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BOTANICAL GARDEN OF INDIA
AND ABROAD

Content Page =>

<u>Topic</u>	<u>Pg. No.</u>
Defination of Botanical Garden	1
Importance of Botanical Garden	2
Indiam Botanical Garden	3-11
Botanical Garden in the Abroad	12-15
Arboretum Defination	16
List of Arboretum in world and Some of Description	17-19
Herbarium Defination	20
Importance of Herbaria	21
Indian Herbarium	22
Important Herbarium in the World	23
Defination of Acronym	24
Conclusion	25
Reference	26

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(1)

(1) Defination of Botanical Garden ⇒
Botanical garden is an establishment where plants are grown for scientific study and display to the public.
Botanical garden, also called botanic garden, originally, a collection of living plants designed chiefly to illustrate relationships within plant groups.... A display garden that concentrates on woody plants (shrubs and trees) is often referred to as an arboratum.
This is also a garden for the exhibition and scientific study of collected, growing plants, usually in association with greenhouses, herbariums, laboratories etc.

(2)

<2> Importance of Botanical Gardens ⇒

(i) Taxonomic Studies :- Botanical gardens provide valuable information on various plants local flora, bonsai, rare plants etc. They act as "outdoor laboratories" for students and researchers.

(ii) Botanical Research :- Botanical gardens supply wide range of plant species, seeds, flowers, fruits for botanical research.

(iii) Conservation :- Botanical gardens conserve and propagate rare species and genetic diversity.

(iv) Education :- They supply facilities for courses in local flora, horticulture, hybridization, plant propagation etc. These educational programmes include workshops, training sessions for teachers, students, naturalists etc.

(v) Aesthetics and Recreation :- They attract people who have made gardening their hobby.

(vi) Employment :- They create job opportunities for a large number of young botanists.

(3)

(3) Indian Botanical Garden =>



(i) Name => Acharya Jagadish Chandra Bose Indian Botanic Garden

(ii) Location => Shibpur, Howrah, near Kolkata.

(iii) Area => 109 hectares

(iv) Founder => Colonel Robert Kyd

(v) Plant Collections => Economic plants, medicinal plants, Palmae (109 spp.), Bambuseae (26 spp.), Orchidaceae (80 spp.) Pandanus, Bougainvillea (148 ~~spp.~~ cvs.), Citrus, Succulents (100 spp.), medicinal plants (450 spp.)

Brief Description of Acharya Jagadish Chandra Bose Indian Botanic Garden :-

The Indian Botanical Gardens are most famous for the Great Banyan Tree, which boasts of having the largest canopy in the world. The gardens were originally founded in 1786 by Colonel Kyd, containing about 12,000 living plants and over two and half million dried plant specimens in the herbarium collected from all over the world.

i) Lalbagh Botanical Garden =>

(ii) Location => Bengaluru, Karnataka

(iii) Area => 240 acres

(iv) Founder => Hyder Ali

(v) Plant => Amherstia Nobilis, Adansonia digitata, Ficus bengalensis var Krishnao, Anacardium Cookie, Bombax Ceiba and Dillenia Indica.

Brief Description of Lalbagh Botanical Garden =>

1. The garden was constructed over hundreds of years by several people. What started out as a passionate project for the ruler of Mysore - Hyder Ali - was later developed into a horticultural research centre by his son - Tipu Sultan.

2. The name Lalbagh is derived from the original garden that was constructed by Hyder Ali, which was full of red rose. Lal refers to the overwhelming red roses that were spread throughout the property.

3. The garden was originally intended to be a private garden spread over 40 acres of land.

4. Lalbagh is the first botanical garden of its kind in India boasting of a geometrical structure, four entry and exit points.

5

- (i) Name \Rightarrow The Government Botanical Garden
- (ii) Location \Rightarrow Udthagamandalam, near Coimbatore (Ooty)
- (iii) Area \Rightarrow 55 hectares
- (iv) Founder \Rightarrow Government of Tamil Nadu
- (v) Plant \Rightarrow The gardens have around a thousand species, both exotic and indigenous, of plants, shrubs, ferns, trees, herbal and bonsai plants. In the centre of the gardens lie a fossilized tree trunk estimated to be 20 million years old. The gardens consist of several lawns with flowering plants, a variety of medicinal plants.
- (vi) Brief Description of The Government Botanical Garden \Rightarrow

The Government Botanical Garden is a botanical garden in Udthagamandalam, near Coimbatore (Ooty), Tamil Nadu state, India laid out in 1848. The gardens, divided into several sections, cover an area of around 55 hectares, and lie on the lower slopes of Doddabetta peak. The garden has a terraced layout. It is maintained by the Tamil Nadu Horticulture Department.

(6)

THAU Botanical Garden, Coimbatore

Tamil Nadu Agriculture University is situated in Coimbatore and maintains this huge 900 Acres Botanical Garden called TNAU Botanical Garden. There are so many varieties of plants and trees and each species is labeled with its common name as well as scientific name.

Tourists are allowed inside and it is very very green all over the place. They also have certain plants in incubators where the conditions (temperature etc) are ^{is} regulated for their growth. They also maintain a nursery where they not only sell plants but helps people with technique of plant husbandry, organic pesticides etc. Once you are inside it's a forest, and you ought to be careful with the big type of mosquitoes and ants there are present. They conduct plant / flower shows once in a year where about a lakh of people visit to see various plants and flowers grown in house as well as the ones imported for the event.

(7)

It is known for —

- 1) TNAU Botanical Garden is spread over 300 acres of land and has different plants and trees in its activity.
- 2) This garden is also equipped with the various incubators for growing the non-seasonal plants.
- 3) This garden also educates the guests with the different types of species as well.
- 4) The lush green surroundings also serve as a spot for spending leisure time.

(8)

The Agri Horticulture Society of India, Alipore, Kolkata

In 1820, Rev. Dr William Carey founded the Agri Horticulture Society of India, the oldest institution of its kind in the country.

William Carey was a distinguished Orientalist and botanist. He was encouraged and supported by the Governor-General of India, the Marquis of Hastings, who was also the first patron of the society. Thus this natural heritage site has a 200 years old history.

The society is more in the promotion and development of agriculture and horticulture in the country remains unparalleled. It acted as India's de facto Department in the government machinery. It was Rev. Carey who brought extinct species of plants and nurtured them in the society's garden. He also brought maize, cotton, tea, from different countries and installed plantation habits in different parts of the country.

(9)

• Collection:- In horticulture, several species and varieties arising from hybridisation or mutations are named after Lamcaster and his family.

- A few notable ones are -

- Acalypha lamcasteni

- Antigonon lamcasteni

- Cynum lamcasteni

- Panax lamcasteni

This garden has flower garden, a research laboratory & library. a massive collection of plants and flowers. It has a significant collection of botanical varieties, including Cannas, a large variety of ferns and medicinal plants and thousands of fruit and flowering plants and trees.

(10)

National Botanical Research Institute (NBRI), Lucknow

The National Botanical Research Institute (NBRI) is a research institute of CSIR in Lucknow. It is engaged in the field of taxonomy and modern biology.

Originally conceptualised and set up as the National Botanic Gardens (NBG) by professor Kailas Nath Kaul on behalf of the state government of Uttar Pradesh, it was taken over by the CSIR in 1953. Dr. Triloki Nath Khoshoo joined in 1964 as the Assistant Director, shortly afterwards becoming the Director. Initially engaged in research work in the classical botanical disciplines, the NBG went on laying an increasing emphasis in keeping with the national needs and priorities in the field of plant science, on its applied and developmental research activities. Due to the untiring efforts of Dr. Khoshoo, the institute rose to the stature of being the National Botanical Research Institute in 1978, reflecting the correct nature and extent of its aims and objectives, functions and R & D activities. Sikandar Bagh is a famous and historic pleasure garden, located

(11)

In the grounds of institute .

-NBRI developed a new variety of -
bougainvillea named Los Banos Variegata - Sayanthi.

(12)

Botanical Garden in The World (Abroad)

- (i) Name \Rightarrow Royal Botanic Gardens, Kew
- (ii) Location \Rightarrow London Borough of Richmond upon Thames, England.
- (iii) Area \Rightarrow 121 hectares
- (iv) Founder \Rightarrow Henry, Lord Capell of Tewkesbury.
- (v) Plant \Rightarrow Kew Gardens has one of the most diverse collections of living plants of any botanic garden in the world. Callistemon citrinus, the bottlebrush plant, Discover plants, Filices, Palmae, Liliaceae, Araceae.
- (vi) Brief Description of the Royal Botanical Garden \Rightarrow Kew Gardens, London's largest UNESCO World Heritage site, is the perfect-escape from the hustle and bustle of the city. Home to the world's most diverse collection of living plants and a scientific research centre of international renown, it's the perfect day out.

Discover beautiful glasshouses including the iconic palm House and its exotic rainforest; the Princess of Wales Conservatory which invites you to explore 10 of the world's climatic zones; and the Waterlily House with its amazing, giant-lily pads.

(13)

visitors of all ages love the 59 ft (18m).
Its board of trustees is chaired by Dame Amelia Fawcett.

(14)

- (i) Name \Rightarrow Longwood Gardens.
- (ii) Location \Rightarrow Kennett Square, Pennsylvania, United States
- (iii) Founder \Rightarrow
- (iv) Area \Rightarrow 1,077 acres
- (v) Plant \Rightarrow Australia Collection, Bonsai and Penjing Collection, Boxwood Collection, Camellia Collection, Chrysanthemum Collection, Du Pont Legacy Collection, Fern Collection, Holly Collection, Lilac Collection, Magnolia Collection, South African Collection, Oak Collection, Orchid Collection, Peixes's Tree Collection, Victoria Collection, Waterlily Collection.

(vi) Brief Description of Longwood Gardens \Rightarrow

Longwood Gardens is an American botanical garden. It consists of over 1,077 acres (436 hectares; 4.36 km²) of gardens, woodlands and meadows in Kennett Square, Pennsylvania, United States in the Brandywine Creek Valley. It is one of the premier horticultural display gardens in the United States and is open to visitors year-round to enjoy native and exotic plants and horticulture.

- (i) Name \Rightarrow The Montréal Botanical Garden
- (ii) Location \Rightarrow 4101, rue Shenbrook Est.
- (iii) Founder \Rightarrow Comte Frédéric Marie Victoirin
- (iv) Area \Rightarrow 75 hectares
- (v) Plant Collections \Rightarrow Cacti, succulent plants, herbs plants, alpine plants, exotic plants, medicinal plants, ferns, bonsai, other plants like azooids, bromeliads, gesneriads and orchids.

Brief Description of The Montréal Botanical Garden \Rightarrow

It is founded in 1936 by Marie-Victorin, One of the greatest of Canadian botanists. This garden has 20,000 plant species and cultivars under cultivation and maintains a herbarium consisting of nearly 100,000 reference specimens of the garden's many greenhouses. Major activities of the garden is

Butterflies on free (winter-spring), The great Gardening Weekend (late May), The magic of Lanterns (autumn), The great Pumpkin Ball (autumn), Rose Garden, Alpine Garden, Flowery Brook, Exhibition Gardens, Exhibition Greenhouses.

■ Definition of Arboretum =>

It is a place where trees, shrubs, and herbaceous plants are cultivated for scientific and educational purpose. An arboretum in a general sense is a botanical collection composed exclusively of trees.

More commonly a modern arboretum is a botanical garden containing living collections of woody plants and is intended at least in part for scientific study.

An arboretum specializing in growing conifers is known as a pinetum. Other specialist arboreta include saliceta (willows), populeta (poplar), and querceta (oaks).

The term arboretum was first used in an English publication by John Claudius Loudon in 1833 in *The Gardener's Magazine* but the concept was already long-established by then.

List of Arboretum in World : —

- | <u>Name</u> | <u>Location</u> |
|-------------------------------------------------|------------------------------------------------------------|
| <1> Arnold Arboretum | Boston, Massachusetts . |
| <2> The Morton Arboretum | United States |
| <3> University of Wisconsin - Madison Arboretum | Seminole Hwy, Madison, WI 53711, United States . |
| <4> Washington Park Arboretum | Seattle, WA 98112, United States . |
| <5> Scott Arboretum of Swarthmore college | 500 College Ave, Swarthmore, PA 19081, United States |
| <6> The Holden Arboretum | 9550 Sperry Rd, Kirtland, OH 44094, United States . |
| <7> Hoyt Arboretum | 4000 SW Fairview Blvd, Portland, OR 97221, United States . |

1) Name => Arboretum Tree Garden

Location => Ooty

Brief Description => This garden was laid out in 1897 by the Marquis of Tweeddale and it spread over 55 acres. Lush green, well maintained lawns, scarce trees species (like the cork tree which is probably the only such tree in India, the paper bark tree and the monkey puzzle tree - monkeys cannot climb this tree), a 20 million year old fossilized tree, an Italian-style garden bordering a clear pool, a vast variety of flowering bushes and plants in myriad hues (exotic and ornamental), fern house with a vast range of ferns and orchids, are some of the many highlights of this garden. A flower show along with an exhibition of rare plant species is held every year in month May at this garden.

(A)

Name => Lloyd Botanical Garden

Location => Chauk Bazaar, Darjeeling, West Bengal

Area => 16 hectares

Collections => The Darjeeling Botanical Garden preserves several species of bamboo, oak, mangolia, arisaema, contoneaster, wild geranium and rhododendron - forest native plants of the Darjeeling Himalayan Hill region, Sikkim region.

Brief Description => Lloyd's Botanical Garden was established in 1848 when 40 acres of land was acquired at Darjeeling of the Calcutta Botanical Garden. The land was provided by William Lloyd, in whose name the botanical garden has been named.

Herbarium \Rightarrow A herbarium is a collection of pressed and dried plant specimens, mounted on sheets leaving a label, arranged according to a sequence and available for reference or study. The mounted plants are labeled with their name of the collector, and usually, information about where they were collected and how they grew and general observations.

The importance of herbaria :-

■ The sheets from herbaria have more than taxonomic importance. They have been used to look at aspects of physiological ecology. As mentioned, specimens taken from the Cambridge herbarium have been used to examine how stomatal frequency has changed over the last 150 years.

■ The leaves of native trees in South East England now have 40% less stomatal pores than those collected at the turn of the Nineteenth Century. This seems to be a response to changing levels of carbon dioxide.

■ Detailed records and maps of the distribution of species over time can also be valuable in understanding how our flora is changing, the impact of invasive species and the possible effects of changing climate.

Indian Herbarium =>

1. Forest Research Institute, Dehradun.
2. Herbarium of the Indian Botanical Garden, Kolkata
3. Madras Herbarium, Agricultural college.
4. Herbarium of the division of botany,
Indian agricultural ~~research~~ research institute IARI,
New Delhi.
5. Herbarium of the national botanical garden,
Lucknow.

(29)

Important Herbarium in the World —

1. Museum of Natural History, Paris — 10 million
2. Royal Botanic Gardens, Kew — 6 million
3. Combined Herbaria, Harvard University, Cambridge
4. New York Botanical Garden, Bronx
5. Natural History Museum, Vienna — 3.5 million
6. Missouri Botanical Garden, Saint Louis . . . 2.1 million

❑ Acronym :- An acronym is a word or name formed from the initial components of a longer name or phrase, usually using individual initial letters as in NATO (North Atlantic Treaty Organisation) or EU (European Union). Similarly acronyms are sometimes pronounced as words as in NASA or UNESCO, sometime as individual letters as in FBI or ATH or mixture of two as JPEG or IUPAC.

The broader sense of acronym inclusive of term pronounced as the individual letters in sometime criticized, but it is the term's original meaning and is in common use.

• Major herbaria of the world, listed in the order of number of specimens with their acronym -

Herbarium	Acronym	No. of Specimen
1. Museum National d' Histoire Naturelle (Museum of Natural History) Paris, France.	P, PC	9,334,300
2. New York Botanical Garden, New York, USA	NY	7,000,000
3. Komarov Botanic Institute, Saint Petersburg (Formerly, Leningrad), Russia	LE	4,000,000
4. Royal Botanic Gardens, Kew, Surrey, UK	K	7,000,000
5. Missouri Botanical Garden, Saint Louis, Missouri, USA	MO	6,000,000
6. British Museum of Natural History, London, UK	BM	5,200,000
7. Combined Herbaria, Harvard University, Cambridge, Massachusetts, USA	A, FH, GH, ECON/AMES	5,000,500

❑ Conclusion:- Botanical gardens play an important role as the ex situ conservation for plant and also the in site conservation site. The conservation of plant diversity is critical for sustainable development of botanic gardens are playing a key role as centres of conservation action.

They conserve endangered-plant species through living collections as well as through seed bank, and they benefit pollinators like butterflies, honeybees, bats and birds which play an important role in the production of our crops and maintaining the health of other plant life.

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