-of-the-art and molecular labs as well as in the field.

Major botanical gardens of India

Acharya Jagadish Chandra Bose Indian Botanic Garden, Kolkata, West Bengal:

It is previously known as **Indian Botanic Garden** is situated in **Shibpur**, near **Howrah**. They are commonly known as the **Calcutta Botanical Garden**. The gardens exhibit a wide variety of rare plants and a total collection of over 12,000 specimens spread over 109 hectares. William Roxburgh, the Father of Indian Botany, was its second director and founded the world famous herbarium of this garden. It is under Botanical Survey of India (BSI) of Ministry of Environment and Forests, Government of India.

Lloyd Botanic Garden, Darjeeling: Lloyd Botanic Garden, Darjeeling was established as a branch of the Royal Botanic Garden, Kolkata. This garden is spread in an area of 40 acres and situated at an elevation of about 6,000 feet in eastern Himalayas. It has collection of indigenous plants of Sikkim Himalaya, and separate sections of coniferous and species from Burma, China and Japan.

Lalbagh Botanical Garden, Bengaluru: Lalbagh also called Mysore state botanical garden is a historic garden known for its best layout, maintenance, and scientific interest. It has played a role in development of horticulture in India by extensive plant introduction. Later many exotic species were introduced in this garden. This garden is well known as horticultural centre with well-equipped laboratories for seed-testing and soil-testing, and also a grape orchard, tree nursery, fruit nursery, pot-garden, economic garden, and a herbal garden.

National Botanical Garden, Lucknow, Uttar Pradesh

This is popularly known as Sikander bagh. It was converted into a Botanical garden in 1946 by its first director Prof. K.N. Kaul. This garden is situated at the bank of Gomati river. Popular attractions of this garden are its Rosarium, Palm house, Cactus house, Fern house, Orchid house, and orchards of mango, citrus and guava. It has well-equipped laboratories of Plant Morphology, Aromatics, Cytogenetics, Plant breeding and Tissue culture.

Book to be referred for this topic: **Singh, G. (2012).** *Plant Systematics: Theory and Practice.* **Chapter#5** (Process of Identification)