

8. Give a detail account of Cordatales. Point out the affinities of the groups.

INTRODUCTION → The cordatales represent the most ancient and primitive group of Coniferosida. They appeared in the dawn and were at the peak of development during the carboniferous period of the Paleozoic era. They were succeeded by the Gninkgoales and Coniferates in the Mesozoic era. They are represented by several genera. These plants are an assemblage of fascinating plants. They reveal the historical background of the most dominant group of gymnosperm.

CLASSIFICATION → The order has been divided into 3 families.

Family - 1 - Cordaitaceae

Family - 2 - Eristophylaceae.

Family - 3 - Poroxylaceae.

STRUCTURE OF PLANT BODY → Plants of Cordatales were tall trees. They grew in dense stands. Plants were up to 30 meters in height and 65 cm in diameter. The branching was lateral and confined only to the top of the tree.

The leaves were petioled.

simple, stathulate or grass like with entire margin and acute apices. They were spirally arranged on the branches. The venation was parallel. The leaves shown considerable variation among the members of the families.

The root developed from the base of the stem and were repeatedly branched.

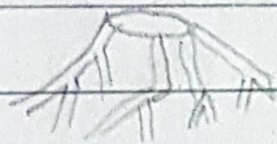
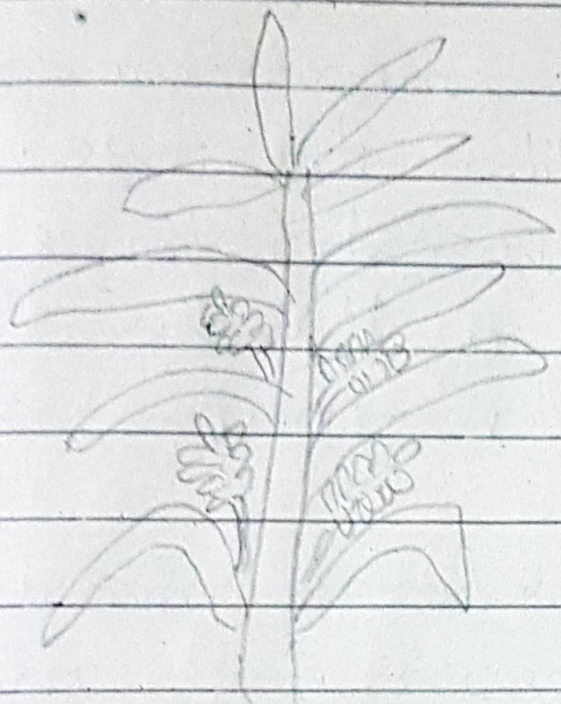
ANATOMY OF THE STEM → The stem had a large cortex with sclerenchymatous patches. The secretory sacs were also present.

The pith was wide. It has large air chambers, separated by diaphragms. The primary xylem forms a narrow zone around the pith and consist of large number of endarch protoxylem. The bundles were open.

Secondary growth formed a compact wood traversed by narrow or uniseriate vascular rays. The tracheids were long and narrow.

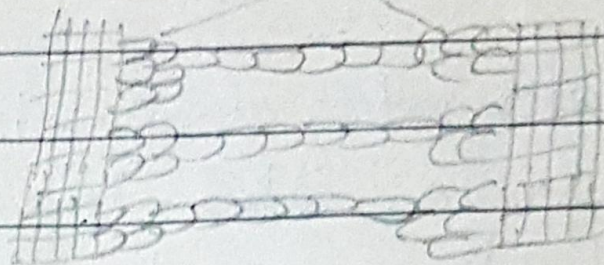
The phloem showed sieve tubes and phloem parenchyma.

The leaf bases were either single or double at the point of ovary from the primary vasculature.

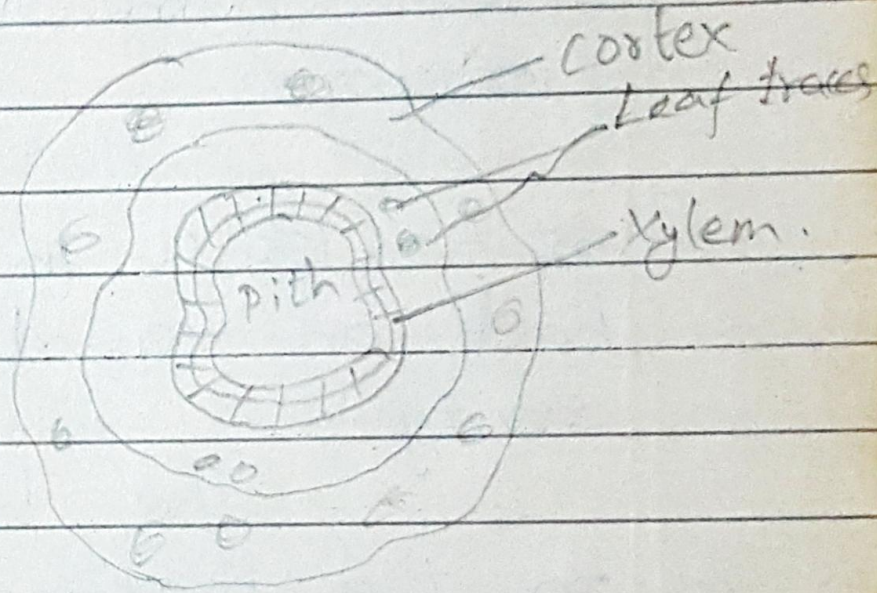


A reconstruction
of Cordiatales.

Discoid pith



Radial T.S of stem



T.S of stem of Mesoxylon
multicaule