

## Leaves Are Not Everything

Around 250 million years ago, at the beginning of the Mesozoic Era, a remarkable group of closely related plants appeared, although at first glance they hardly seem related at all. These are the gnetophytes, a group including tropical lianas of the genus *Gnetum*, the extraordinary *Welwitschia mirabilis* and ephedras. Because they do not produce true fruits, they are classified as gymnosperms. In evolutionary terms, they are more closely related to fir trees or ginkgoes than to daisies.

Species of *Gnetum* occur in tropical rainforests across the Americas, Africa and Asia. As their name suggests, most are climbing lianas, although some grow as trees. Among dense vegetation, they can easily be overlooked. They produce rather flat, inconspicuous leaves, and cones instead of flowers. The seeds of edible *Gnetum* species are used in tropical regions to make flour, while the leaves have long been used in traditional medicine.

You will encounter *Welwitschia mirabilis* later in the exposition. It is a truly extraordinary plant that has fascinated botanists for centuries and may well fascinate you too.

Ephedras are equally unusual plants. Their green stems resemble horsetails at first glance, while their leaves are greatly reduced, giving these shrubs a distinctly ancient appearance.

## Timeline

Beginning of the Palaeozoic Era – Cambrian	542 million years ago
<i>Cooksonia barrandei</i>	432 million years ago
<i>Lepidodendron</i>	353 million years ago
Gnetophytes	250 million years ago
Beginning of the Mesozoic Era – Triassic	252 million years ago
Age of reptiles (dinosaurs)	240 million years ago
Jurassic	201 million years ago
Cretaceous	145 million years ago
Beginning of the Tertiary – Palaeocene	66 million years ago
Beginning of the Quaternary – Pleistocene	2.6 million years ago

## ***Ephedra distachya***

Likely appeared on Earth around 250 million years ago.

Thrives in dry sandy soils in arid regions.

Can be found in both Americas, Africa, Asia and even Europe.

Its reduced scale-like leaves occur only at the stem nodes.

The plant has green, rod-like stems in which photosynthesis takes place.

A dioecious plant, with male and female cones growing on separate individuals.

Pollination is mainly wind-driven, although some ephedra species are pollinated by insects.

The seeds are surrounded by a fleshy red aril.

Contains a range of alkaloids used in medicine but also misused in the production of drugs.

In traditional medicine it was used to treat asthma, respiratory illnesses and allergies, although home use is strongly discouraged today.