Hello students, I'm Jyosna Gawas,

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Sanquelim. In this presentation I'm

going to discuss about anomalous

secondary growth in stem of *Bignonia*,

a subtopic under unit 3 - secondary

growth. In this presentation.

I'm going to discuss about anomalous

secondary growth, reasons for deviation in

the normal pattern of secondary growth,

overview of primary anatomical

structure of *Bignonia* stem

and anomalous secondary growth process

in *Bignonia* stem. At the end of

this module you will be able to

define anomalous secondary growth,

describe anomalous secondary

growth in *Bignonia* stem. Anomalous secondary growth is defined as a

deviation from normal pattern of

secondary growth occurring in plants.

It results in the formation

of secondary tissues.

These could be either vascular tissue or

in some cases the non vascular tissues.

The following are the reasons of

anomalous secondary growth.

Anomalous position of vascular cambium,

abnormal behavior of normal cambium.

successive cambium, included phloem,

presence of medullary bundles,

presence of cortical bundles,

intraxylary

phloem,

secondary growth in monocots and anomalous

primary growth. In *Bignonia* stem

secondary growth is showing deviation due

to abnormal behavior of normal cambium.

And this anomaly in *Bignonia* stem

is due to its climbing habit.

Such anomalous secondary growth is

called adaptive anomalous secondary

growth. In transverse section,

young stem of Bignonia is either

circular or wavy in outline

and shows the following parts.

The outermost is single layered

epidermis covered with a protective

layer called cuticle.

inner to the epidermis is cortex

which can be either parenchymatous

or it could be sclerenchymatous

in certain species or mixed

with parenchyma and sclerenchyma

together. The innermost layer

of cortex forms the endodermis.

followed by a layer of pericycle

and vascular bundles are arranged

in the form of a circle or ring

with pith in the center.

The vascular bundles are conjoint, collateral,

and open type. Secondary growth in *Bignonia*

stem starts with the formation of

interfascicular cambium in between vascular

bundles.

Fascicular and interfascicular cambium

joins together to form a cambial ring.

This cambial ring divides

to produce secondary vascular

tissues i.e. secondary phloem

towards the outer side and secondary

xylem towards the inner side.

Initially,

the cambial ring functions normally for a

short duration. Later at certain points

small amount of secondary xylem

is produced towards the inner side

and more amount of secondary phloem is

produced towards the outer side.

This phloem patches later on gets

embedded into secondary xylem As a

result of this activity of cambium,

a characteristic structure is

formed with ridged

and furrowed xylem cylinder.

As a result of this type of

anomalous secondary growth,

the cambium breaks into number of strips.

As secondary growth advances,

sclerenchyma bars will be

developed in the secondary phloem,

and due to the extra stelar

secondary growth or new protective

layer called periderm will be

formed outside the primary cortex.

To summarize,

the secondary growth in Bignonia stem.

there is formation of cambial ring,

which is a continuous structure

initially. As secondary growth advances,

secondary xylem produces

distinct ridges and furrows.

secondary phloem gets embedded into the

ridges of phloem, cambial strip break.

There is extra stelar secondary growth

occurring in the cortical region.

As a result,

cork is formed towards the.

Outer side of secondary cambium formed

in the cortical region and secondary

cortex towards the inner side of

Extra stellar cambium forming a

new protective layer that is called

as periderm in place of epidermis.

These are the list of references,

included to prepare this module.

With this I come to an end of this module.

Thank you for your attention.