



# THIRUTHANGAL NADAR COLLEGE

(Belongs to the Chennaivazh Thiruthangal Hindu Nadar Uravinmurai Dharma Fund)

Selavayal, Chennai-51.

A Self-Financing Co-educational College of Arts & Science

Affiliated to the University of Madras

Accredited with 'B' Grade by NAAC

An ISO 9001: 2015 Certified Institution

**NAME OF THE DEPARTMENT: PLANT BIOLOGY AND PLANT  
BIOTECHNOLOGY**

**SUBJECT : GYMNOSPERMS, PALEOBOTANY & EVOLUTION**

**TOPIC : EXTERNAL STRUCTURE OF CYCAS**

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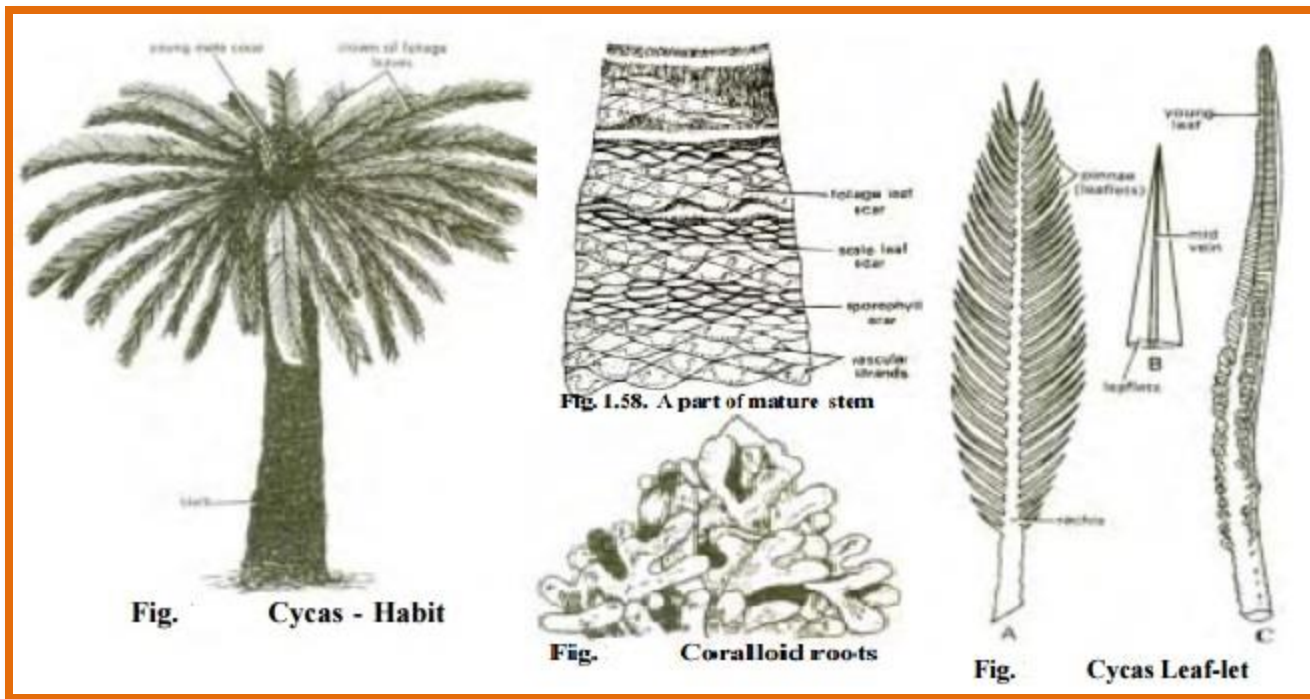
# Cycas – Habit



- It is an evergreen slow-growing palm-like small tree with an average height of 1.5 – 3 m.
- It is commonly found in xerophytic habitats, such as exposed slopes of hills, water scarce regions and grows under cultivation in gardens.

# Cycas – External structure

- The sporophytic plant body of Cycas is differentiated into roots, stem and leaves.



# Cycas - Root



*Cycas* Coralloid Root

There are two types of root in cycas:

1. Normal tap root and
2. apogeotropic coralloid roots.

## **Normal tap root**

Thick, short, positively geotropic and their main function is anchorage and absorption of water and mineral nutrients.

## **Coralloid roots**

Grow on the surface of the soil.

- They are repeatedly dichotomously branched and appear as coralline masses.
- A specific algal zone with colonies of *Anabaena* or other blue-green algae.



# Cycas - stem

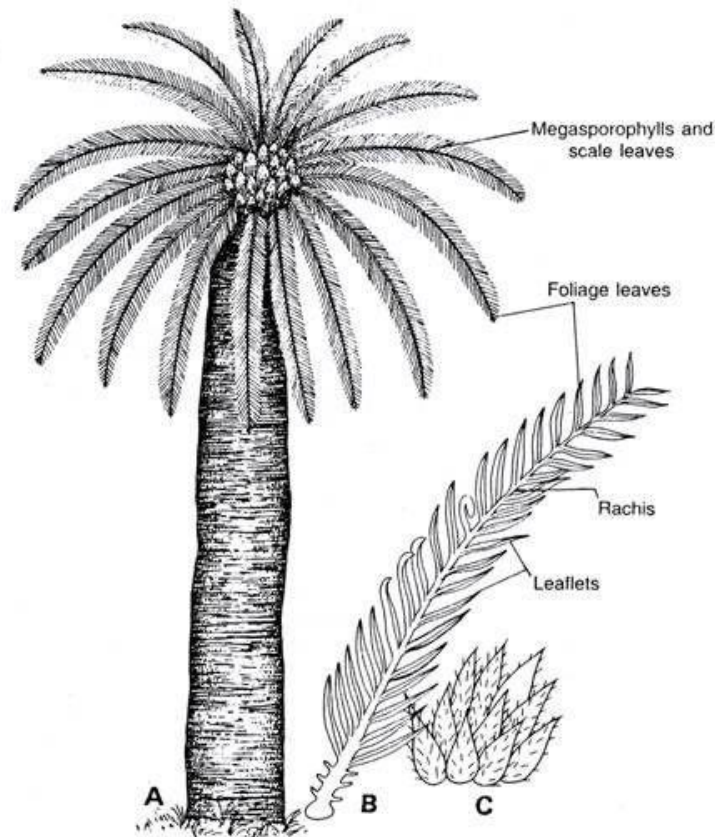
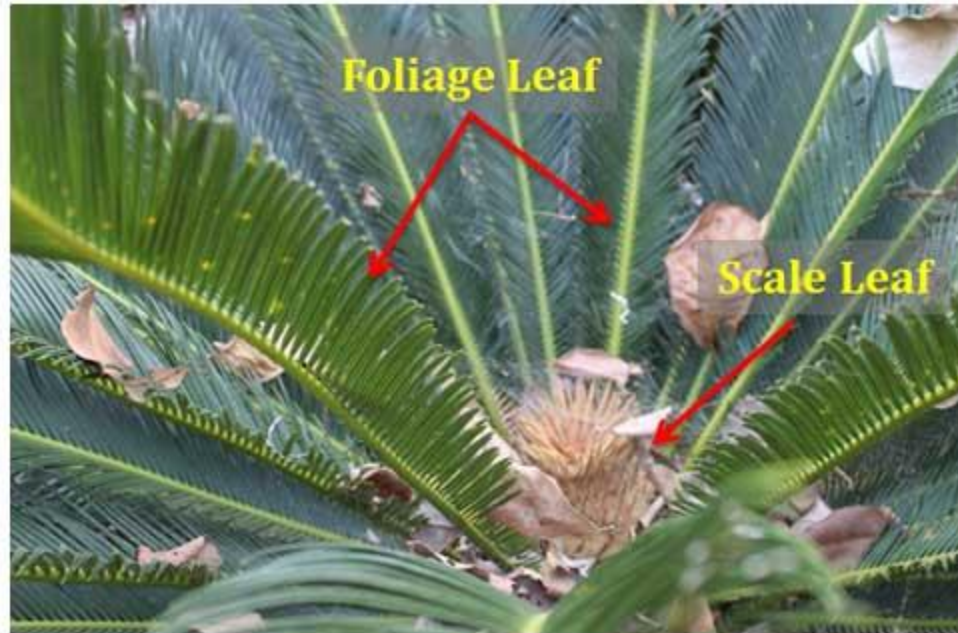


Fig. 3.6. *Cycas*. External structure. A, a female plant of *Cycas revoluta*; B, leaf of *C. revolute*; C, scale leaves of *C. revoluta*.

- The young stem is tuberous and subterranean and its apical part remains covered with brown scale leaves.
- In older plants the stem becomes thick, columnar and woody.
- It is covered with persistent and woody leaf bases.
- The stem is usually unbranched.

# Cycas - Leaf

- Cycas has dimorphic leaves – (a) foliage or assimilatory leaves, (b) scale leaves.



*Scale Leaves & Foliage Leaves of Cycas*

# Cycas – Foliage leaves



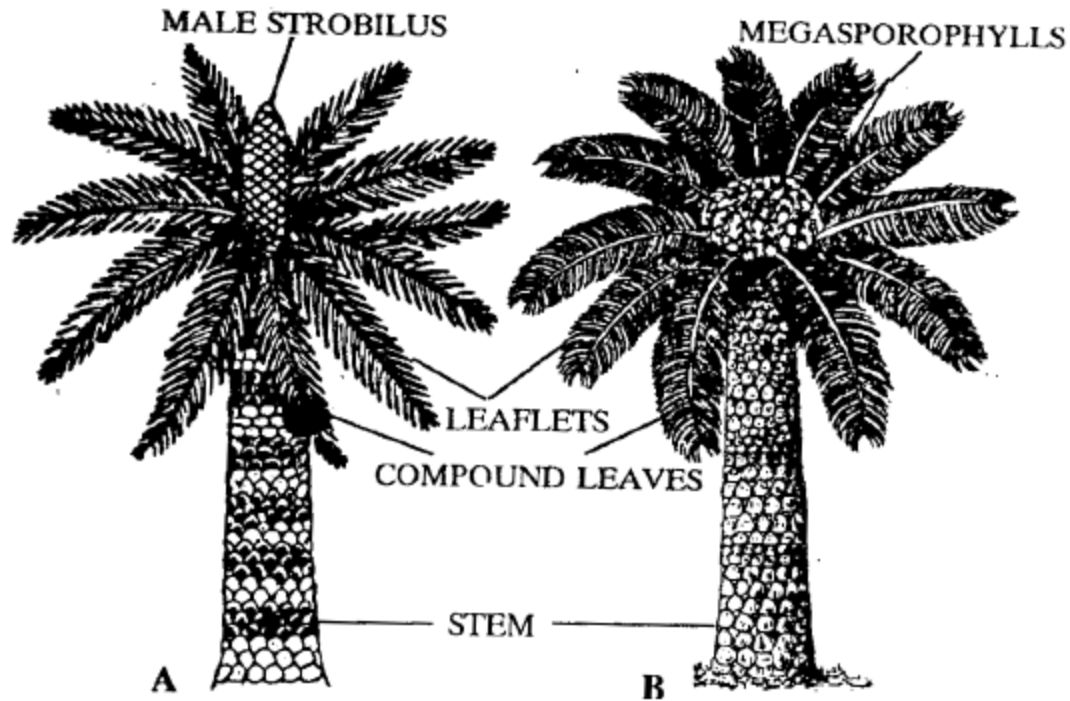
- Large, pinnately compound foliage leaves form a crown at the top of the stem.
- Each leaf has 80 – 100 pairs of leaflets which are arranged on both sides of the rachis in opposite or alternate manner.
- The leaflets are sessile, elongated and ovate or lanceolate with flat or revolute.
- The apex is acute or spiny.
- The leaflet has a single midvein, lateral veins are absent.

# Cycas – Scale leaves

- Scale leaves are small, rough, dry and triangular.
- Their main function is to protect apical meristem and other aerial parts.
- The scale leaves also has persistent leaf bases which form part of the armour of the old stem.



# Cycas (Dioecious plant)



**Cycas circinalis- A Male Plant B. Female Plant**

THANK YOU