India’s First Cryptogamic Garden

Why in News

Recently, **India’s first cryptogamic garden** was **inaugurated in the Chakrata town of Dehradun, Uttarakhand.**

> The garden will be housing nearly 50 species of lichens, ferns and fungi (*collectively known as Cryptogamae*).

Note:

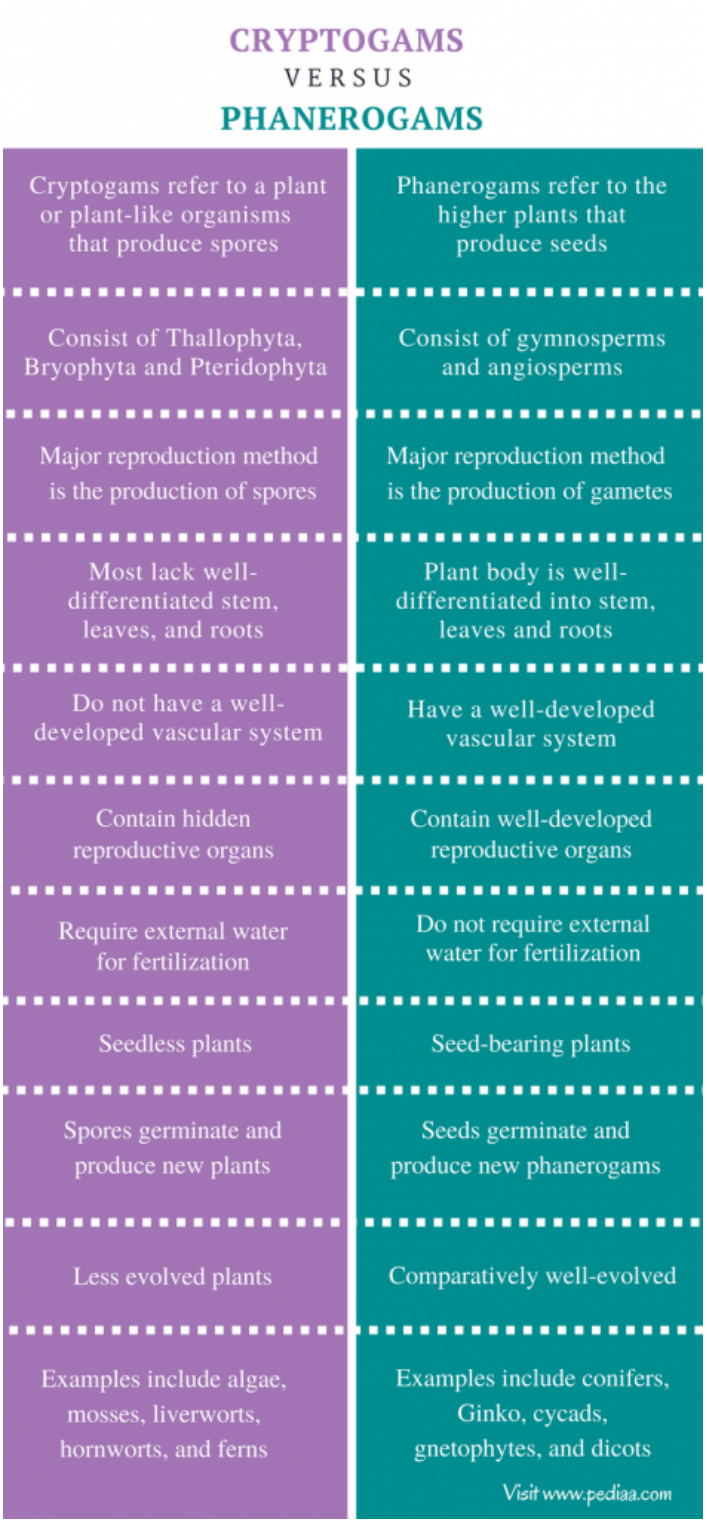
- **Plant kingdom** can be divided into two sub-kingdoms viz. **Cryptogams and phanerogams.**
- Cryptogams consist of seedless plants and plant-like organisms whereas phanerogams consist of seed-bearing plants.
  > Phanerogams are further divided into two classes i.e. **gymnosperms and angiosperms**.

Key Points

- **Factors Responsible for Location of this Garden:**
  - This garden is at Deoban in Chakrata at a height of 9,000 ft.
  - This site is chosen **because of its low pollution levels and moist conditions** which are conducive for the growth of these species.
  - Further, Deoban **has pristine majestic forests of Deodar and Oak** which create a natural habitat for cryptogamic species.

- **Cryptogams:**
  - A cryptogam is a **plant that reproduces with the help of spores.**
  - The word **"Cryptogamae" implies 'hidden reproduction'**, referring to the fact that they do not produce any reproductive structure, seed, or flower.
  - Due to this, they are called **"flowerless"** or **"seedless plants"** or **'lower plants'.**
  - They **need a moist environment** to survive.
  - These are **present in aquatic and terrestrial places.**
  - **Algae, bryophytes, lichens, ferns and fungi are the best-known groups** of cryptogams.
- **Classification of Cryptogams:** Cryptogams are classified into 3 groups based on the various structural and functional criteria of the plant.
  - **Thallophyta:** Thallophyta is a division of the plant kingdom including primitive forms of plant life showing a simple plant body. They **lack roots, stems, or leaves.**
    - It **includes algae-**like Spirogyra, Sargassum, etc.
    - They are predominantly aquatic and found both in marine as well as freshwater habitats.
  - **Bryophyta:** Bryophytes comprise a limited variety of **non-vascular land plants.** They prefer moist habitats but they can survive in dry environments too. Example- hornworts, liverworts, mosses, etc.
    - They occupy an intermediate position between algae and pteridophytes.
    - Since bryophytes can survive in both water and land, they are considered as the **'amphibians of the plant kingdom'.**
  - **Pteridophyta:** A pteridophyte is a vascular plant that disperses spores. It is the first plant to **have xylem and phloem.**

    Ferns are the largest living group of primitive vascular plants.
- **Other Types of Cryptogams:**
  - **Liches:** Lichens are a complex life form that is a **symbiotic partnership of two separate organisms, a fungus and an algae.**
  - **Fungi:** It is a kingdom of usually **multicellular eukaryotic organisms** that are **heterotrophs.**


CRYPTOGAMS
VERSUS
PHANEROGAMS
Cryptogams refer to a plant or plant-like organisms that produce spores
Phanerogams refer to the higher plants that produce seeds
Consist of Thallophyta, Bryophyta and Pteridophyta
Consist of gymnosperms and angiosperms
Major reproduction method is the production of spores
Major reproduction method is the production of gametes
Most lack well-differentiated stem, leaves, and roots
Plant body is well-differentiated into stem, leaves and roots
Do not have a well-developed vascular system
Have a well-developed vascular system
Contain hidden reproductive organs
Contain well-developed reproductive organs
Require external water for fertilization
Do not require external water for fertilization
Seedless plants
Seed-bearing plants
Spores germinate and produce new plants
Seeds germinate and produce new phanerogams
Less evolved plants
Comparatively well-evolved
Examples include algae, mosses, liverworts, hornworts, and ferns
Examples include conifers, Ginko, cycads, gnetophytes, and dicots
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