

PTERIDOPHYTA CLASSIFICATION

ALABAMA
TRACHEOPHYTE

PSILOTALES

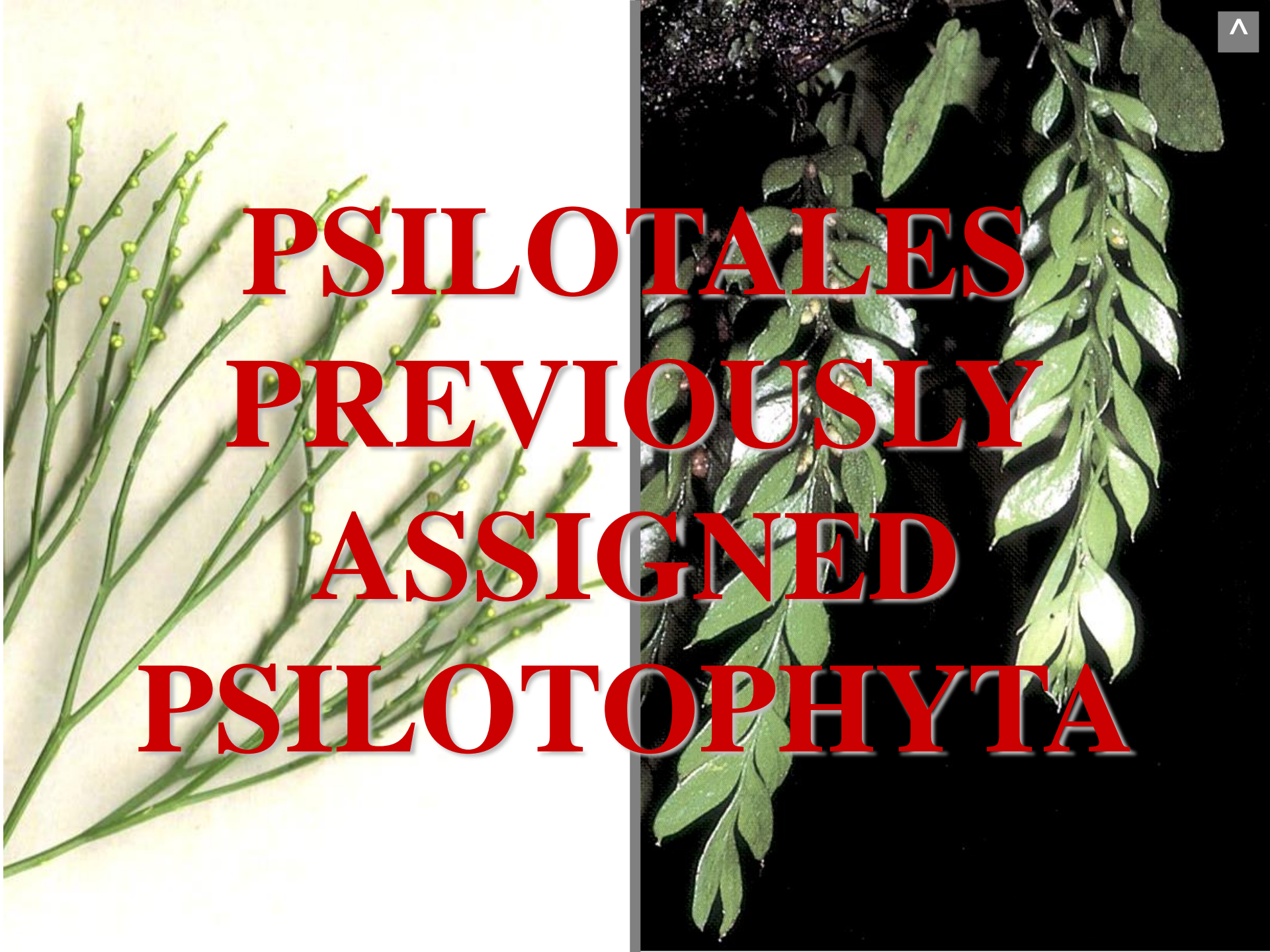
ALABAMA
TRACHEOPHYTE



**PSILOTALES
RECENTLY
RECOGNIZED
FERNS**



**PSILOTALES
PREVIOUSLY
ASSIGNED
PSILOTOPHYTA**



SYNONYM



PSILOTOPHYTA



COMMON NAMES



PSILOPHYTES





WHISK FERNS

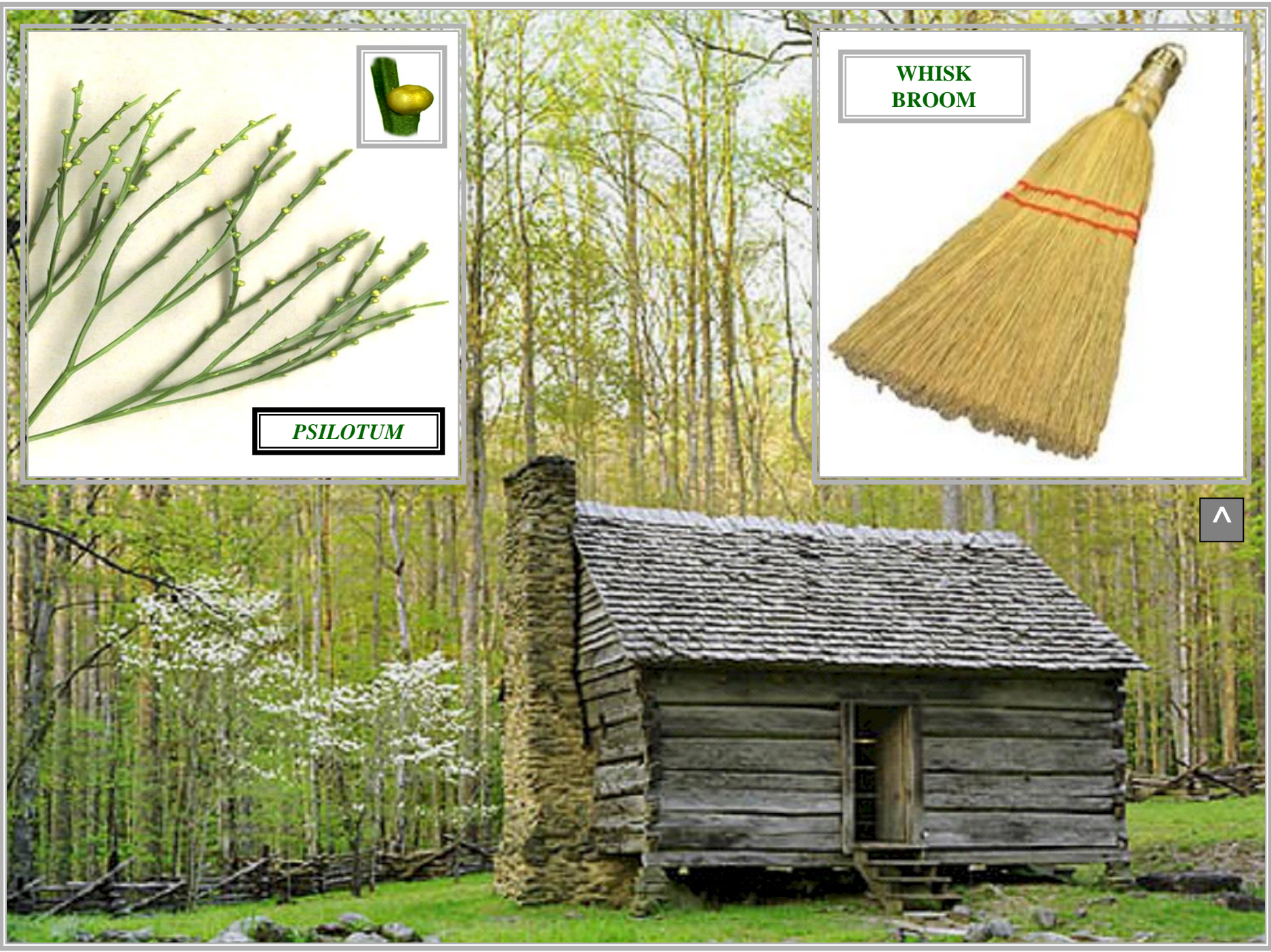




PSILOTUM



**WHISK
BROOM**



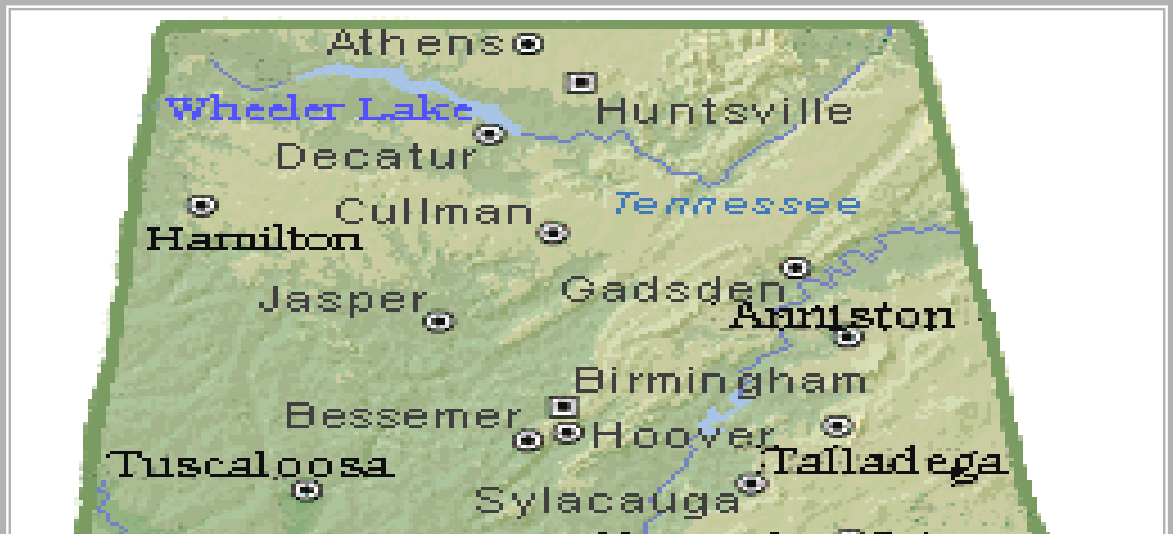


DIVERSITY



~12 SPECIES

EARTH



1 SPECIES





PSILOTALES
VERY MINOR
COMPONENT
ALABAMA FLORA



REPRESENTATIVE GENUS



P

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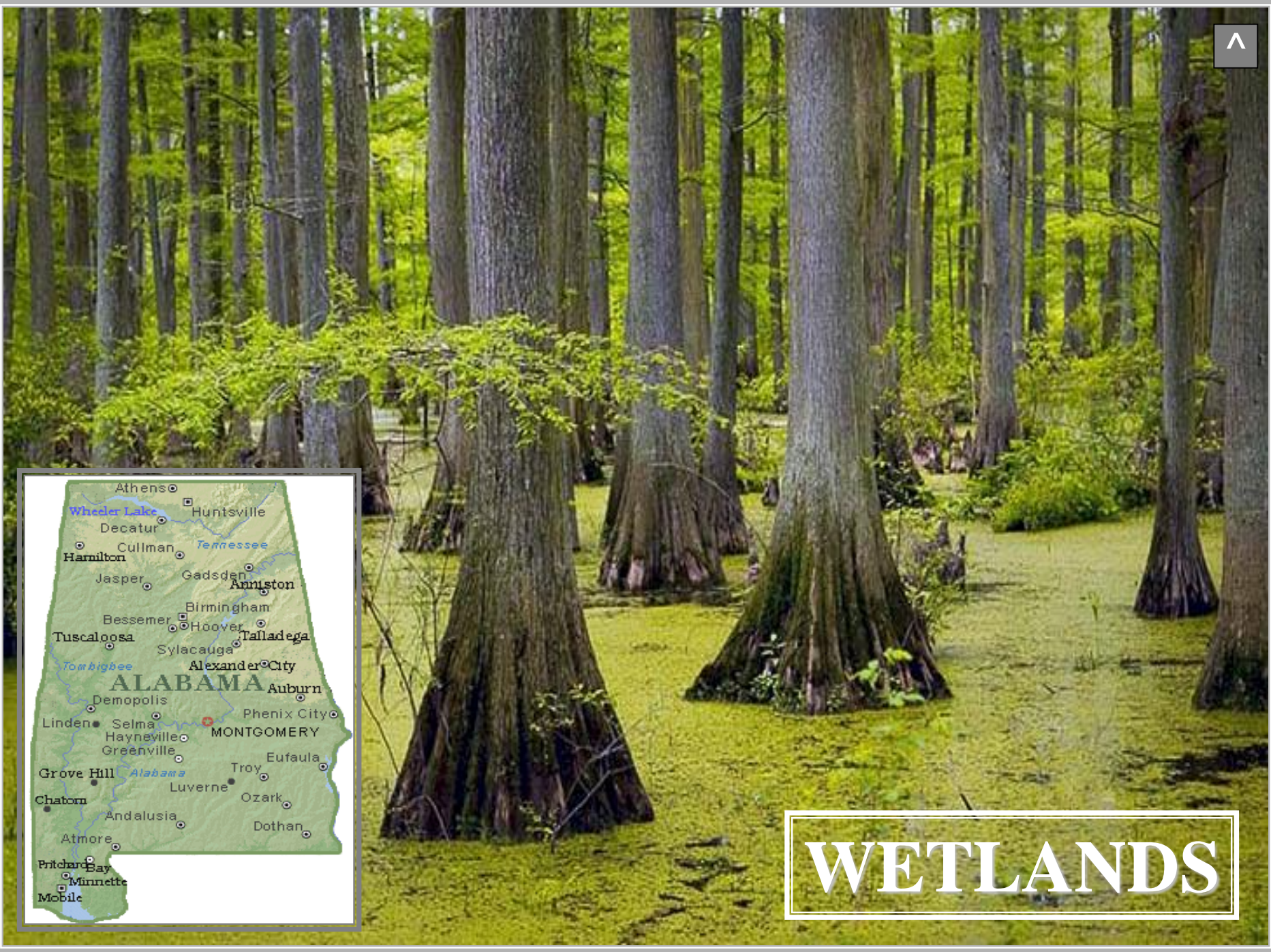


PSILOTUM

HABITAT



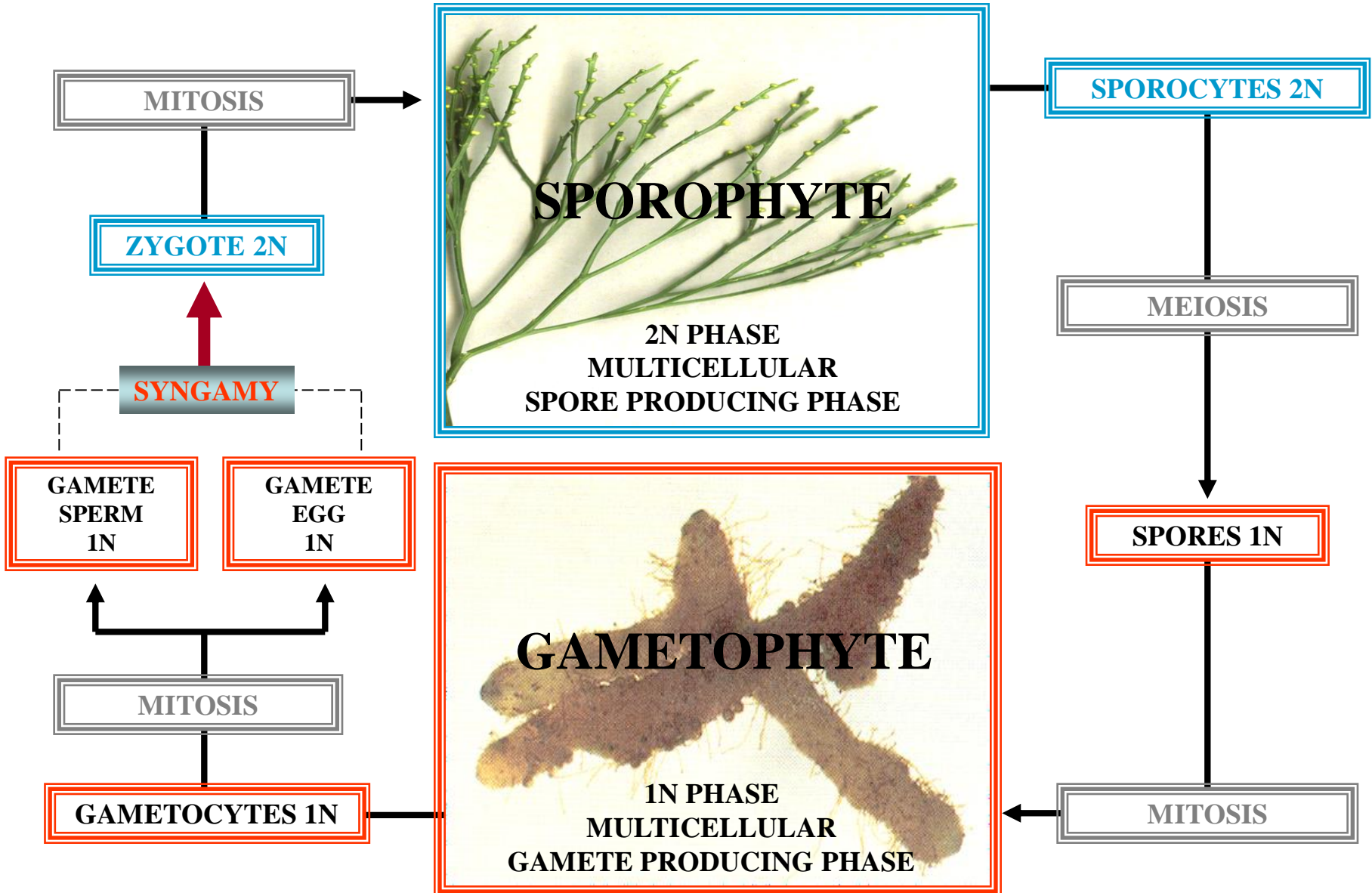
WETLANDS





GENERAL CHARACTERS

PSILOTALES LIFE CYCLE





SPOROPHYTE CHARACTERS



MORPHOLOGY



H

MORPHOLOGY

PSILOTUM



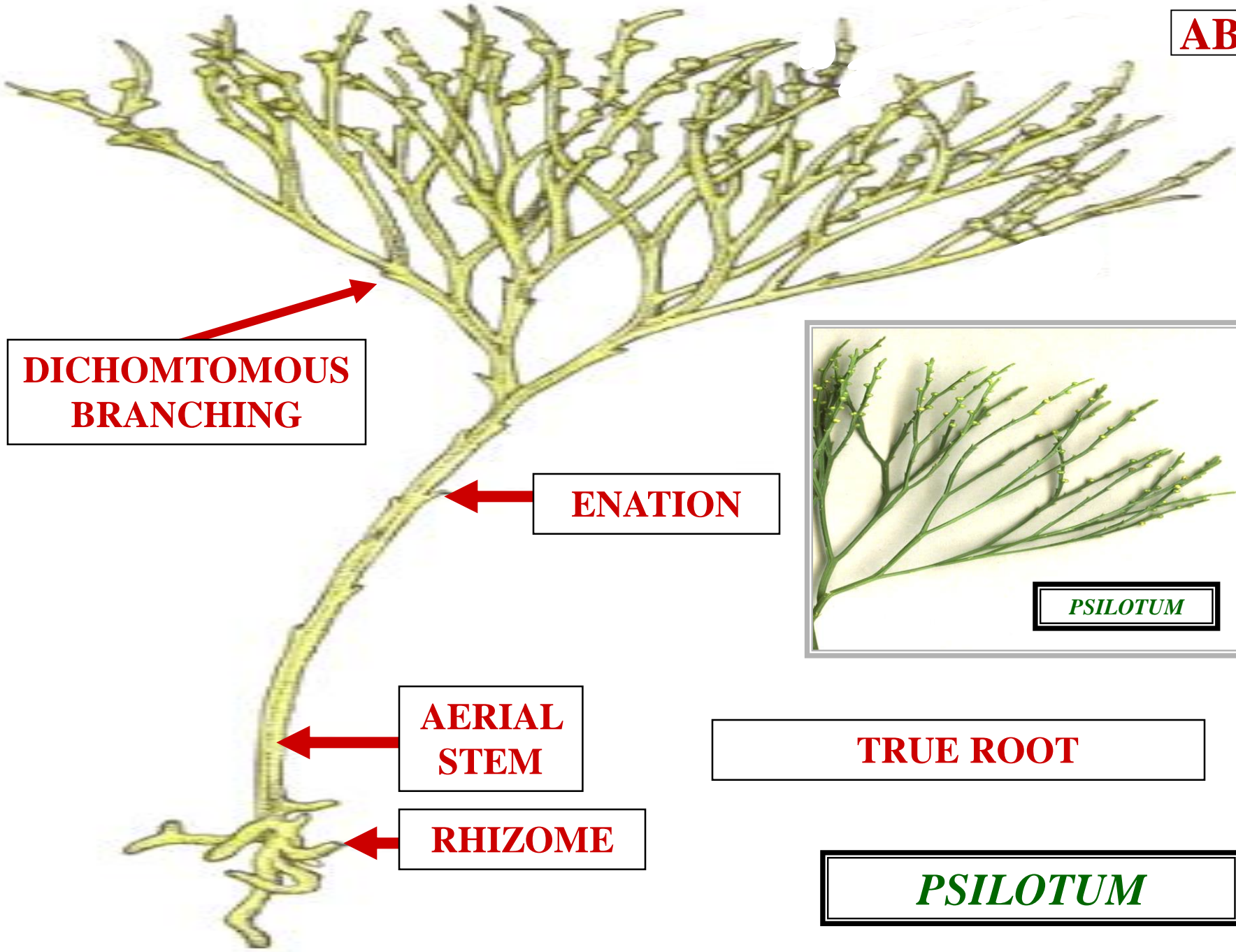
**HIGHLY REDUCED
MORPHOLOGY**

PSILOTUM



ROOT

AB



**DICHOTOMOUS
BRANCHING**

ENATION

**AERIAL
STEM**

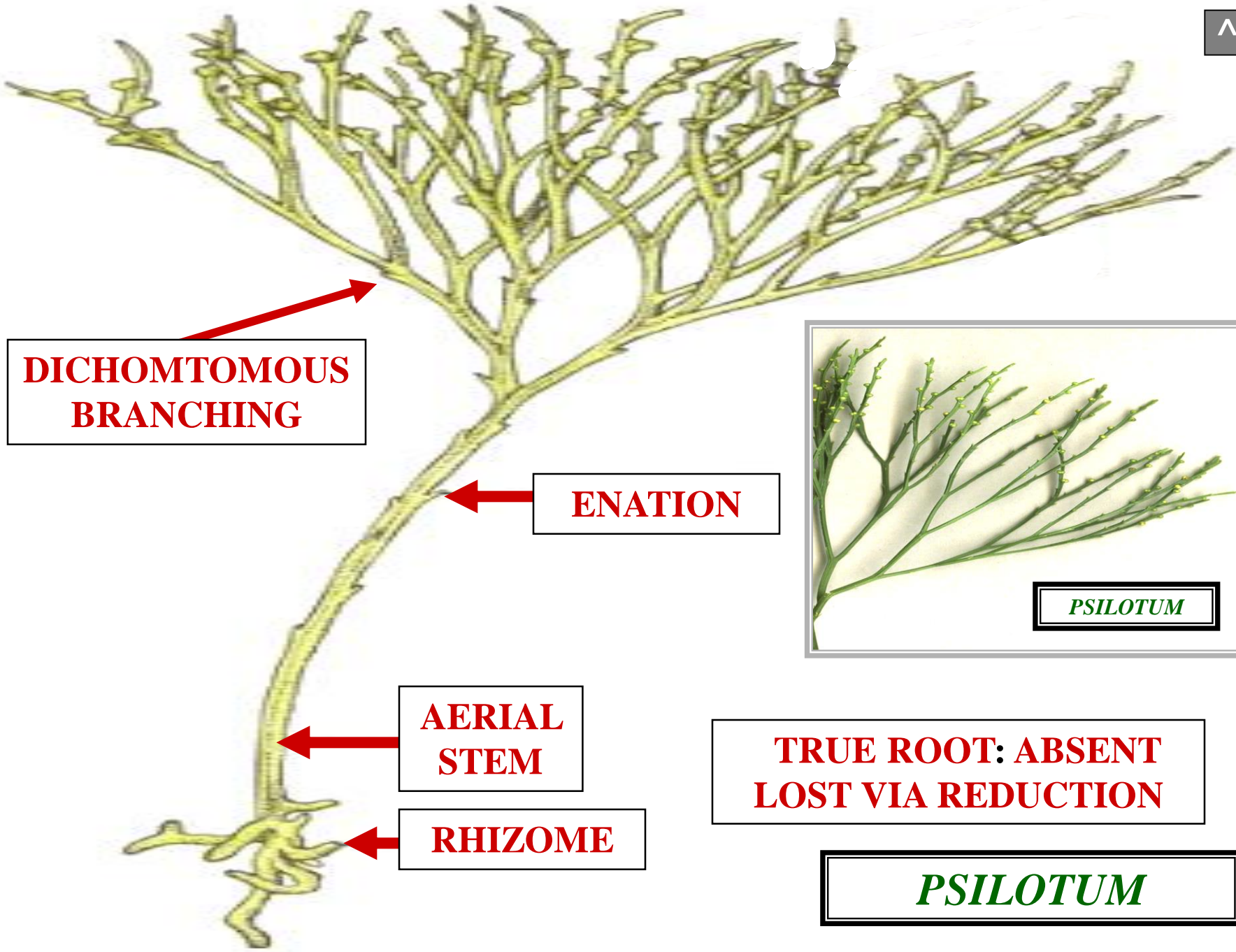
RHIZOME



PSILOTUM

TRUE ROOT

PSILOTUM



**DICHOTOMOUS
BRANCHING**

ENATION

**AERIAL
STEM**

RHIZOME

**TRUE ROOT: ABSENT
LOST VIA REDUCTION**

PSILOTUM

PSILOTUM



STEM

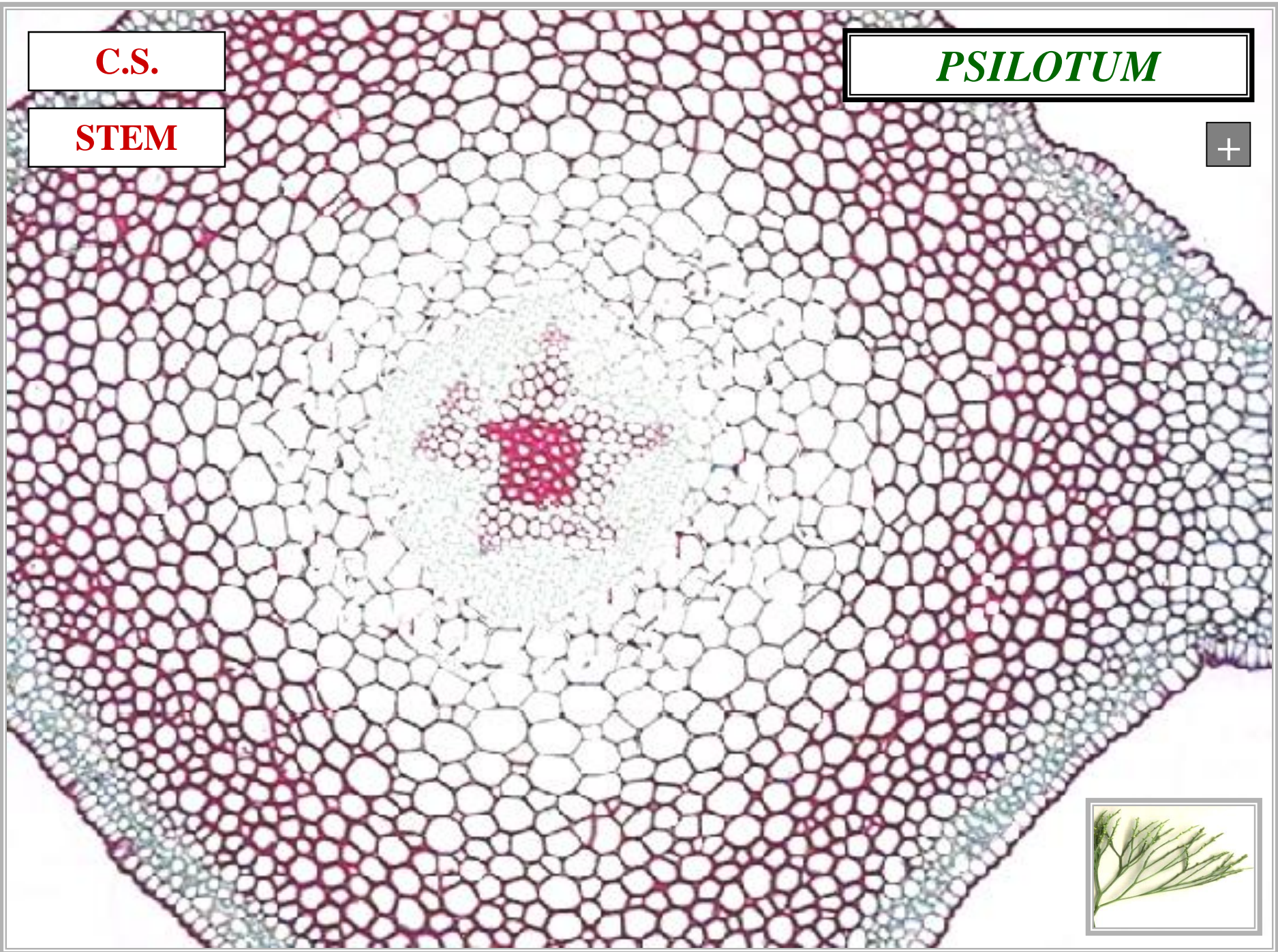


STEM STELE

C.S.

STEM

PSILOTUM

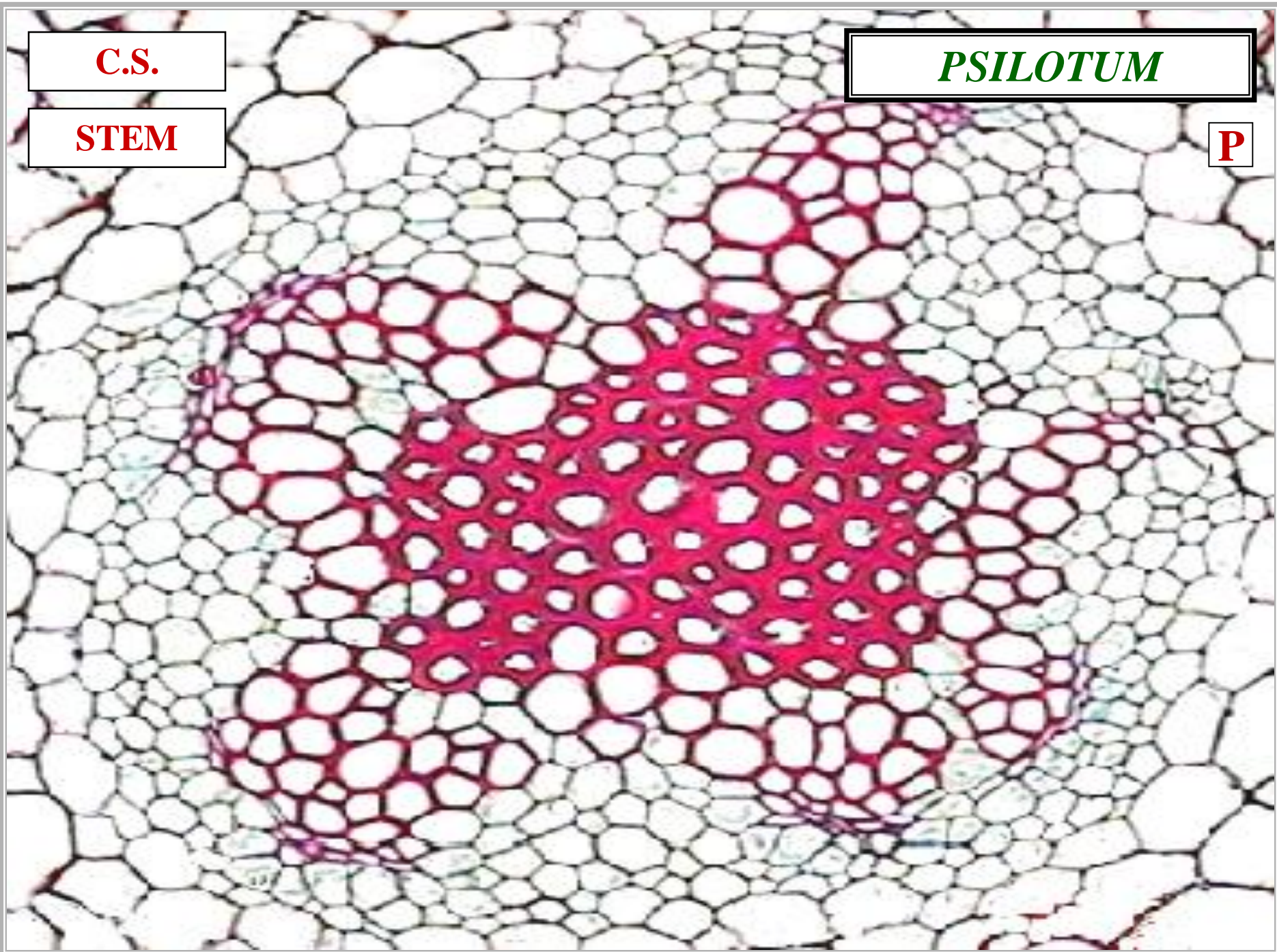


C.S.

STEM

PSILOTUM

P



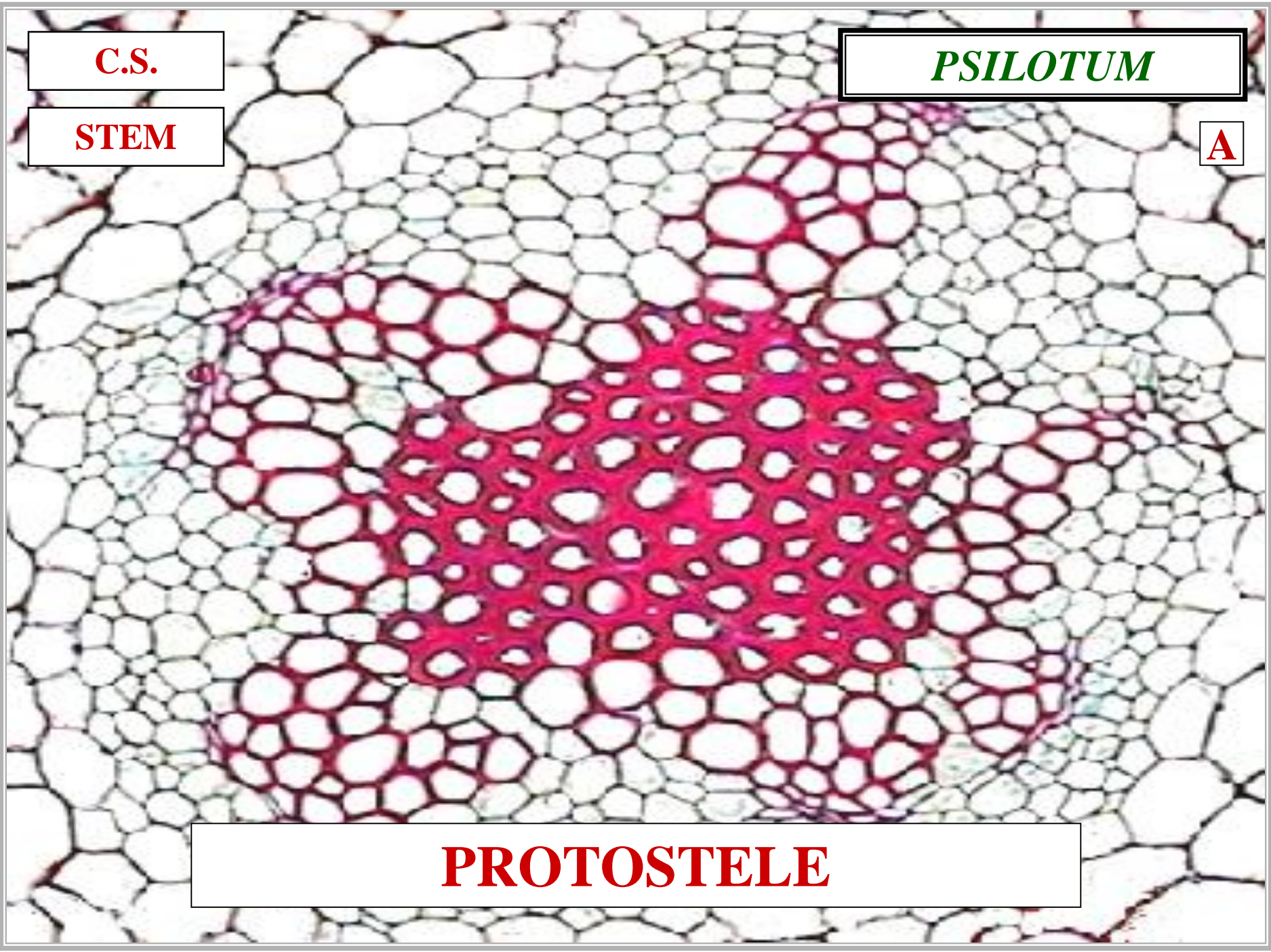
C.S.

STEM

PSILOTUM

A

PROTOSTELE



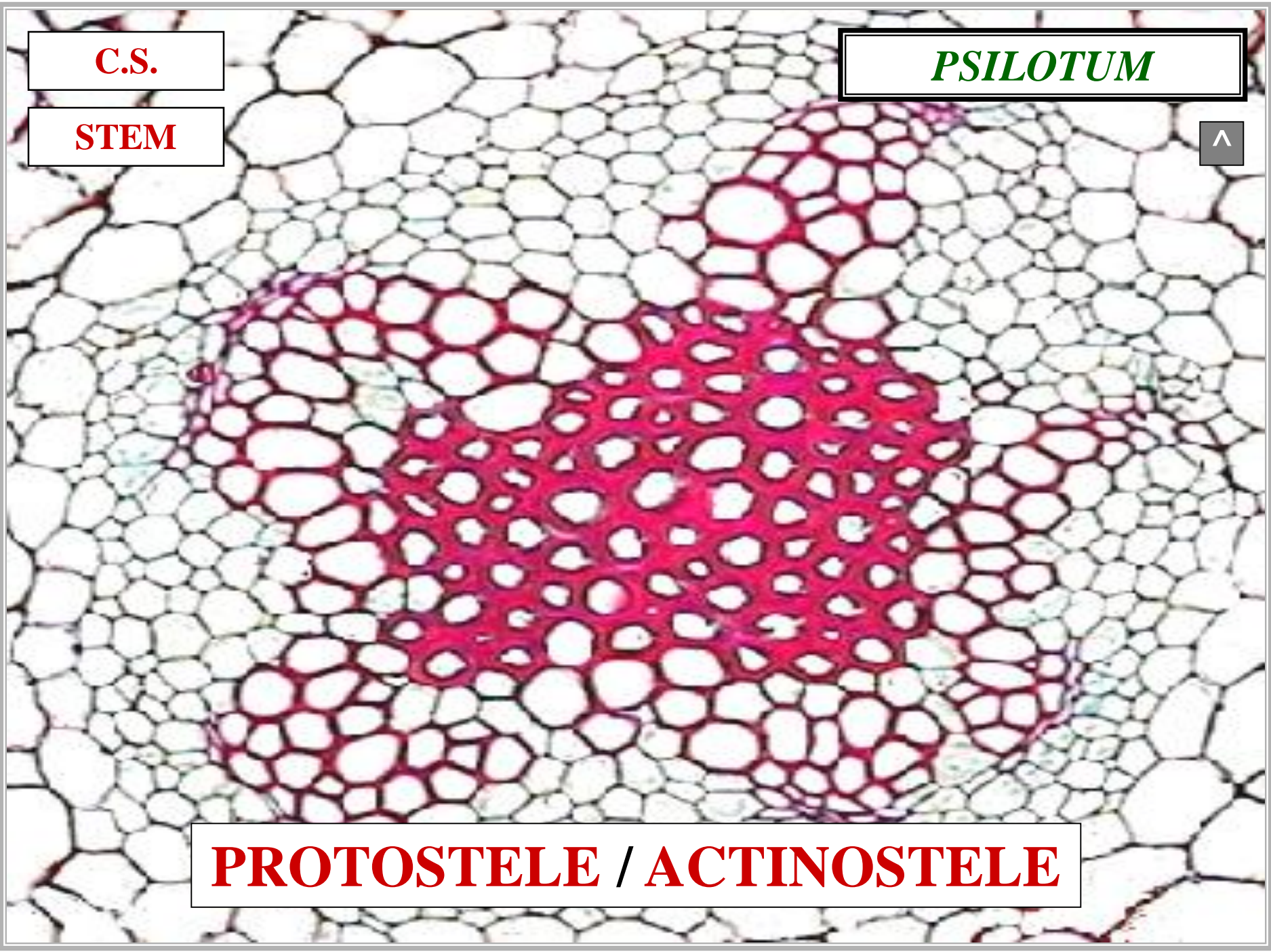
C.S.

STEM

PSILOTUM

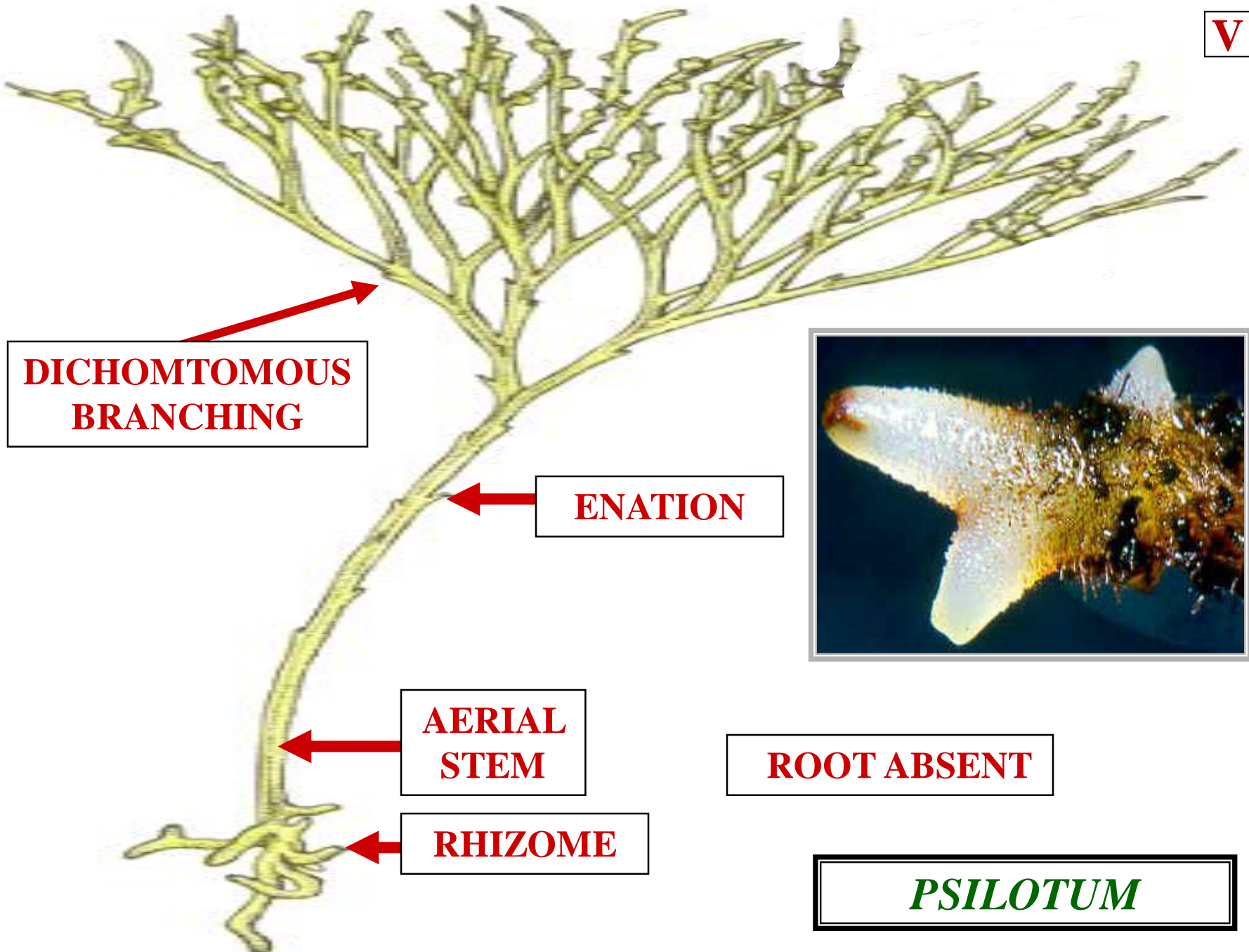
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PROTOSTELE / ACTINOSTELE





RHIZOME



**DICHOTOMOUS
BRANCHING**

ENATION

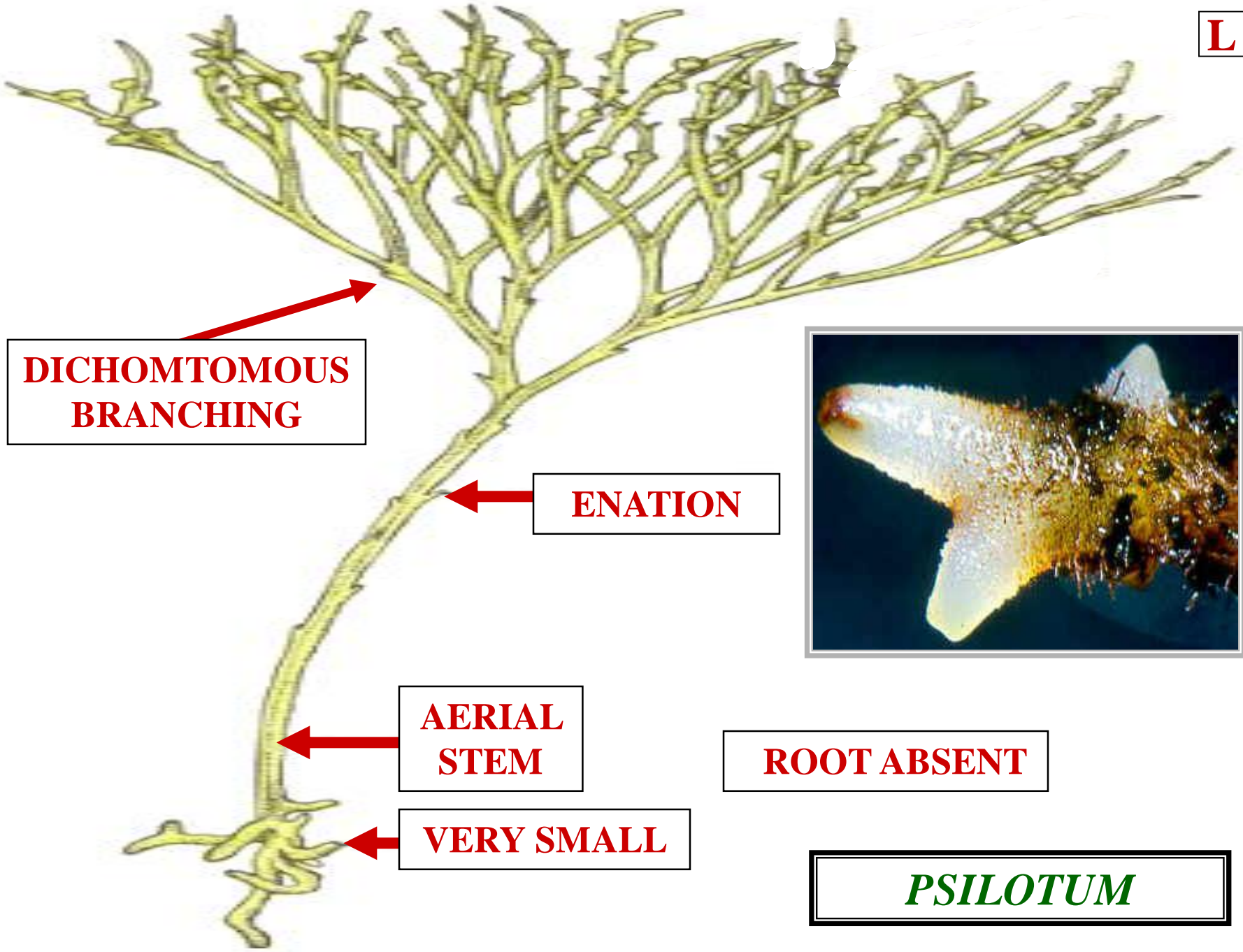
**AERIAL
STEM**

RHIZOME



ROOT ABSENT

PSILOTUM



**DICHOTOMOUS
BRANCHING**

ENATION

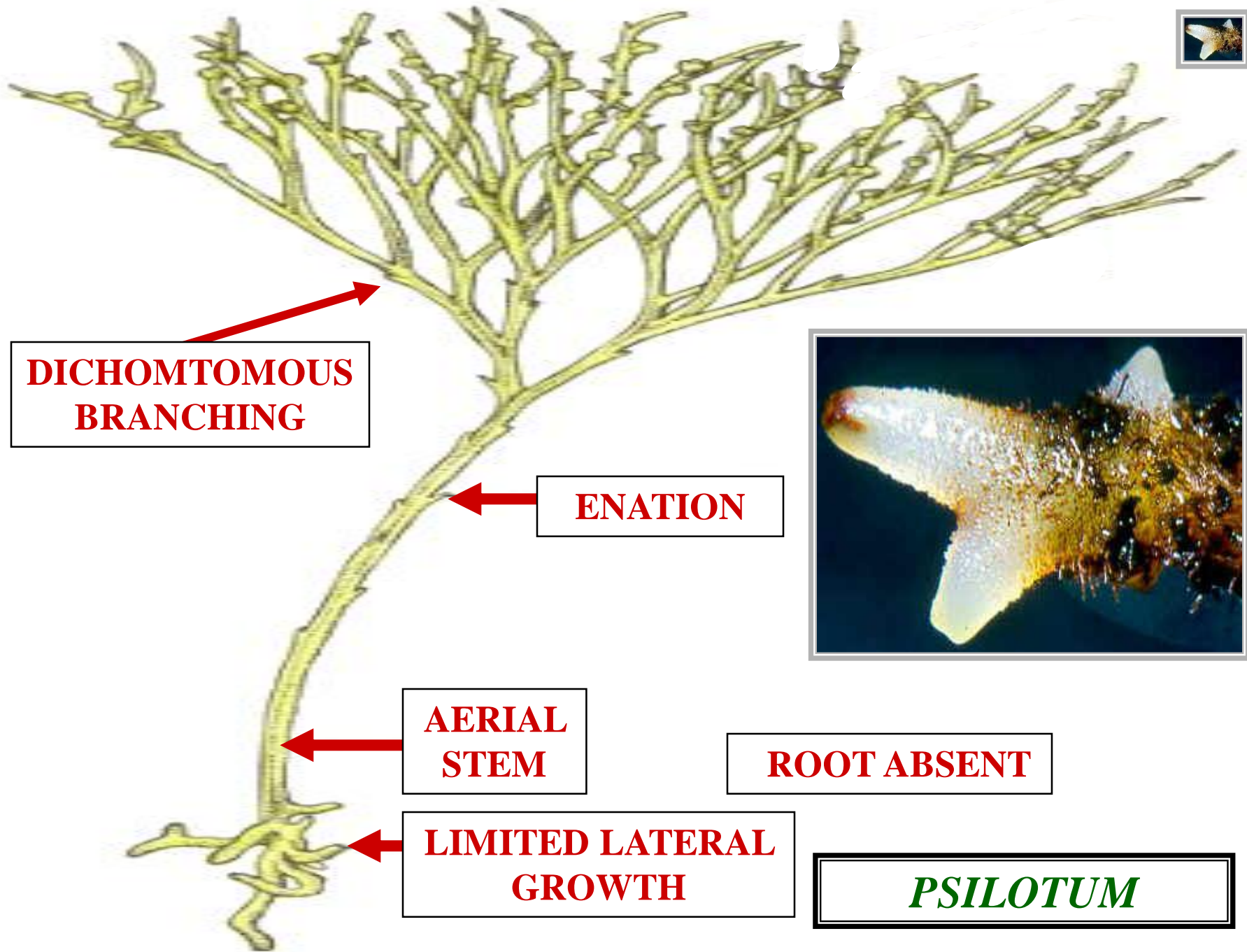
**AERIAL
STEM**

VERY SMALL



ROOT ABSENT

PSILOTUM



**DICHOTOMOUS
BRANCHING**

ENATION

**AERIAL
STEM**

ROOT ABSENT

**LIMITED LATERAL
GROWTH**

PSILOTUM

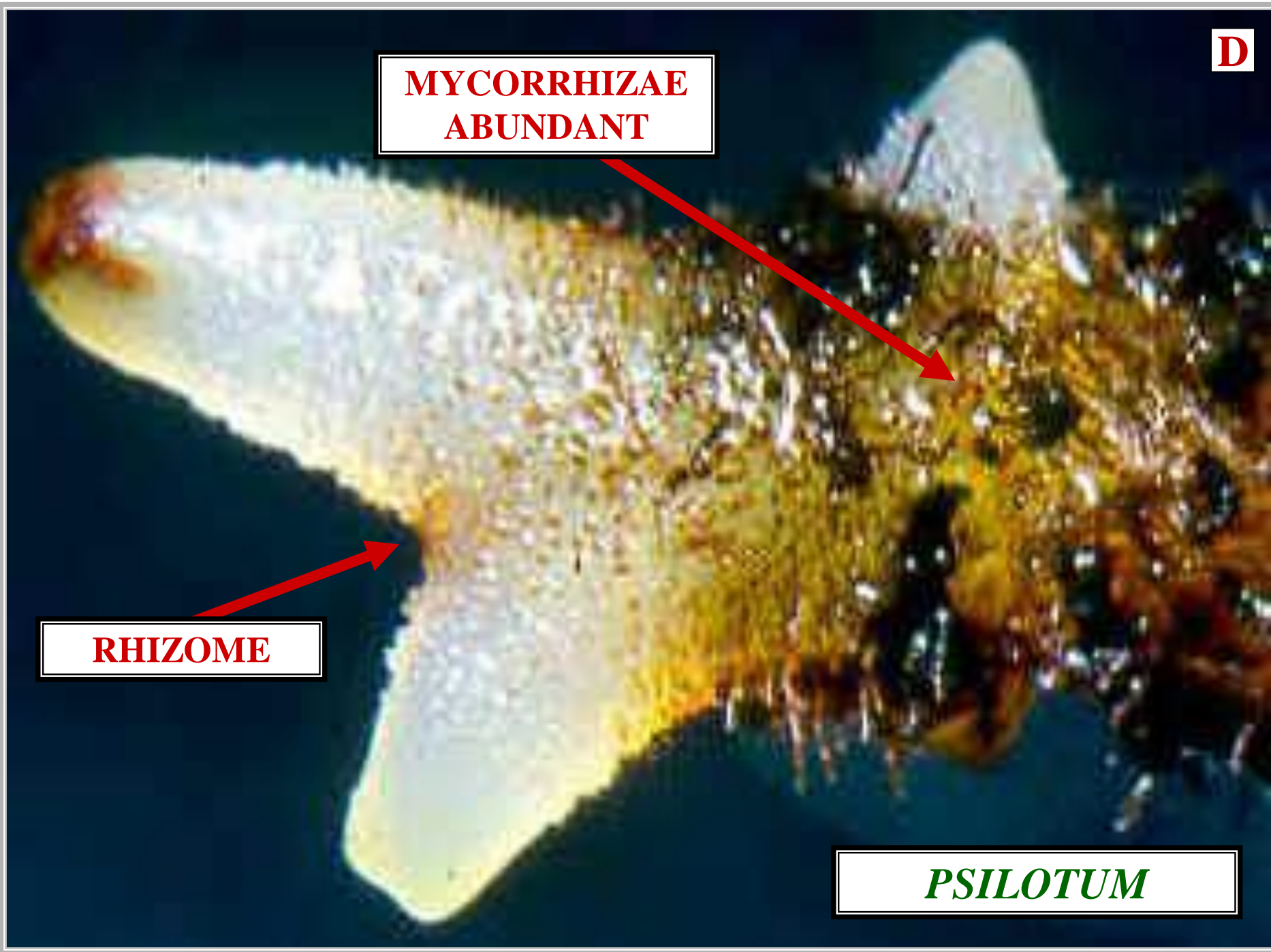


D

**MYCORRHIZAE
ABUNDANT**

RHIZOME

PSILOTUM





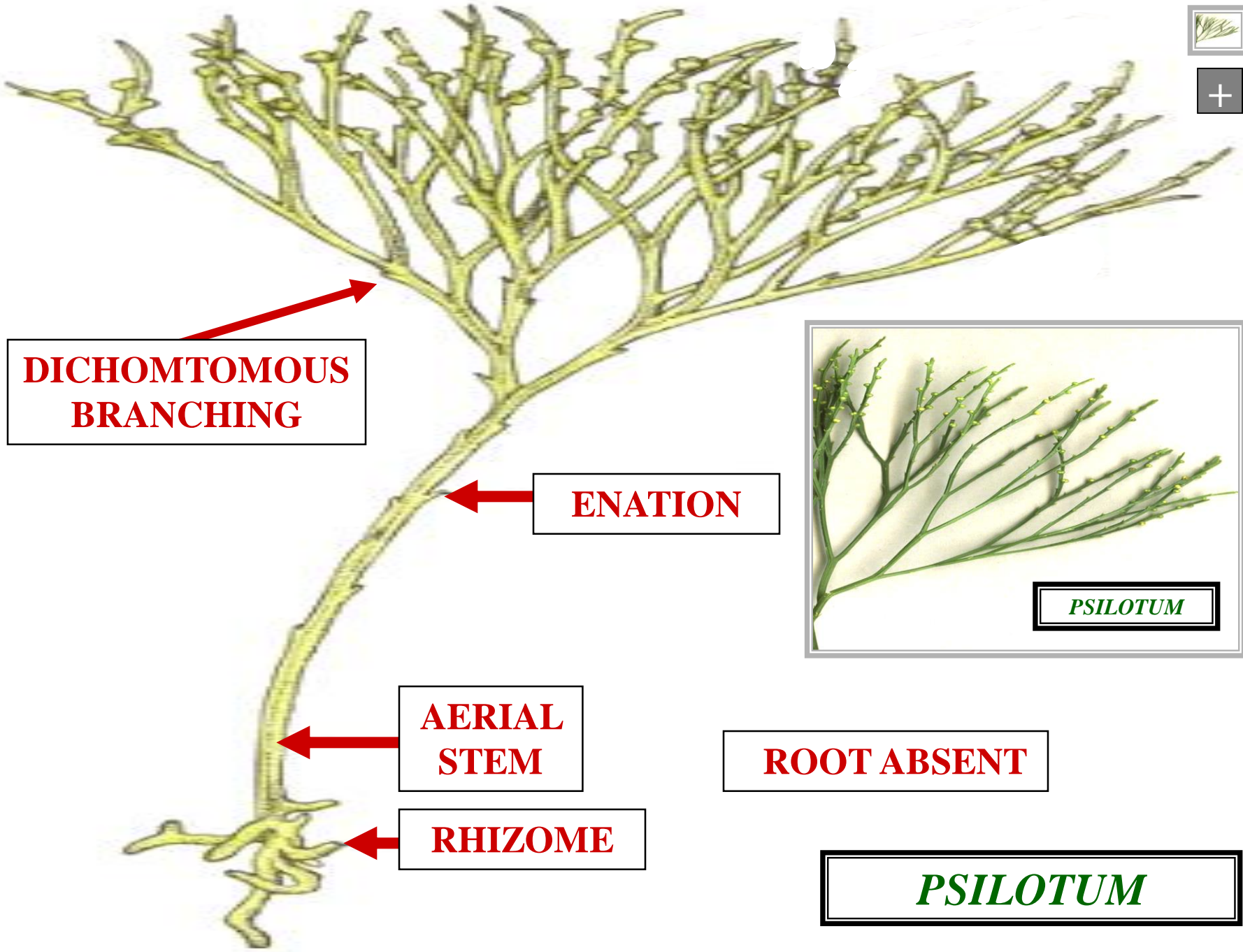
**MYCORRHIZAE
ABUNDANT**

**DICHOTMOUS
BRANCHING**

PSILOTUM



AERIAL STEM



**DICHOTOMOUS
BRANCHING**

ENATION

**AERIAL
STEM**

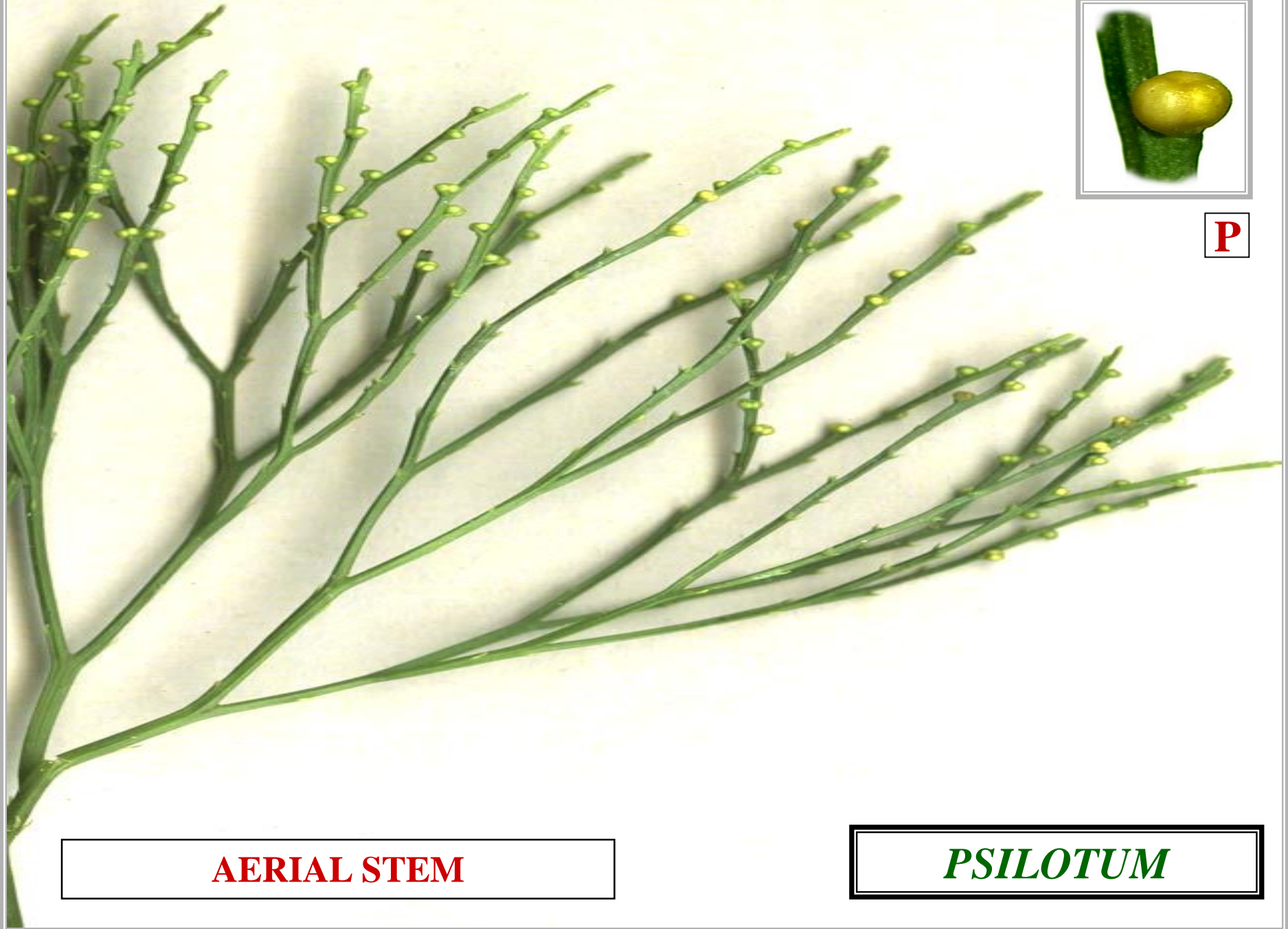
RHIZOME



PSILOTUM

ROOT ABSENT

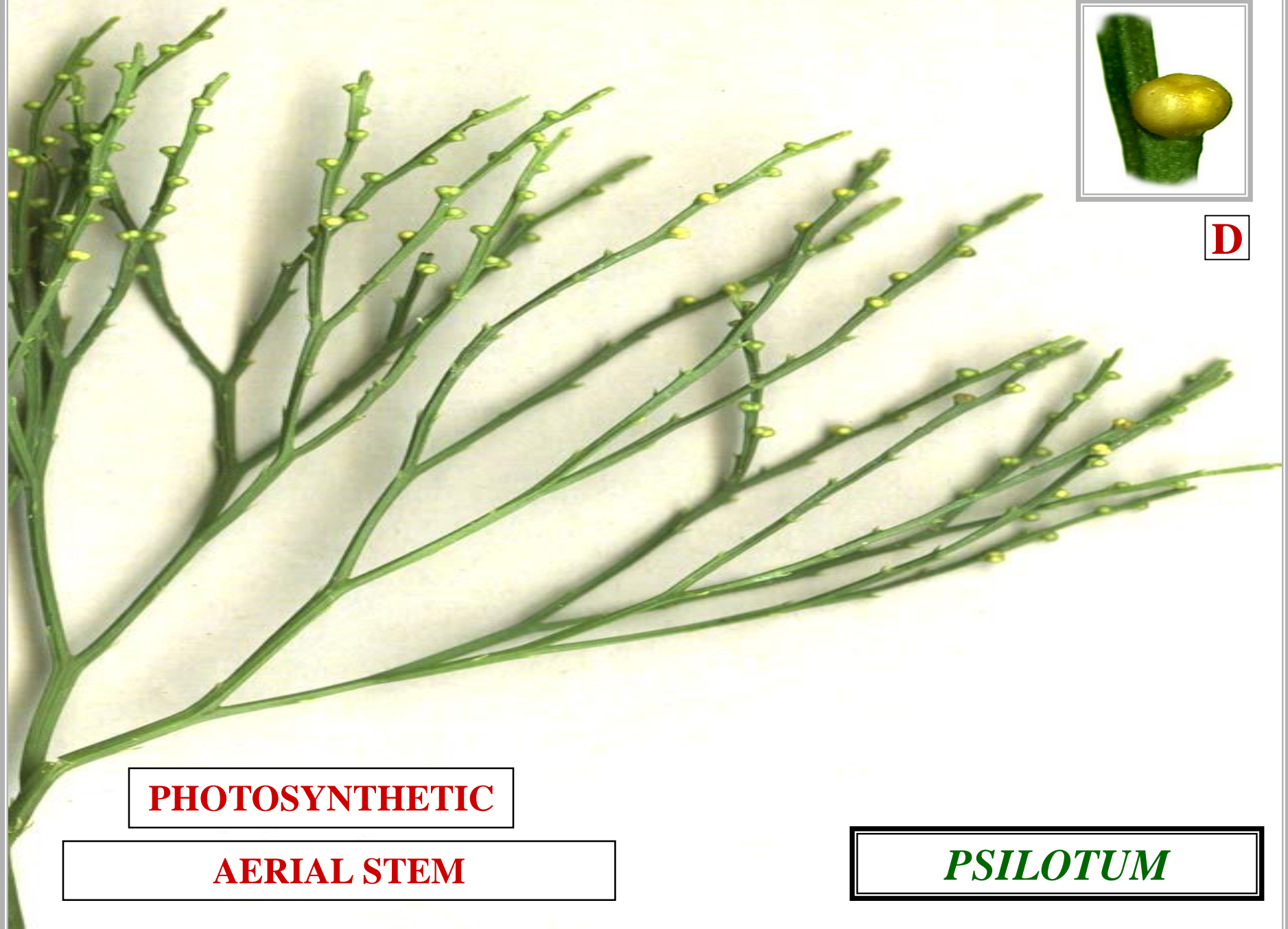
PSILOTUM



P

AERIAL STEM

PSILOTUM



D

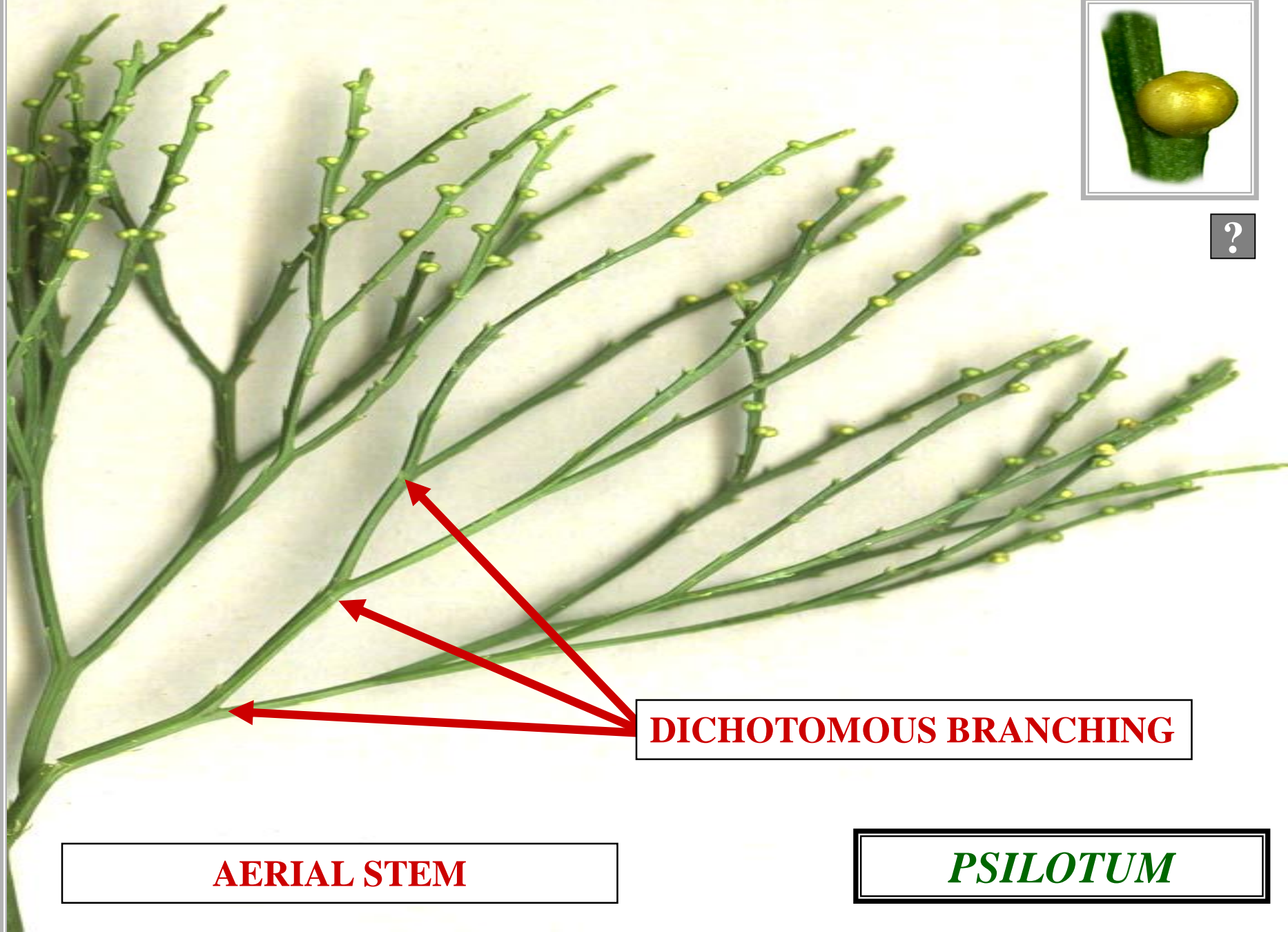
PHOTOSYNTHETIC

AERIAL STEM

PSILOTUM



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DICHOTOMOUS BRANCHING

AERIAL STEM

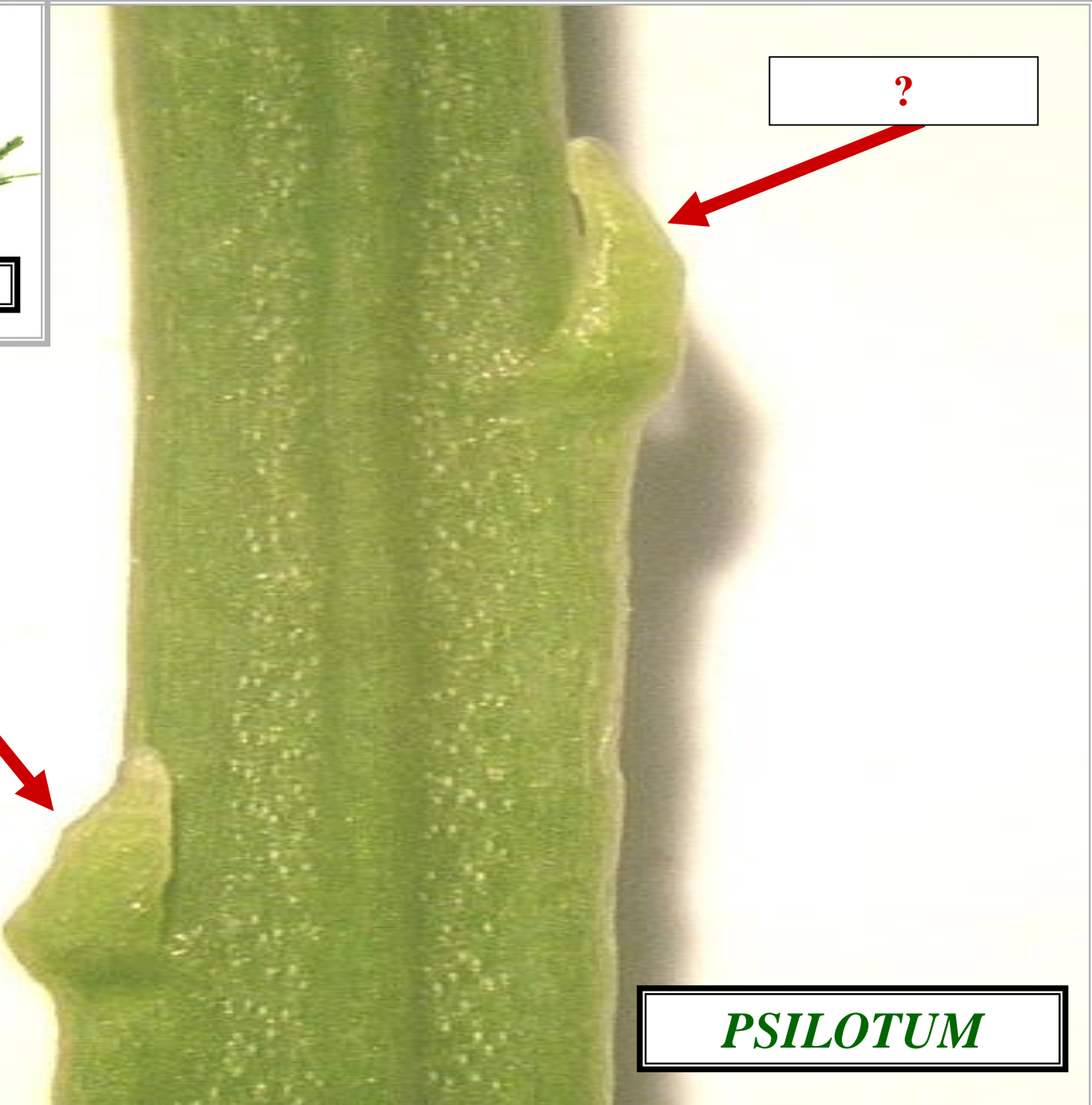
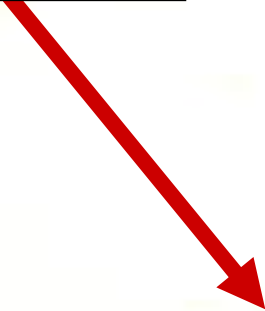
PSILOTUM



PSILOTUM

E

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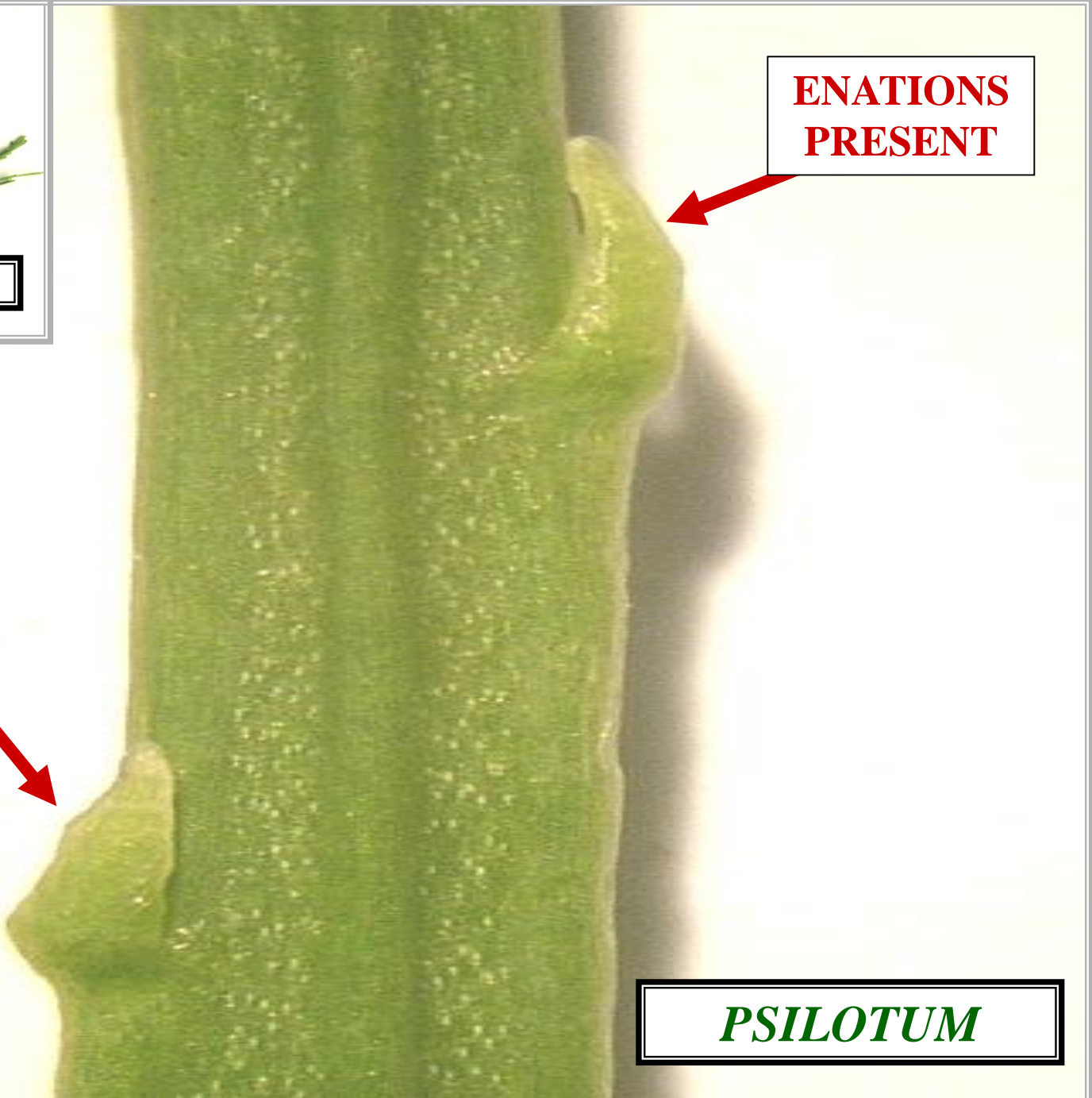


PSILOTUM



PSILOTUM

F



**ENATIONS
PRESENT**

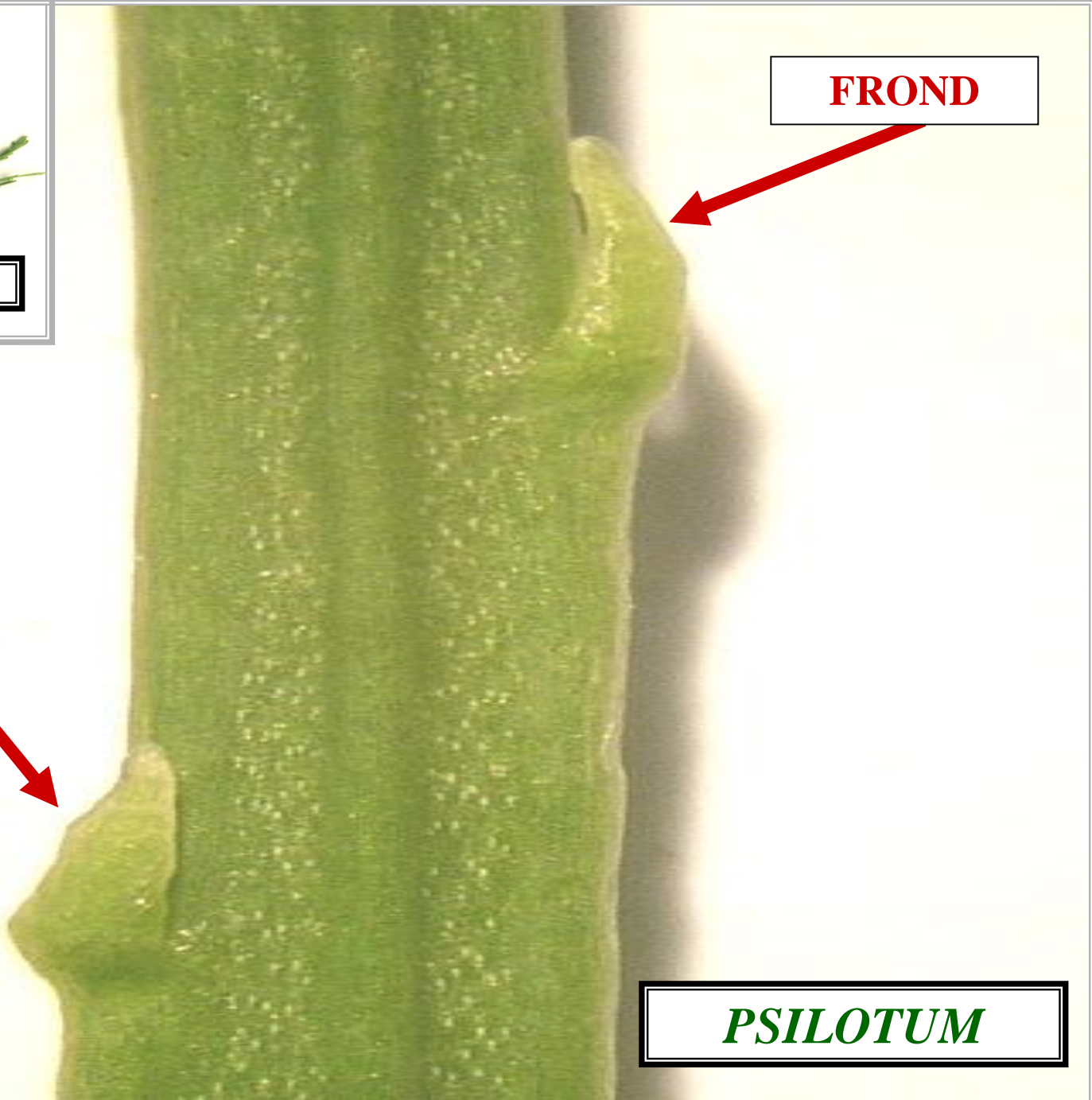
**ENATIONS
PRESENT**

PSILOTUM



PSILOTUM

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FROND

FROND

PSILOTUM



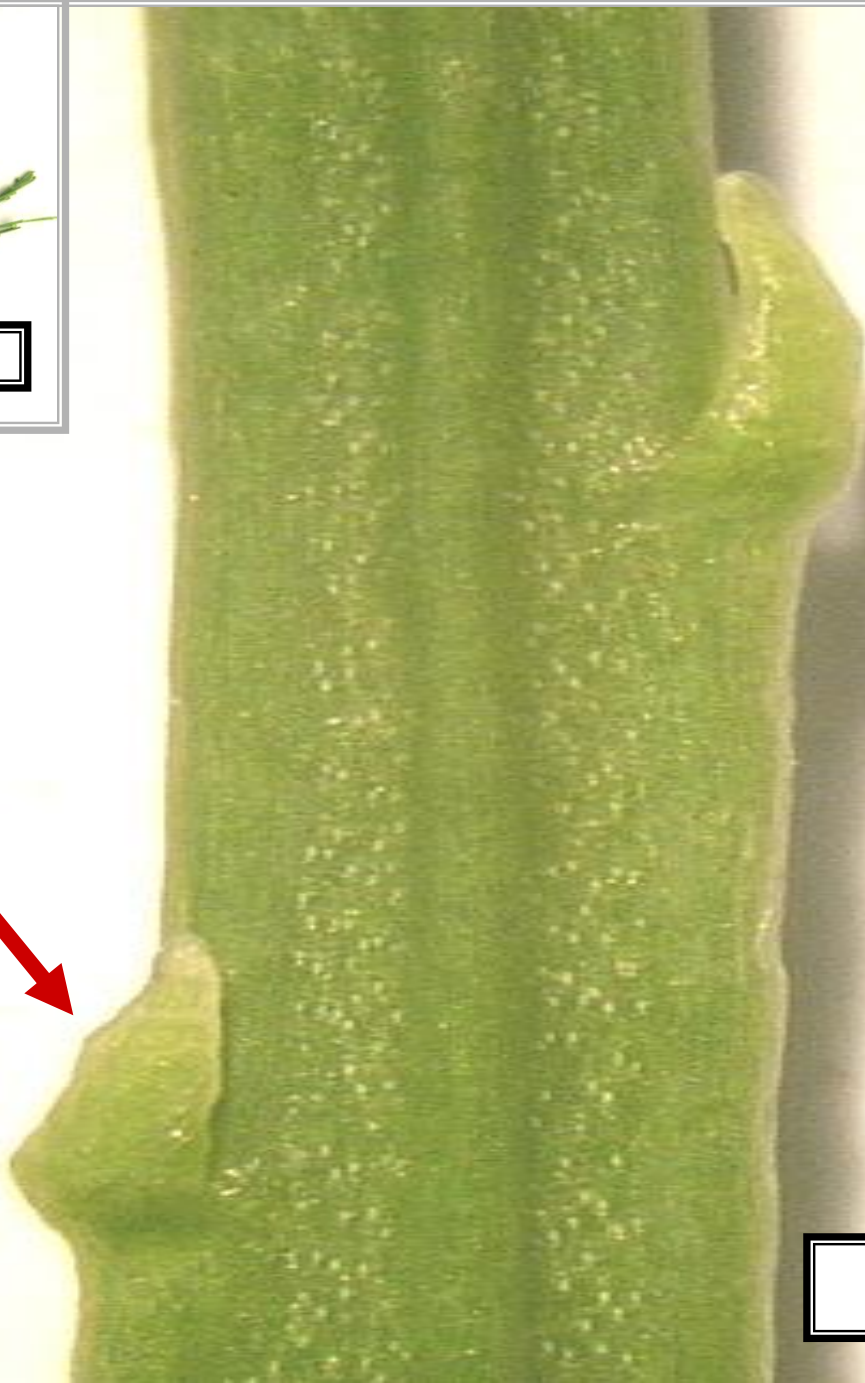
FROND



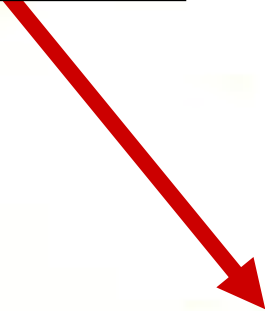
MORPHOLOGY



PSILOTUM



FROND



PSILOTUM



PSILOTUM

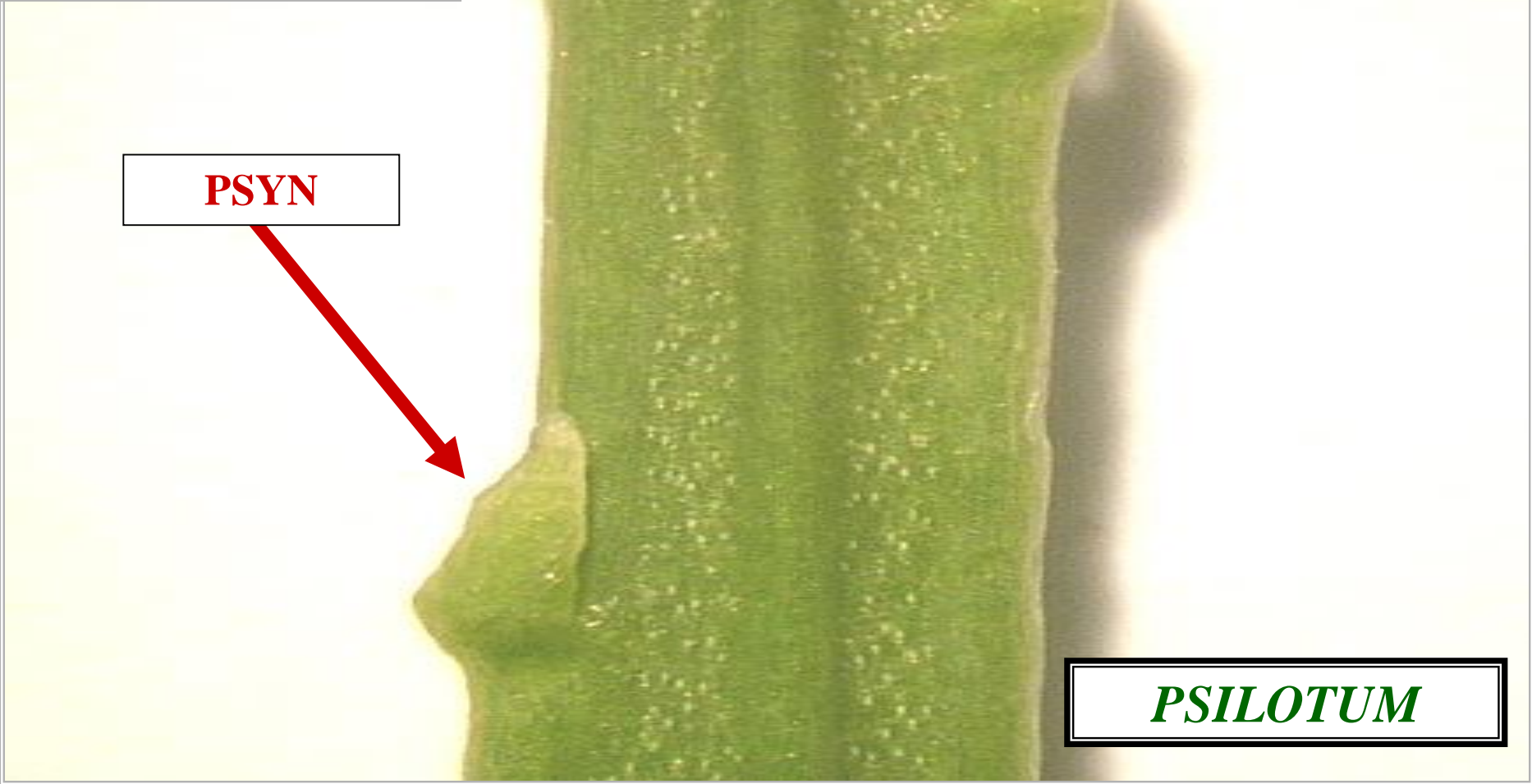
**“SCALE-LIKE”
ENATION**



PSILOTUM



PSILOTUM



PSYN

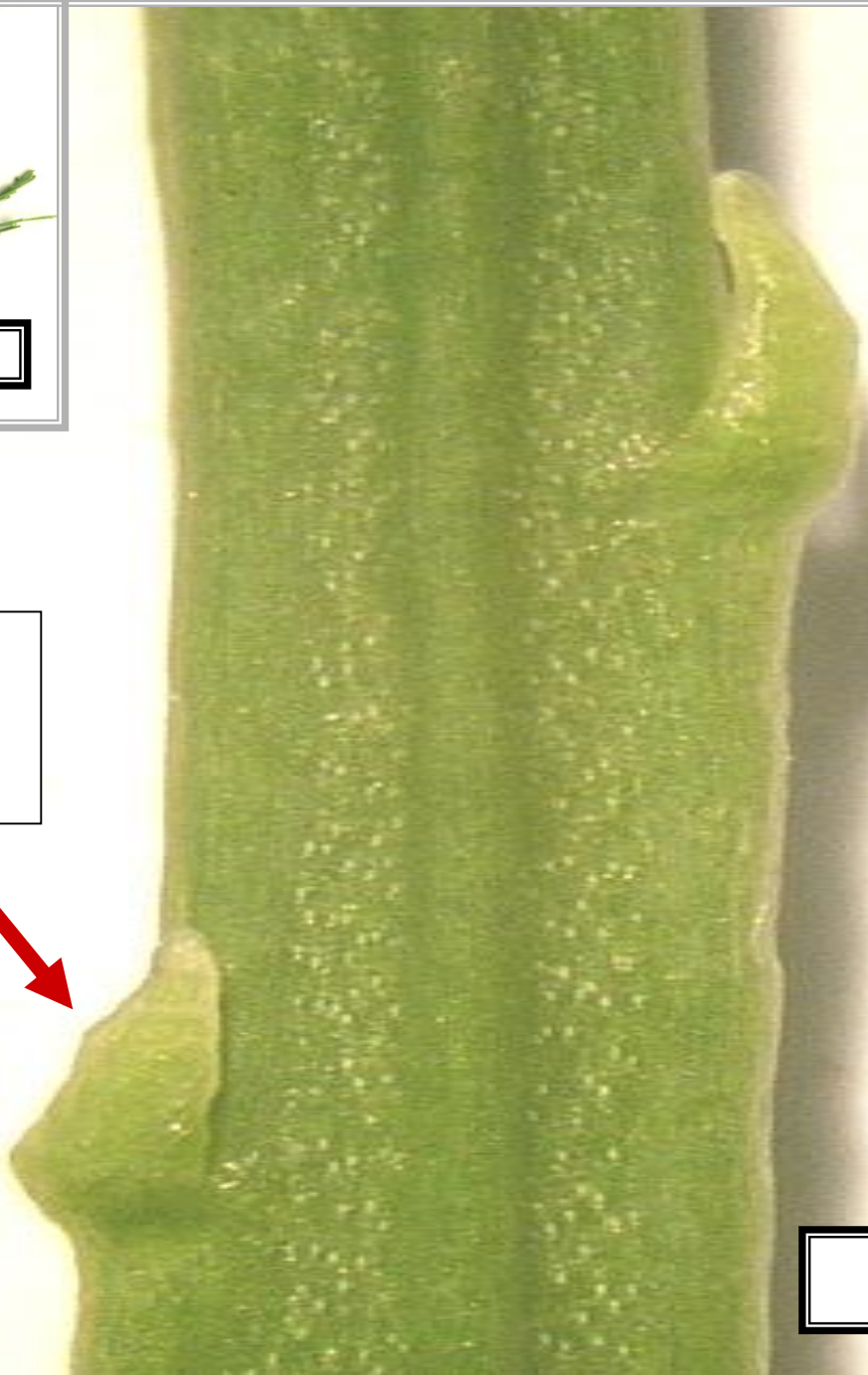
PSILOTUM



PSILOTUM



**HIGHLY
REDUCED
MEGAPHYLL**



PSILOTUM



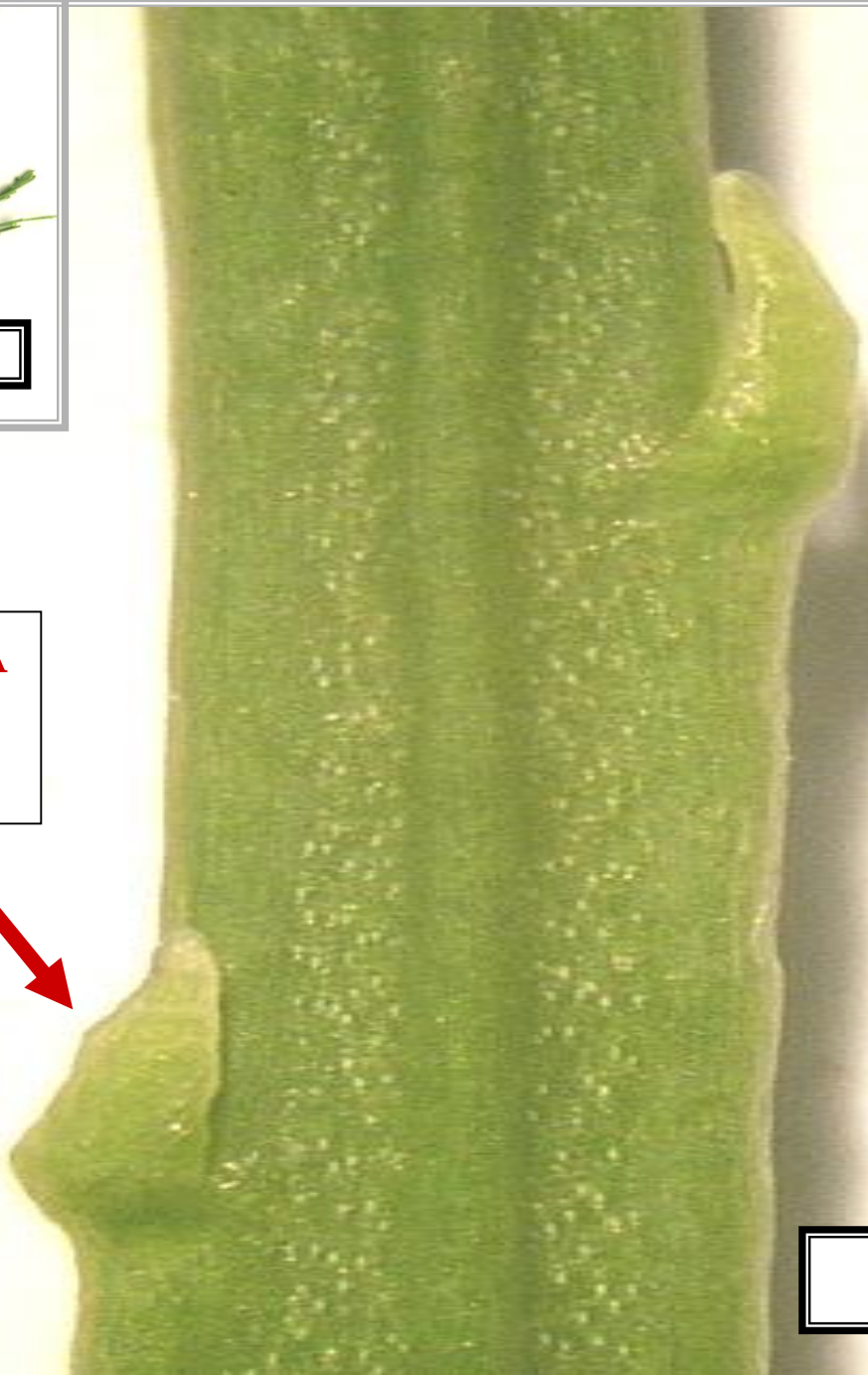
ENATION / FROND EVOLUTION



PSILOTUM



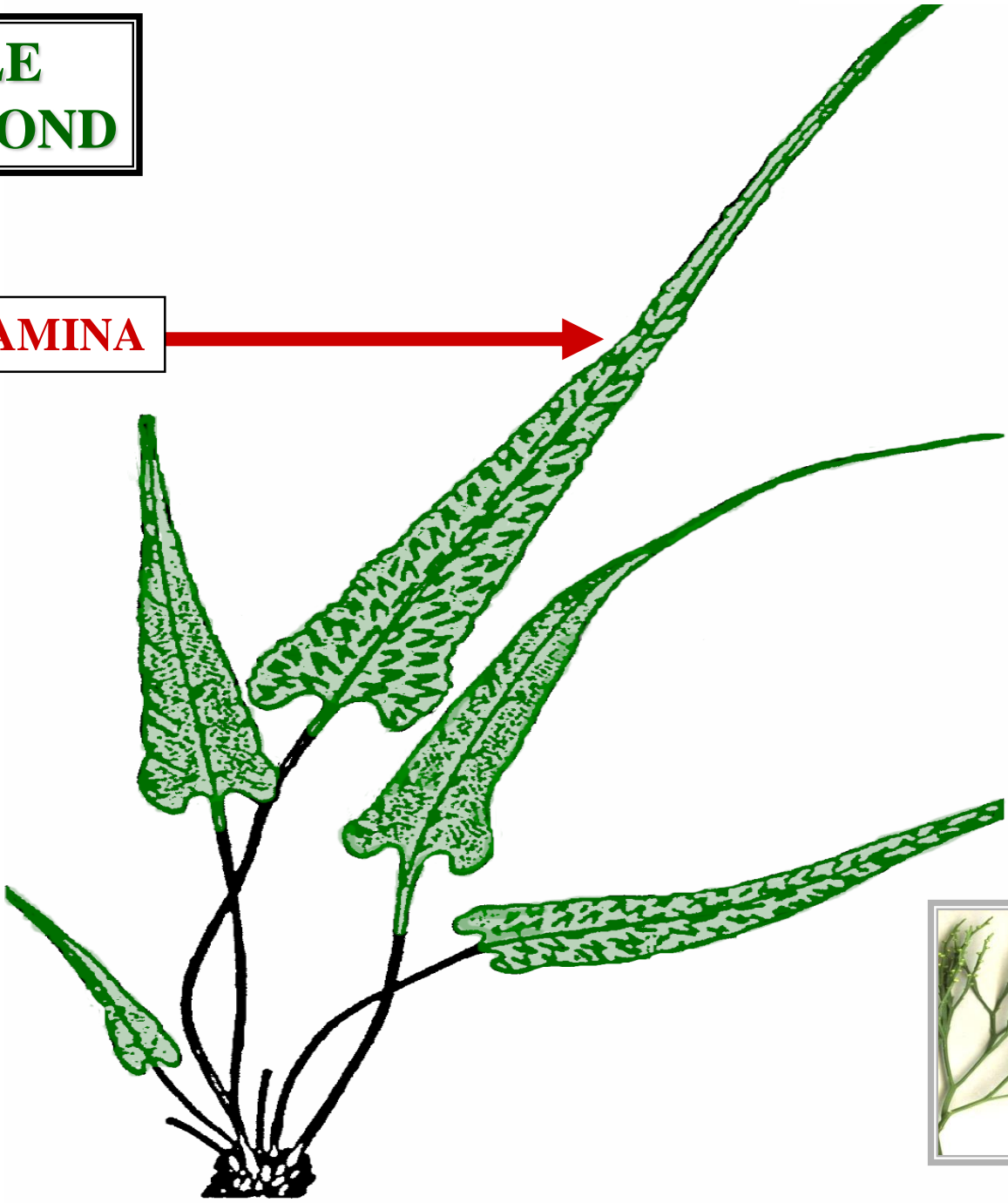
**EVOLVED VIA
FROND
REDUCTION**



PSILOTUM

SIMPLE FERN FROND

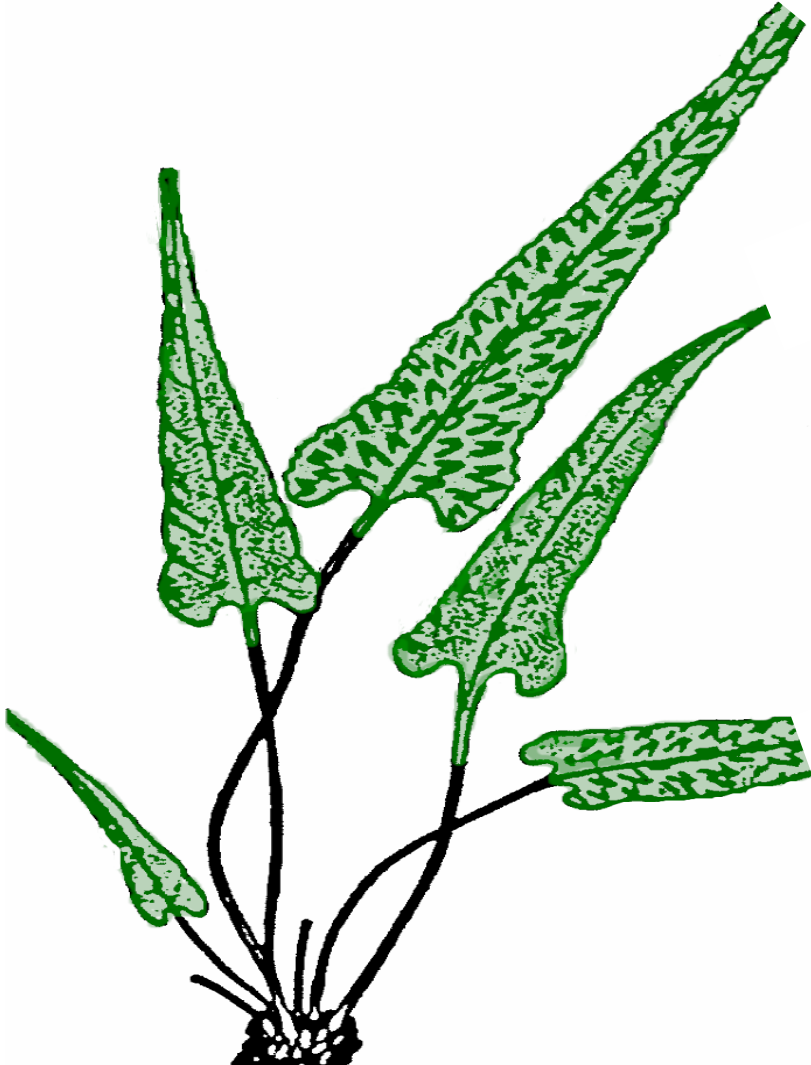
LAMINA





SIMPLE FERN FROND

REDUCTION



SIMPLE FERN FROND

REDUCTION



S





PSILOTUM

**FROND
“SCALE-LIKE”
ENATION**



PSILOTUM



PSILOTUM



**FROND
HIGHLY
REDUCED
MEGAPHYLL**



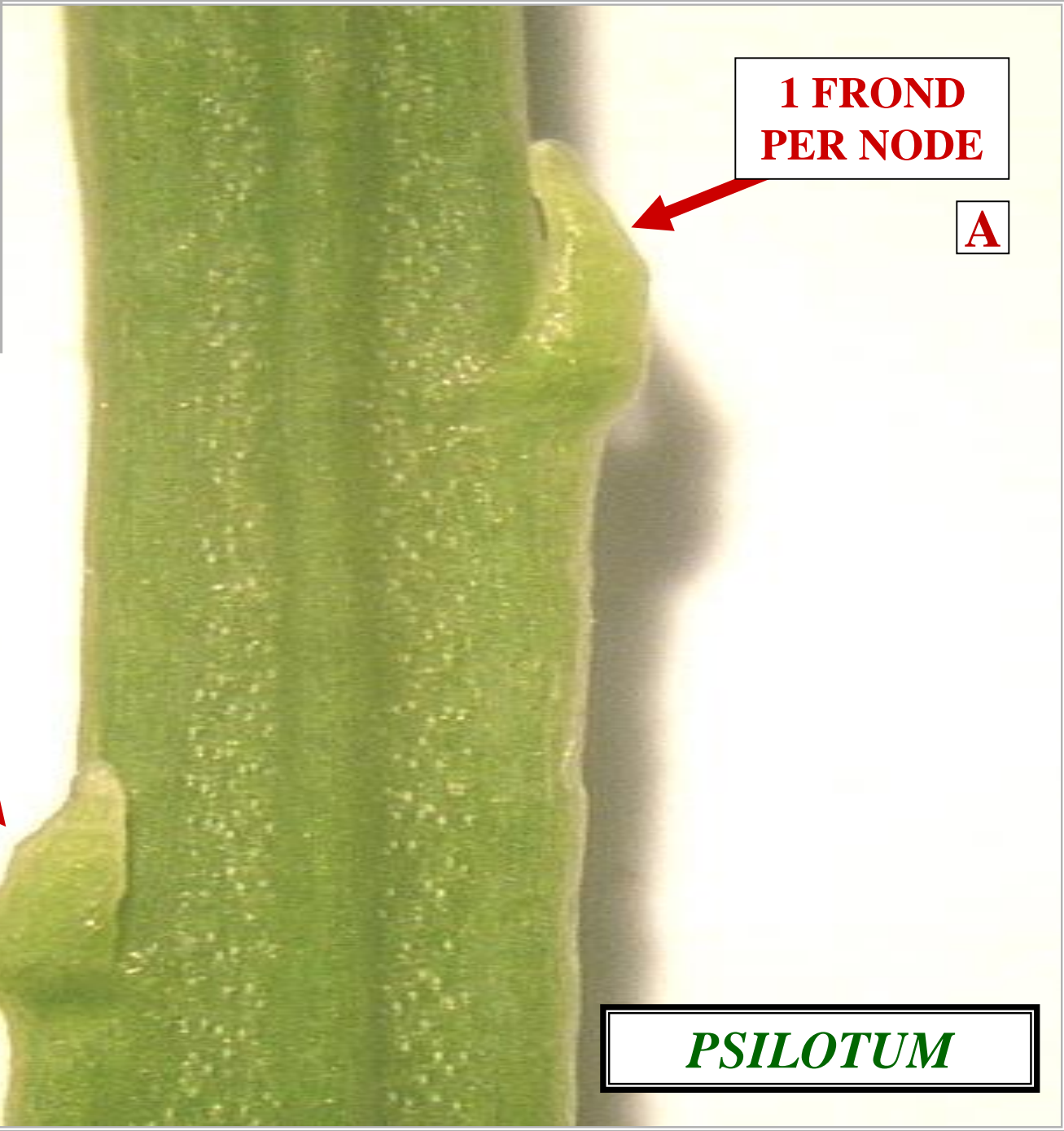
PSILOTUM



PHYLLOTAXY



PSILOTUM



**1 FROND
PER NODE**

A

**1 FROND
PER NODE**

PSILOTUM



PSILOTUM



**1 FROND
PER NODE**



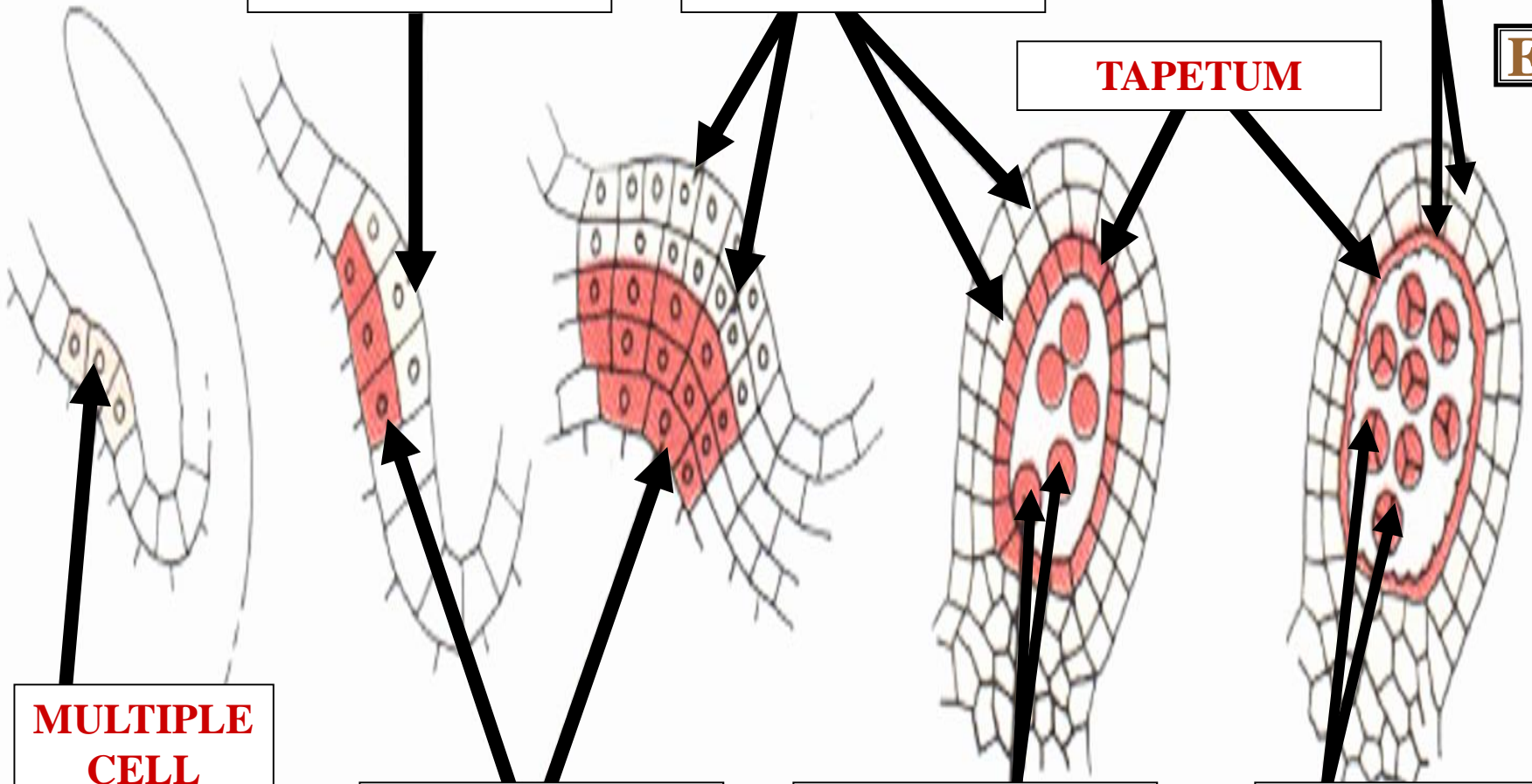
**1 FROND
PER NODE**

**ALTERNATE
PHYLLOTAXY**

PSILOTUM



SPORANGIUM



WALL CELLS

WALL CELLS

LARGE SIZE

THICK WALL

TAPETUM

E

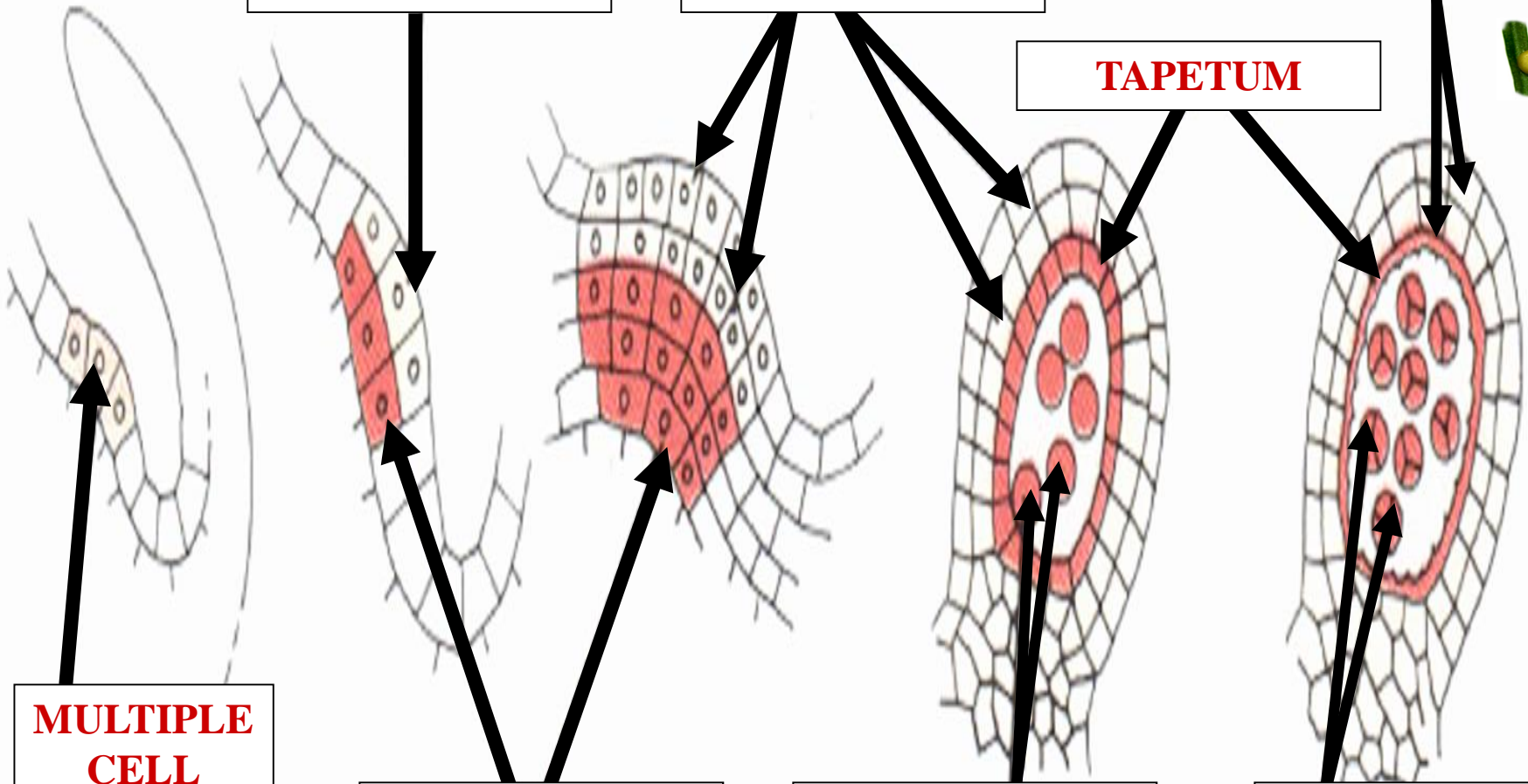
**MULTIPLE
CELL
INITIALS**

SPOROCYTES

SPOROCYTES

**NUMEROUS
SPORES**

L.S.



WALL CELLS

WALL CELLS

LARGE SIZE

THICK WALL

TAPETUM

**MULTIPLE
CELL
INITIALS**

SPOROCYTES

SPOROCYTES

**NUMEROUS
SPORES**

EUSPORANGIUM

L.S.

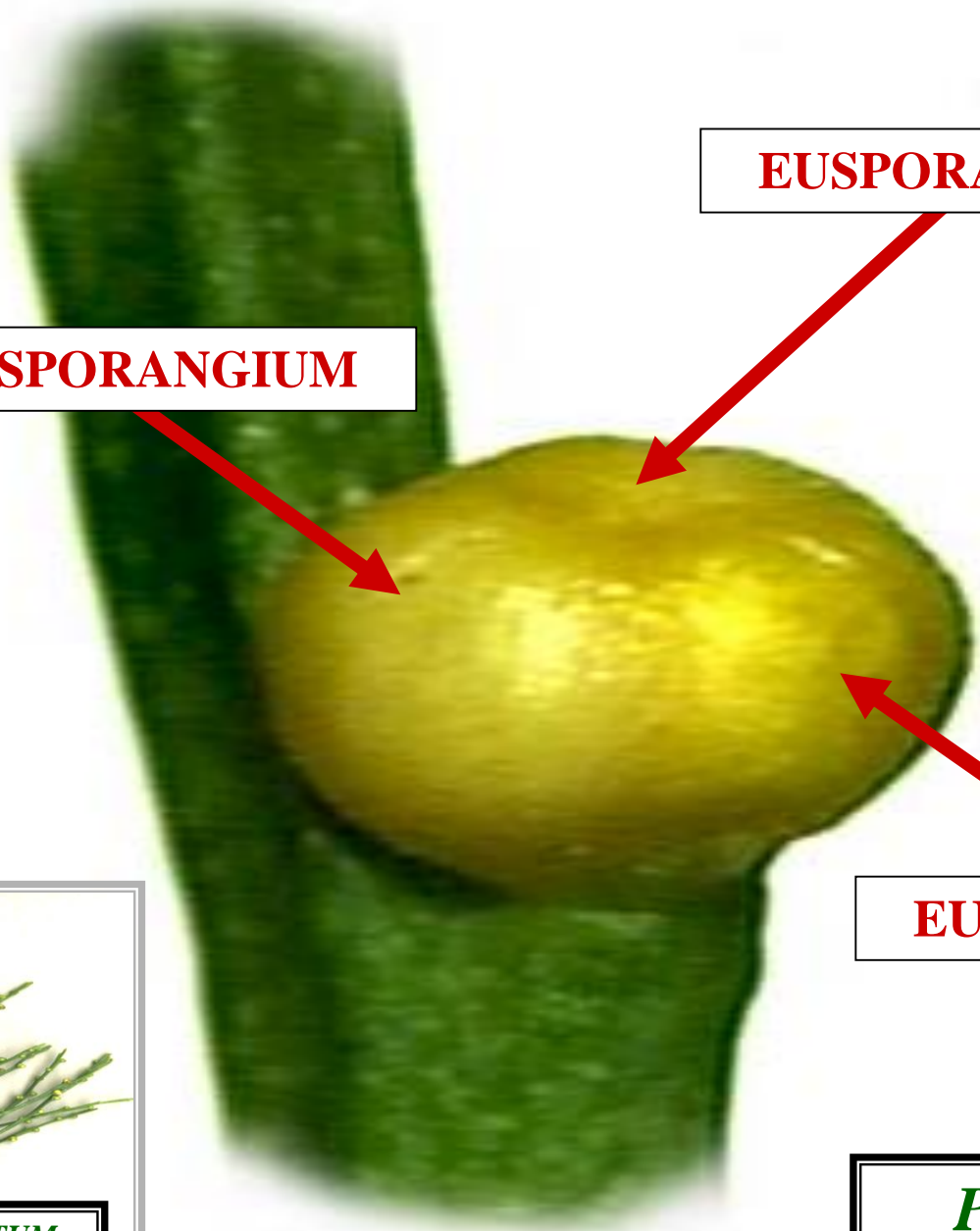
EUSPORANGIUM

EUSPORANGIUM

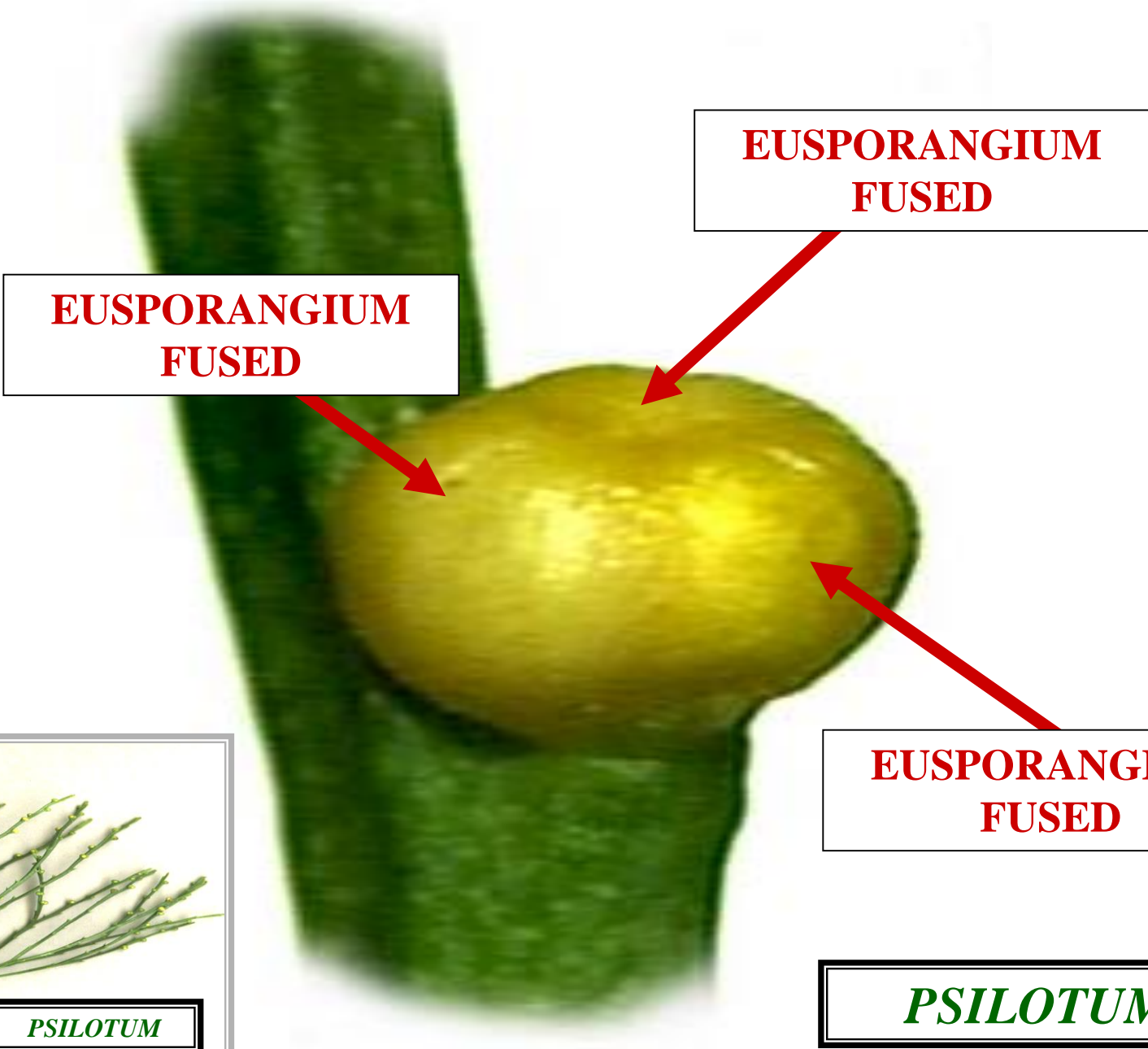
EUSPORANGIUM



PSILOTUM



PSILOTUM



**EUSPORANGIUM
FUSED**

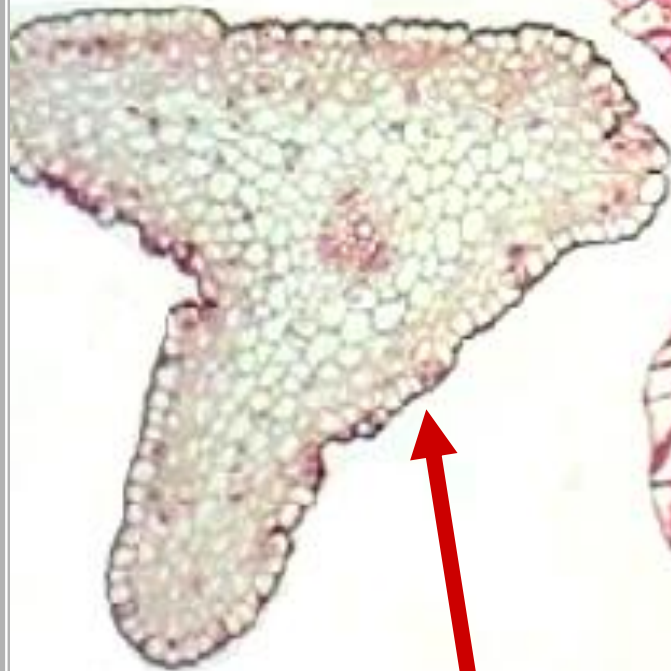
**EUSPORANGIUM
FUSED**

**EUSPORANGIUM
FUSED**

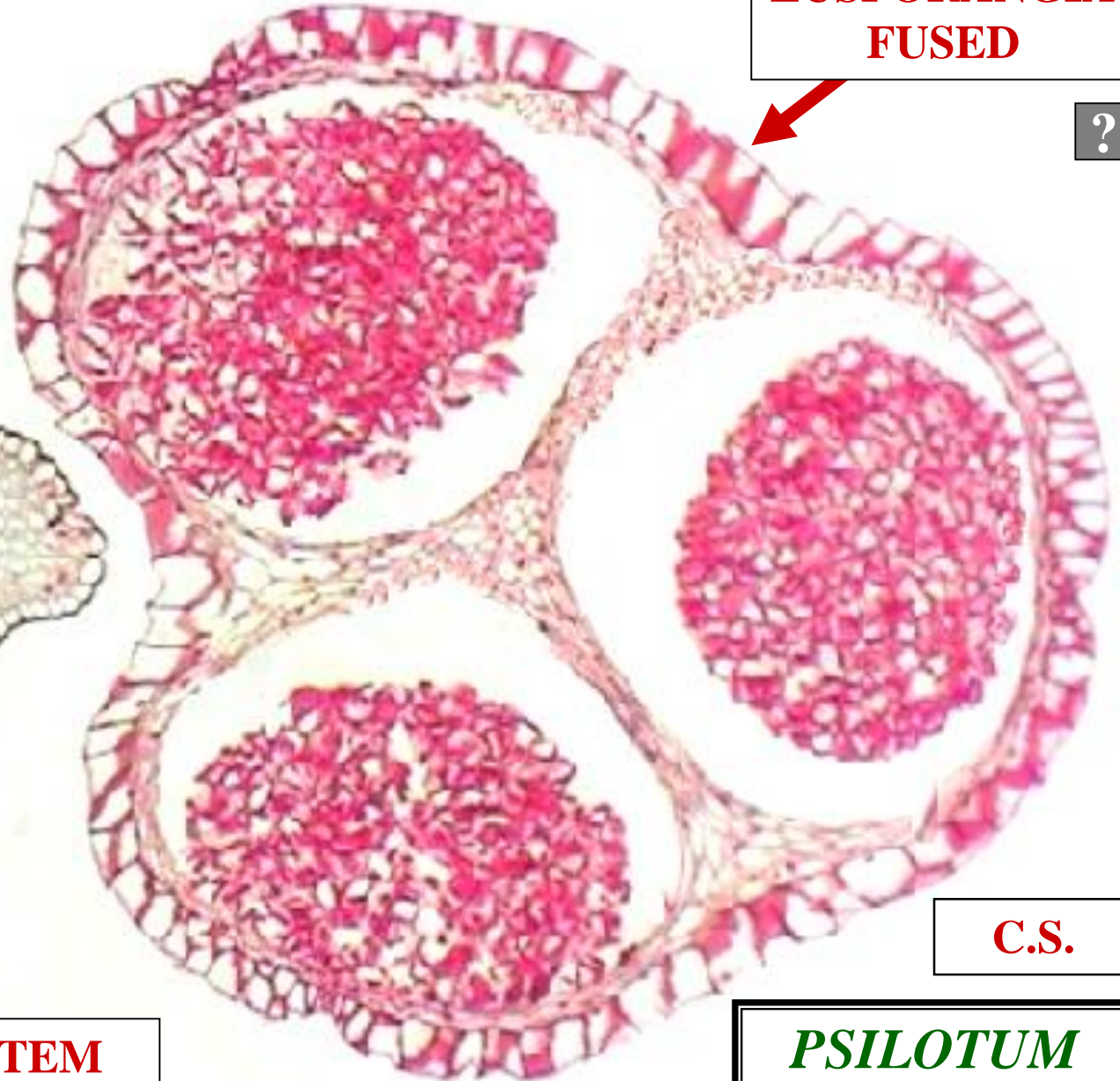


PSILOTUM

PSILOTUM



AERIAL STEM



**EUSPORANGIA
FUSED**

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C.S.

PSILOTUM



AERIAL STEM

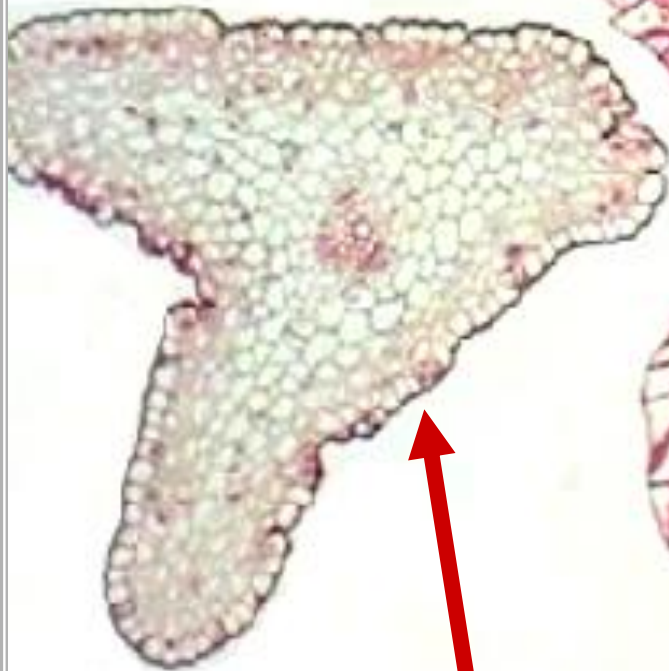


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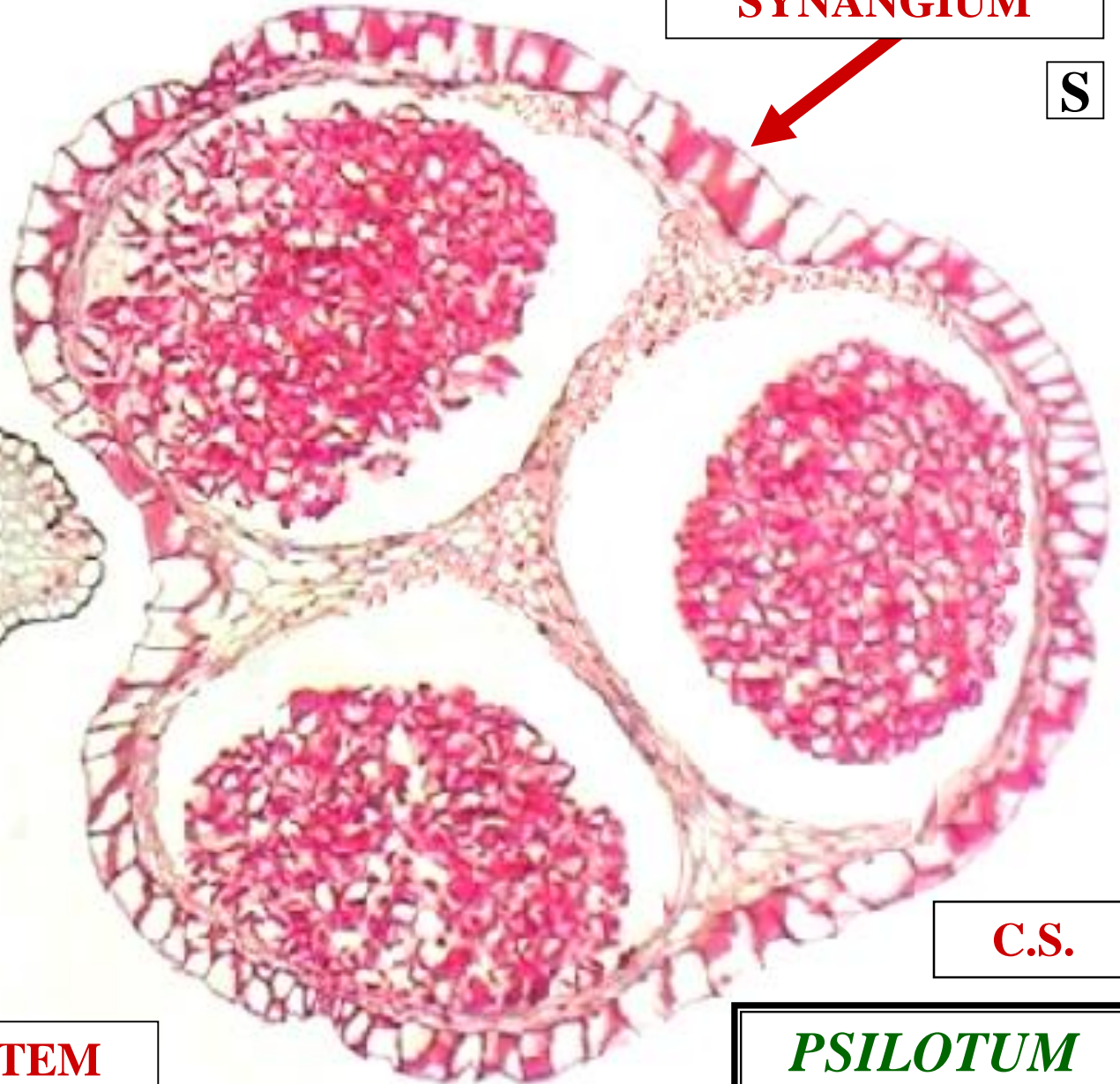
S

C.S.

PSILOTUM



AERIAL STEM



SYNANGIUM

S

C.S.

PSILOTUM

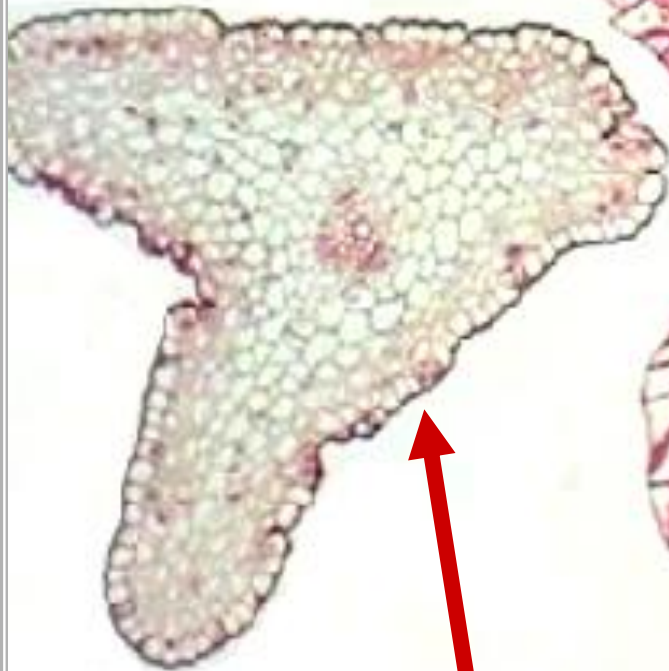
SYNANGIUM

PSILOTUM
SYNANGIUM

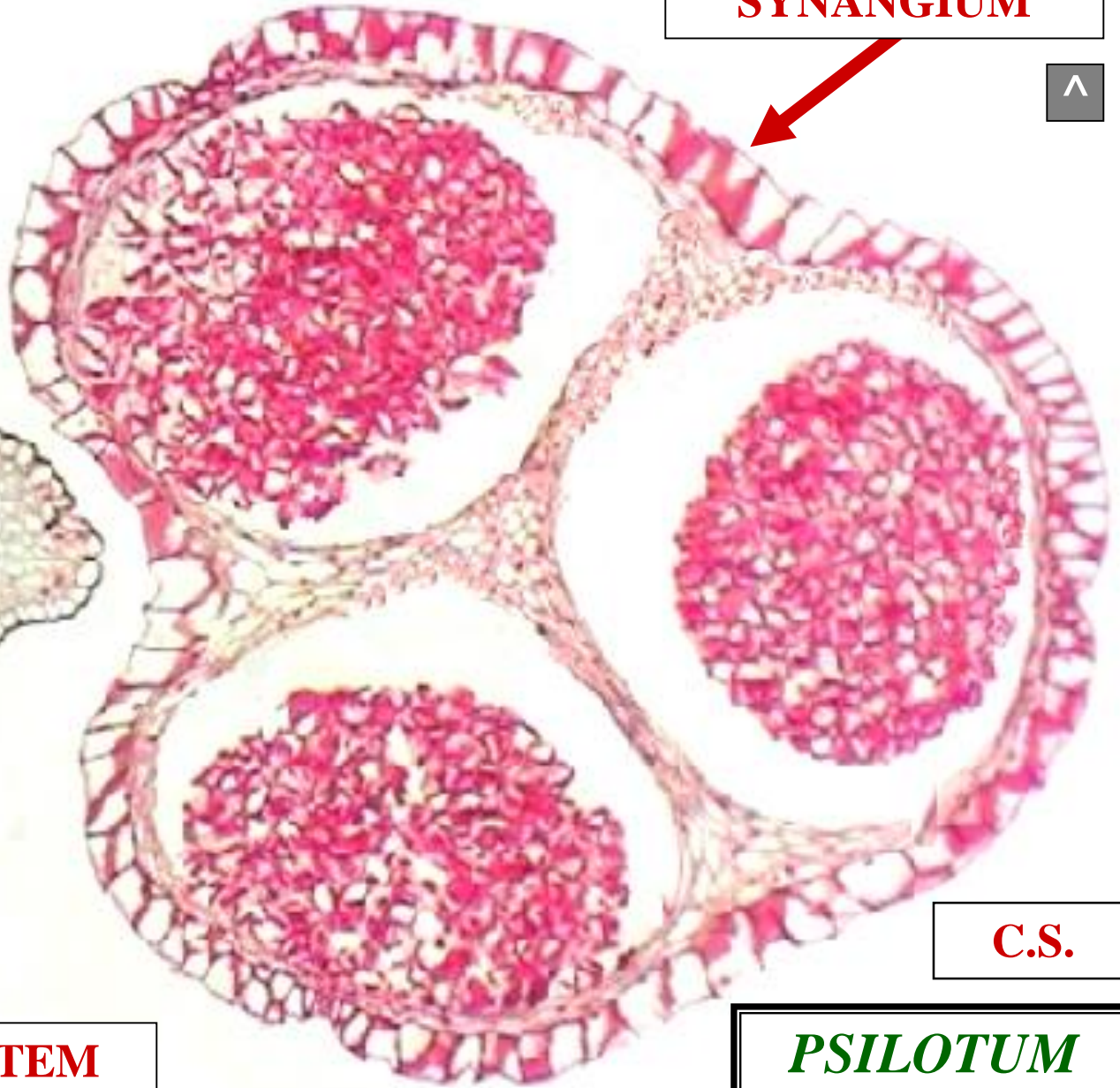


FUSED
SPORANGIA

PSILOTUM
SYNANGIUM



AERIAL STEM



SYNANGIUM



C.S.

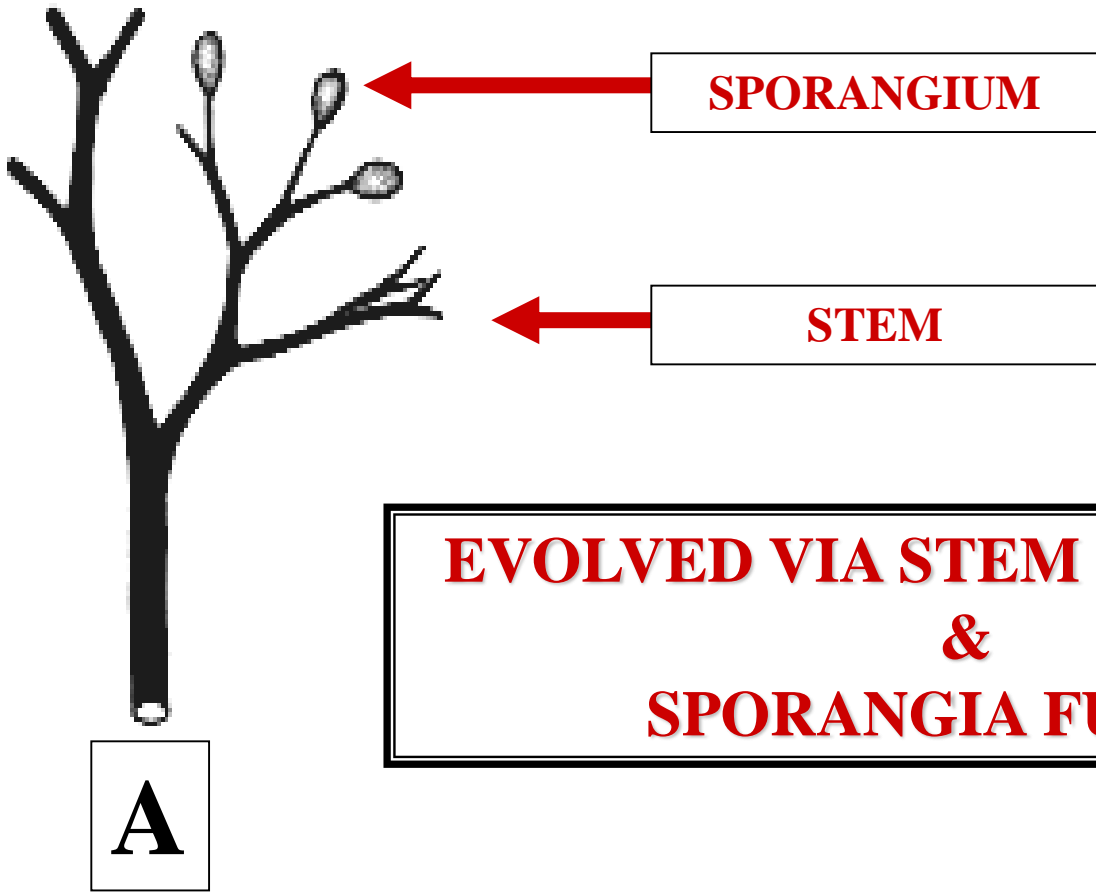
PSILOTUM



SYNANGIUM EVOLUTION



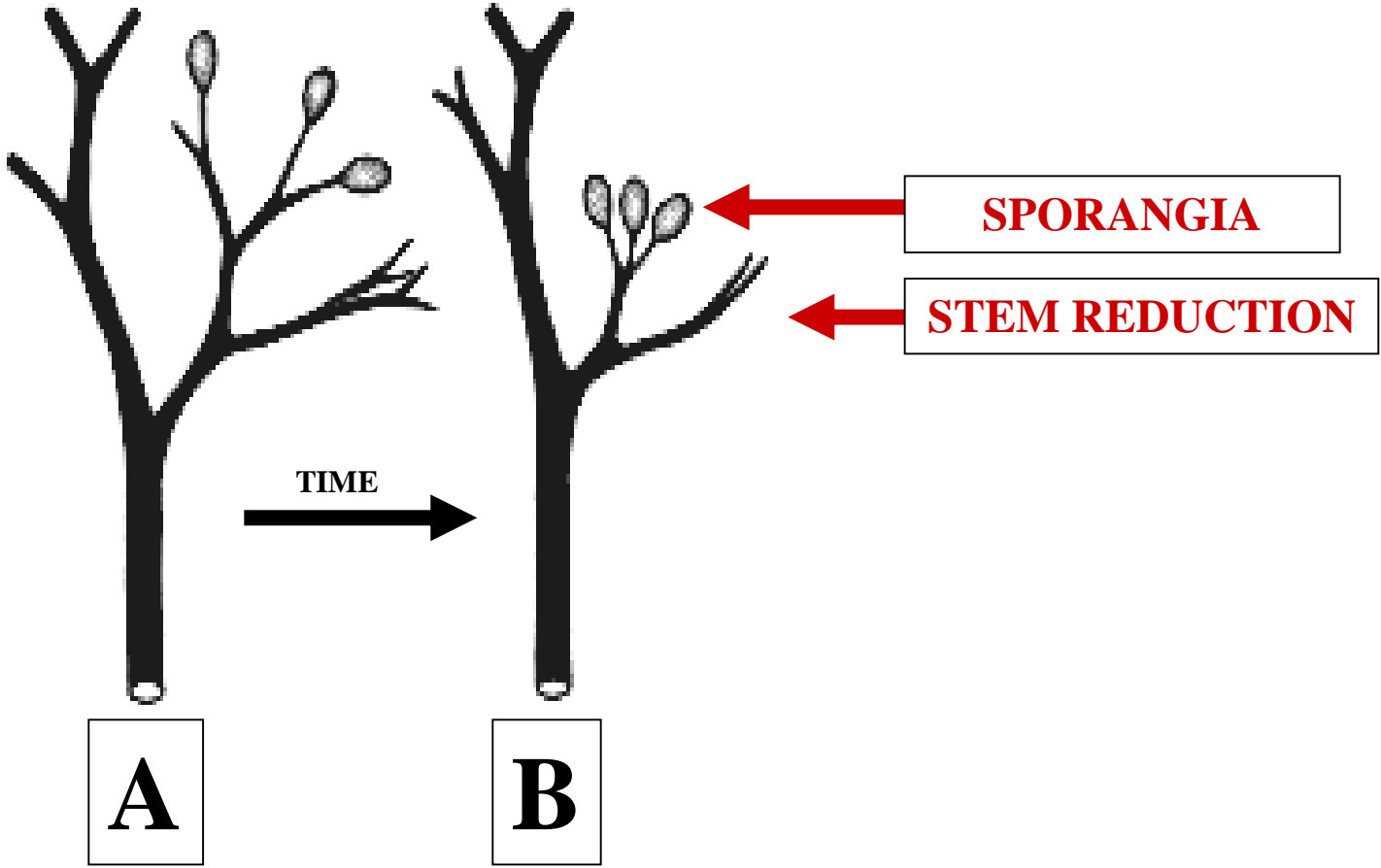
SYNANGIUM EVOLUTION



**EVOLVED VIA STEM REDUCTION
&
SPORANGIA FUSION**



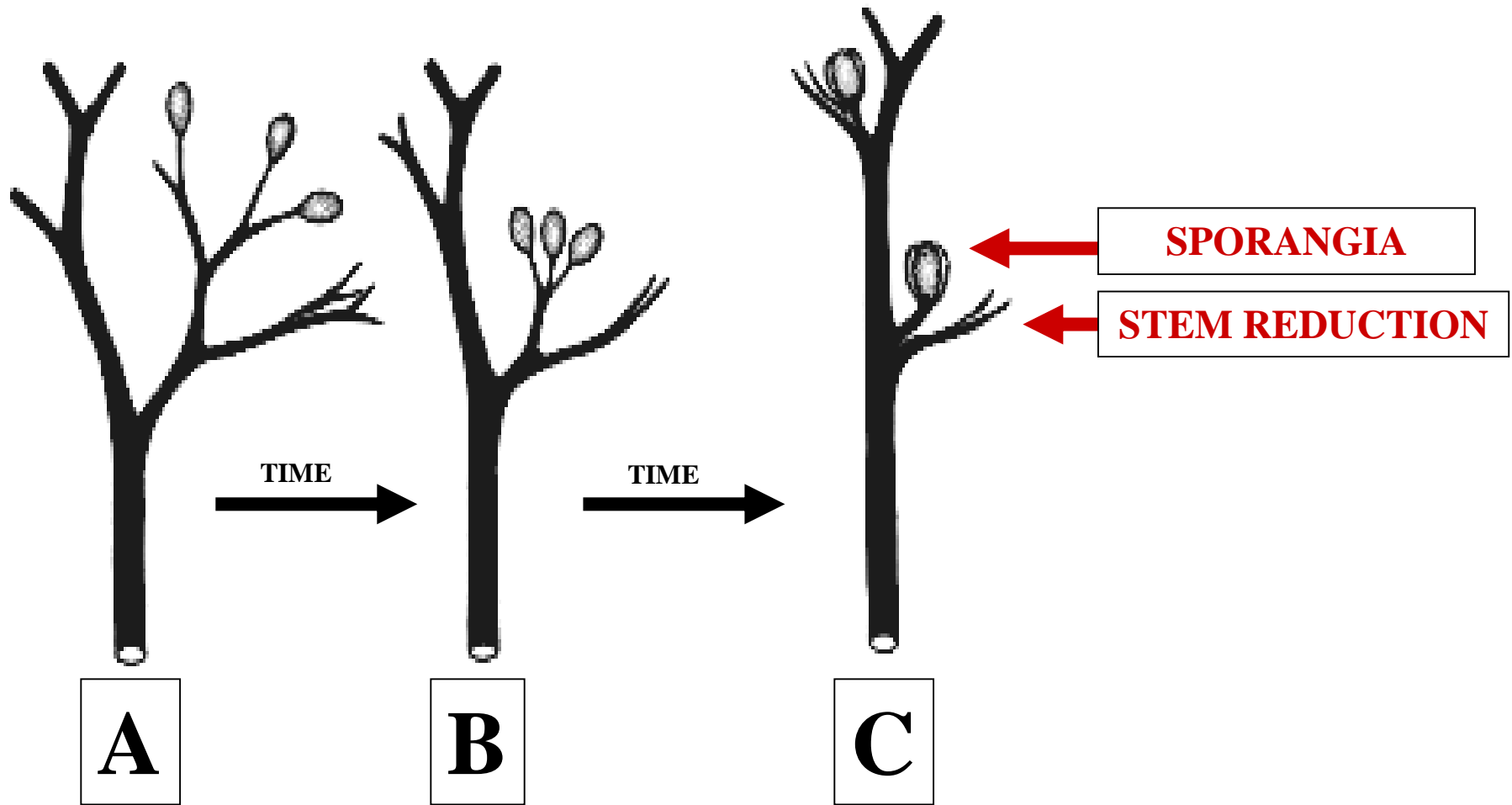
SYNANGIUM EVOLUTION



EVOLVED VIA BRANCH/STEM REDUCTION



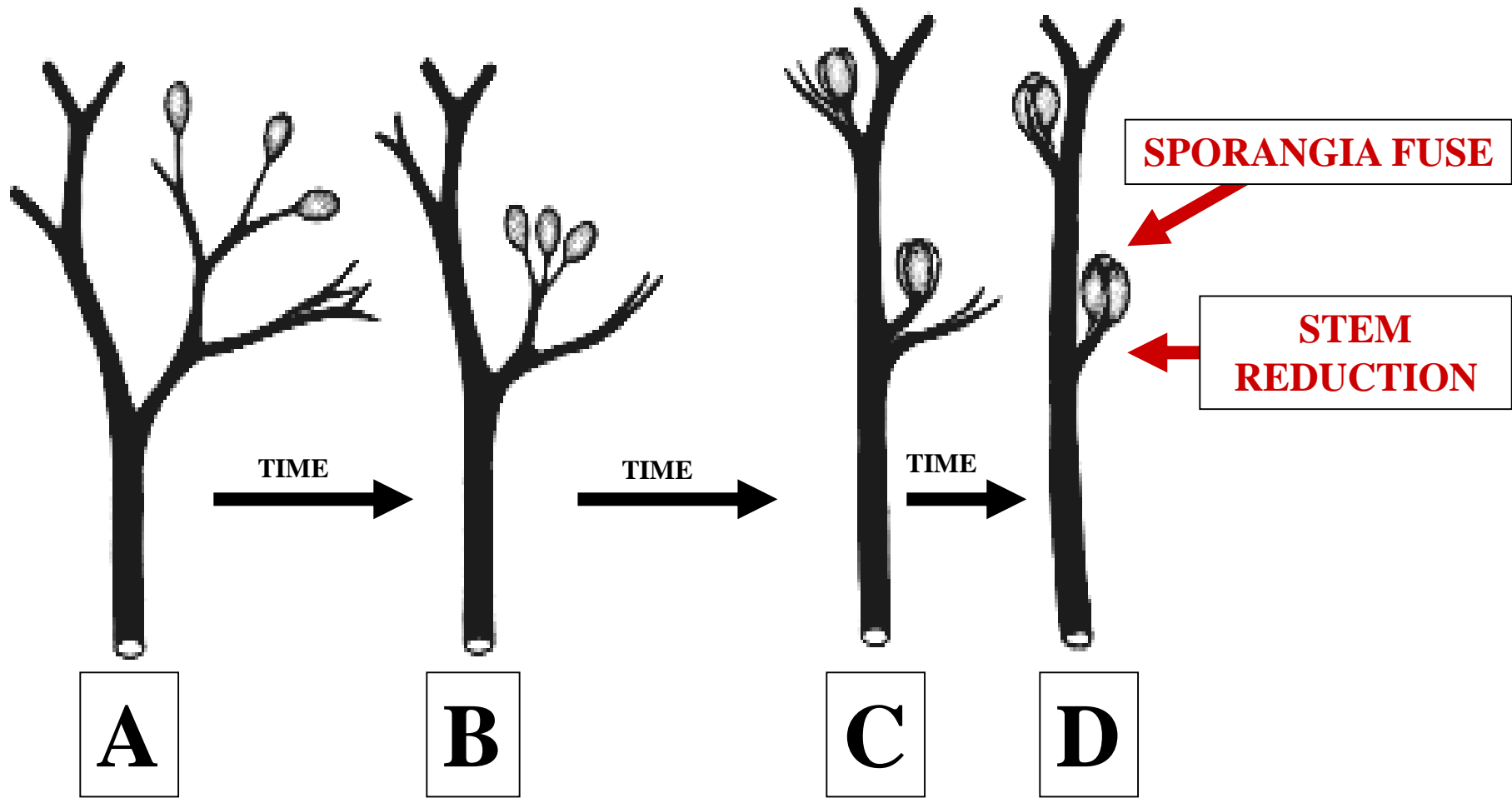
SYNANGIUM EVOLUTION



EVOLVED VIA BRANCH/STEM REDUCTION

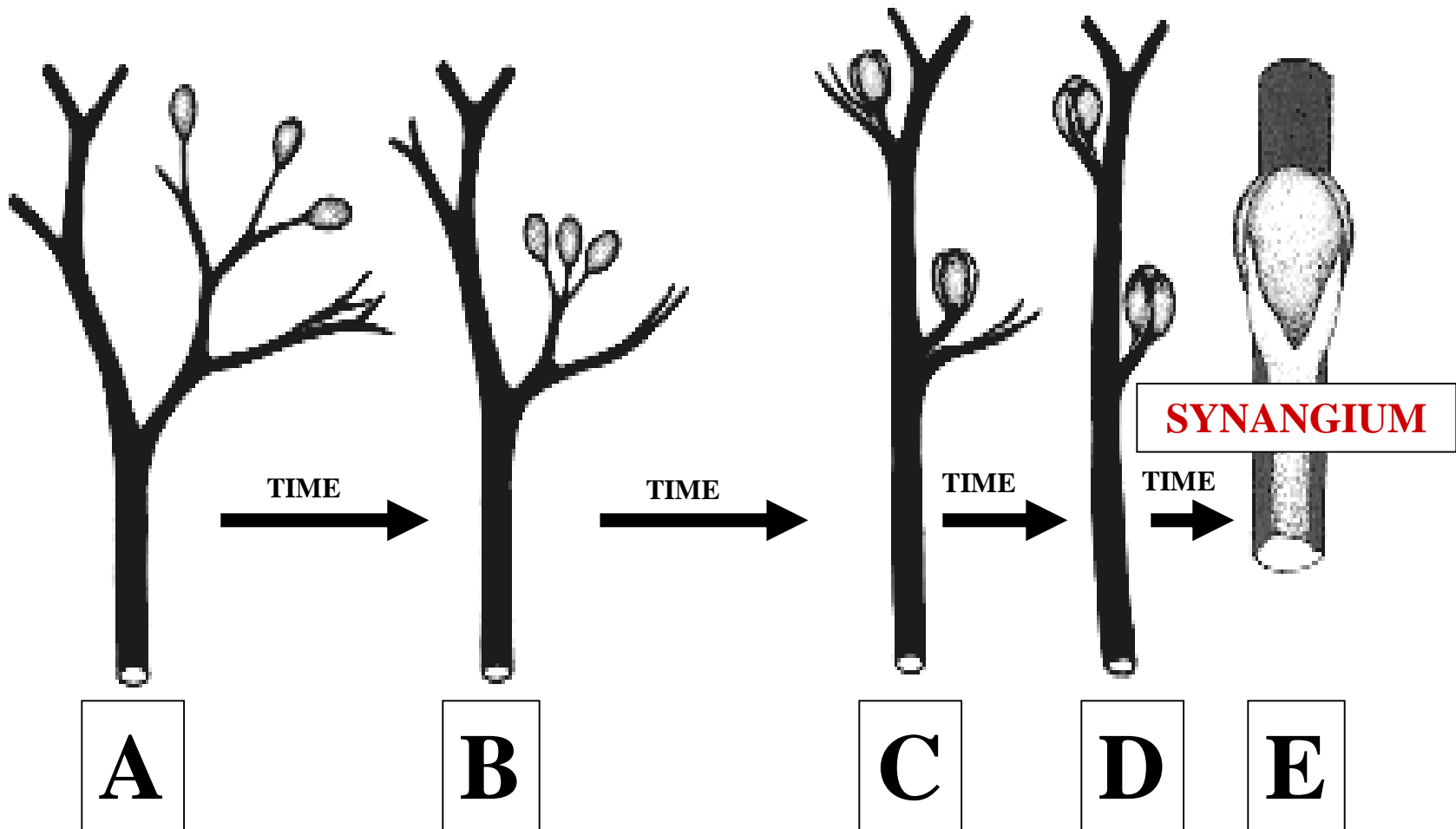


SYNANGIUM EVOLUTION



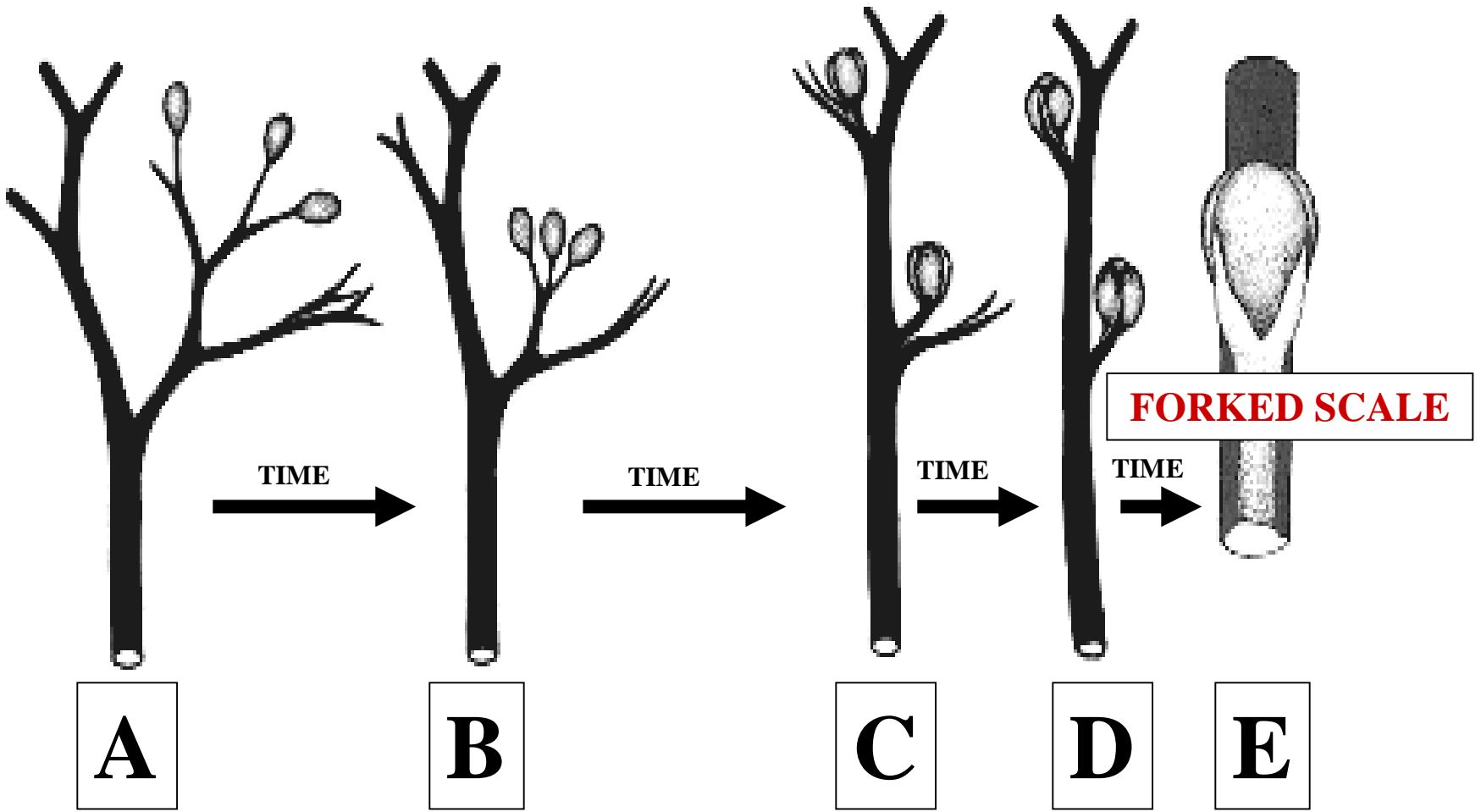
EVOLVED VIA BRANCH/STEM REDUCTION

SYNANGIUM EVOLUTION



EVOLVED VIA BRANCH/STEM REDUCTION

SYNANGIUM EVOLUTION



EVOLVED VIA BRANCH/STEM REDUCTION

FORKED SCALE



PSILOTUM
FORKED SCALE

SYNANGIUM
SUPPORT BRANCH

PSILOTUM
FORKED SCALE



PSILOTUM

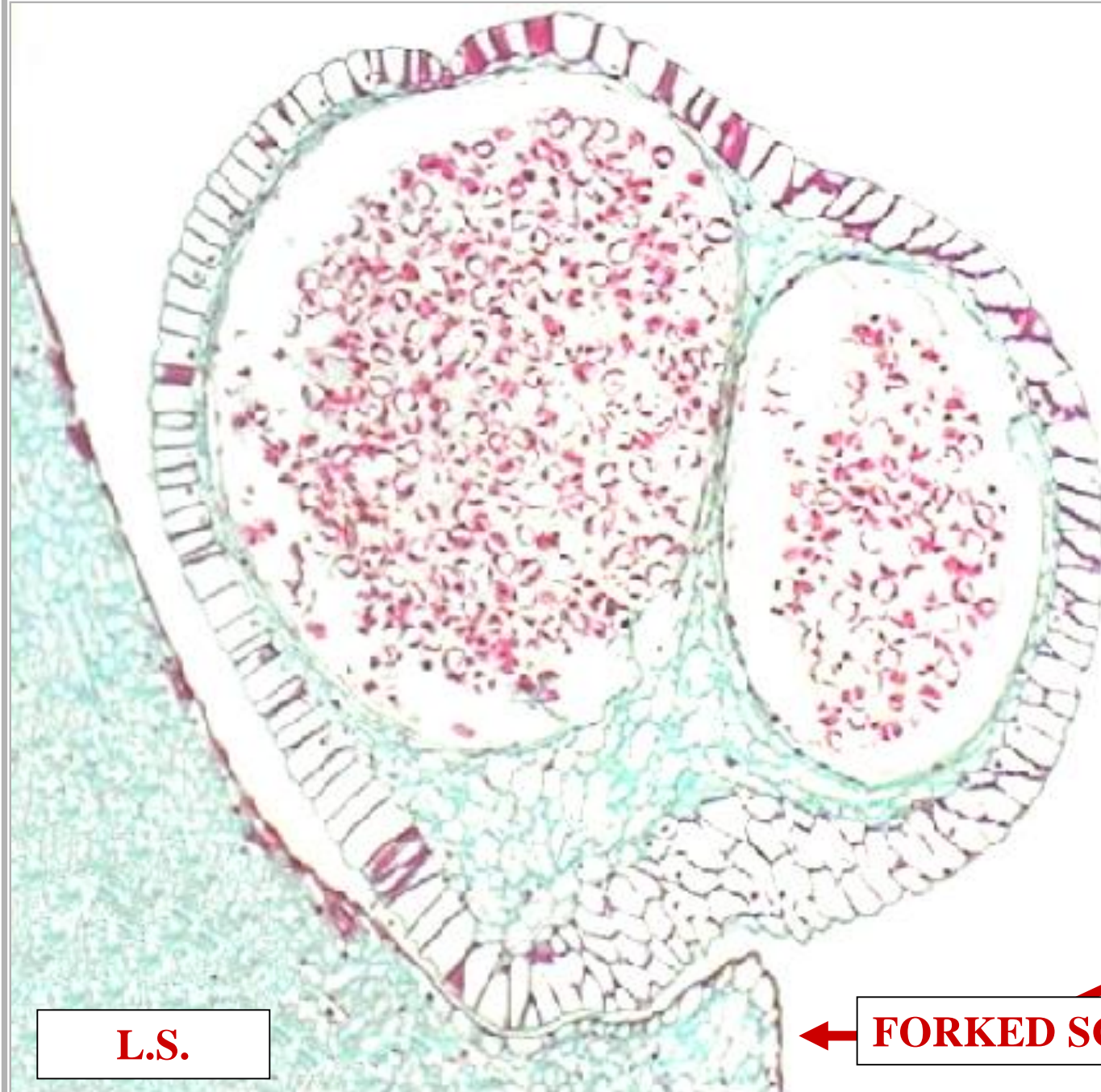
SYNANGIUM



FORKED SCALE

SYNANGIUM EVOLUTION

PSILOTUM



L.S.

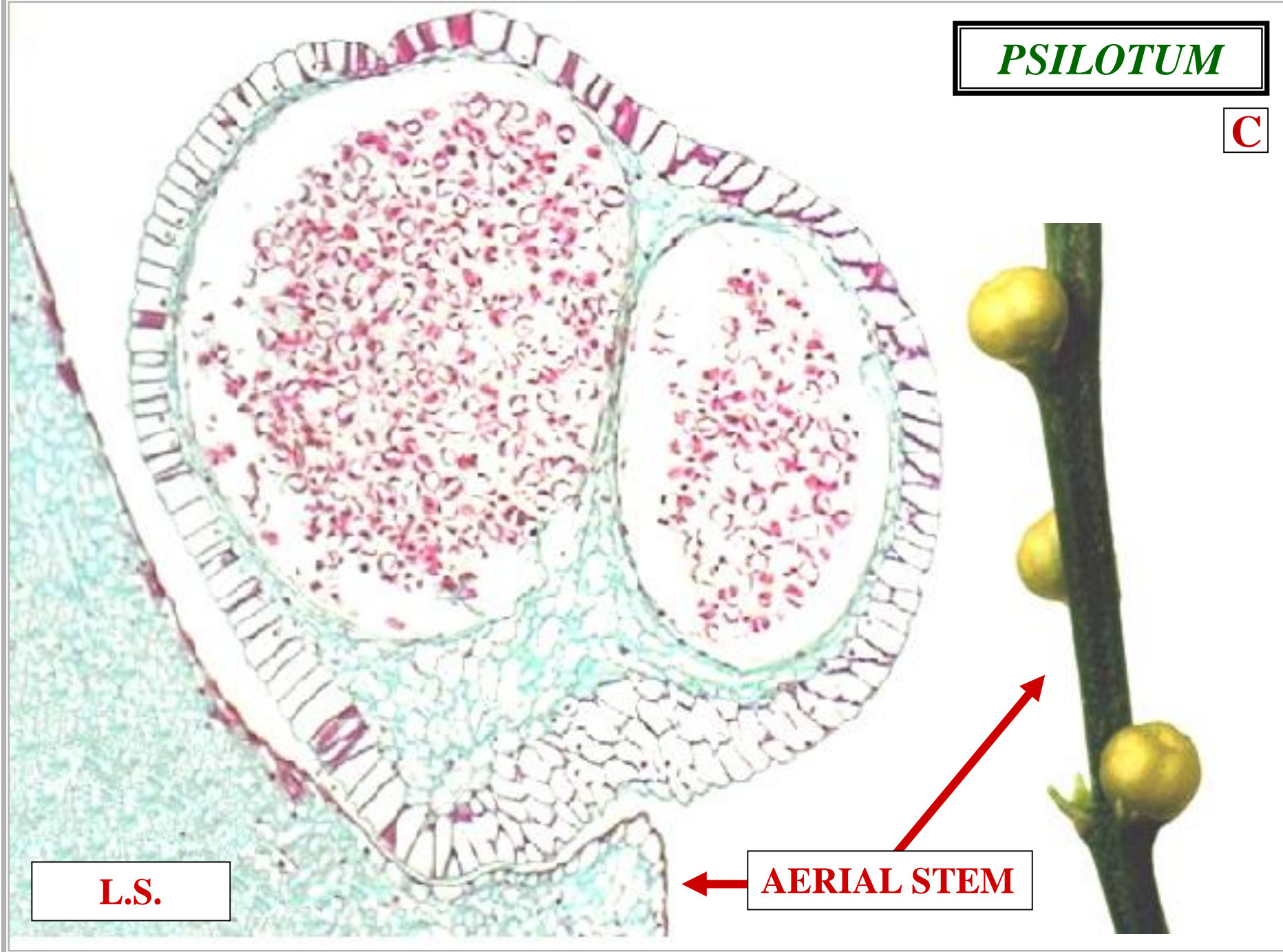
FORKED SCALE



SPORANGIUM POSITION

PSILOTUM

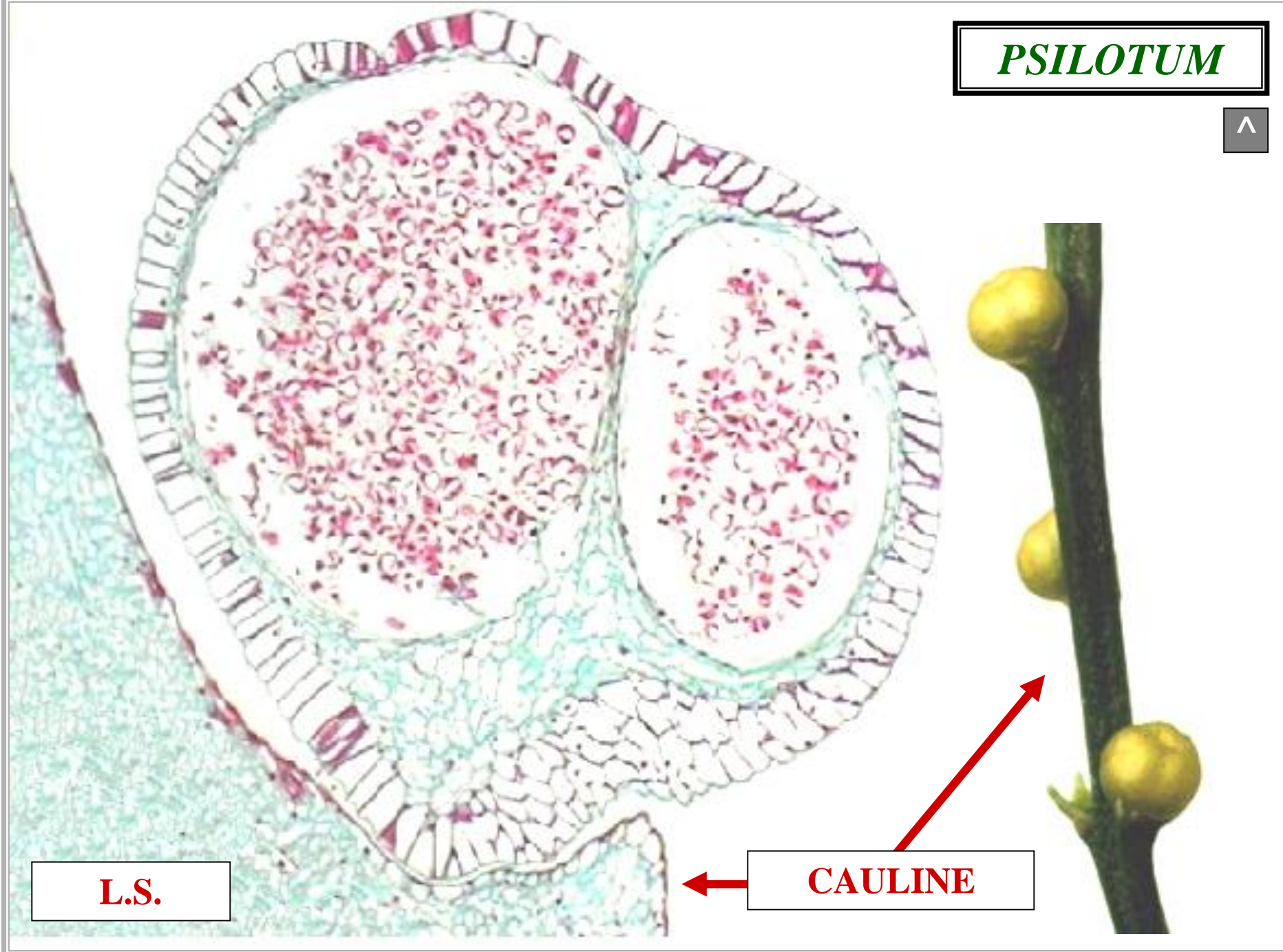
C



L.S.

AERIAL STEM

PSILOTUM



L.S.

CAULINE



SPORE HABIT

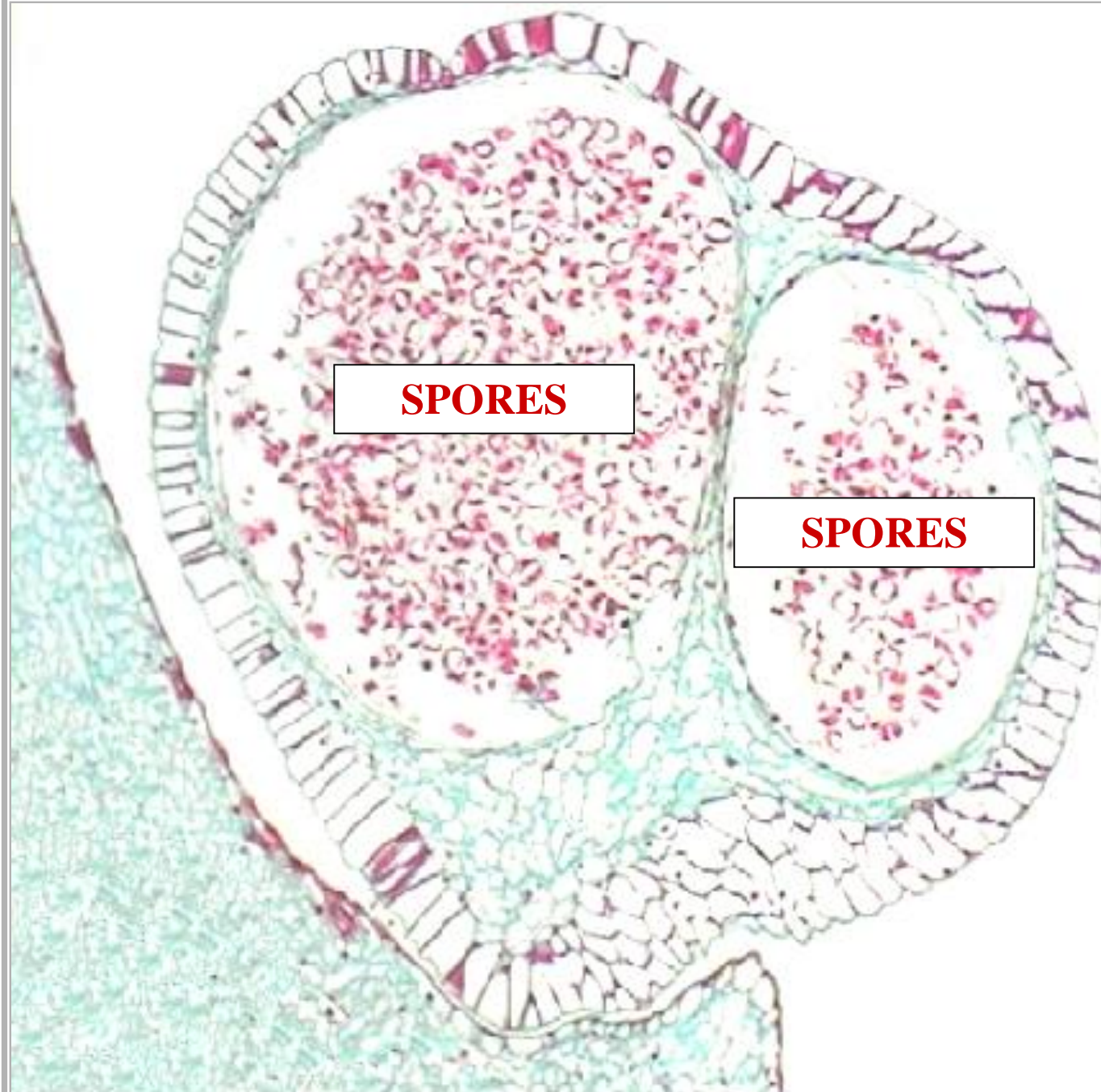
PSILOTUM

L.S.

I

SPORES

SPORES



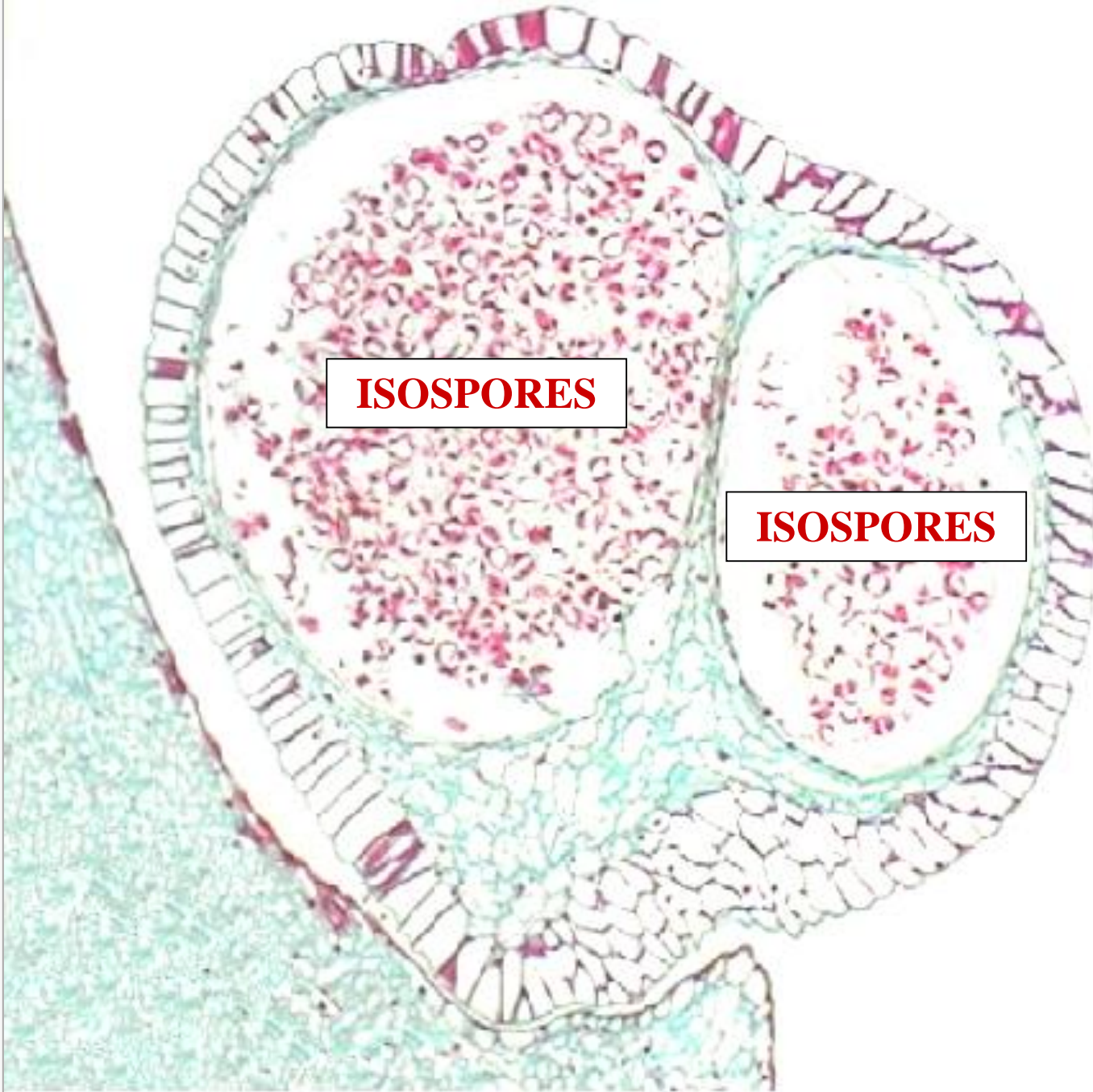
PSILOTUM

L.S.

H

ISOSPORES

ISOSPORES



PSILOTUM

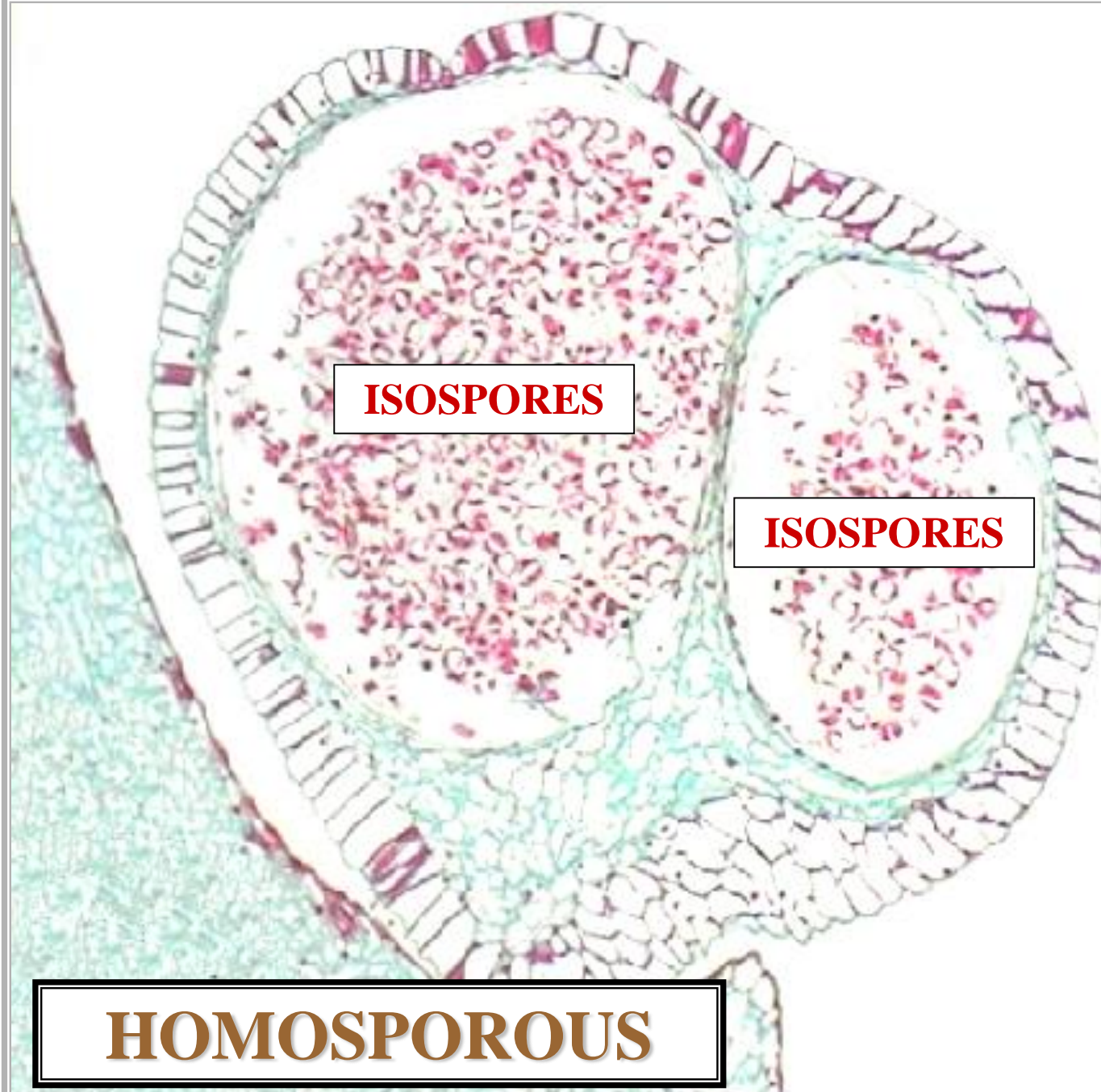
L.S.

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ISOSPORES

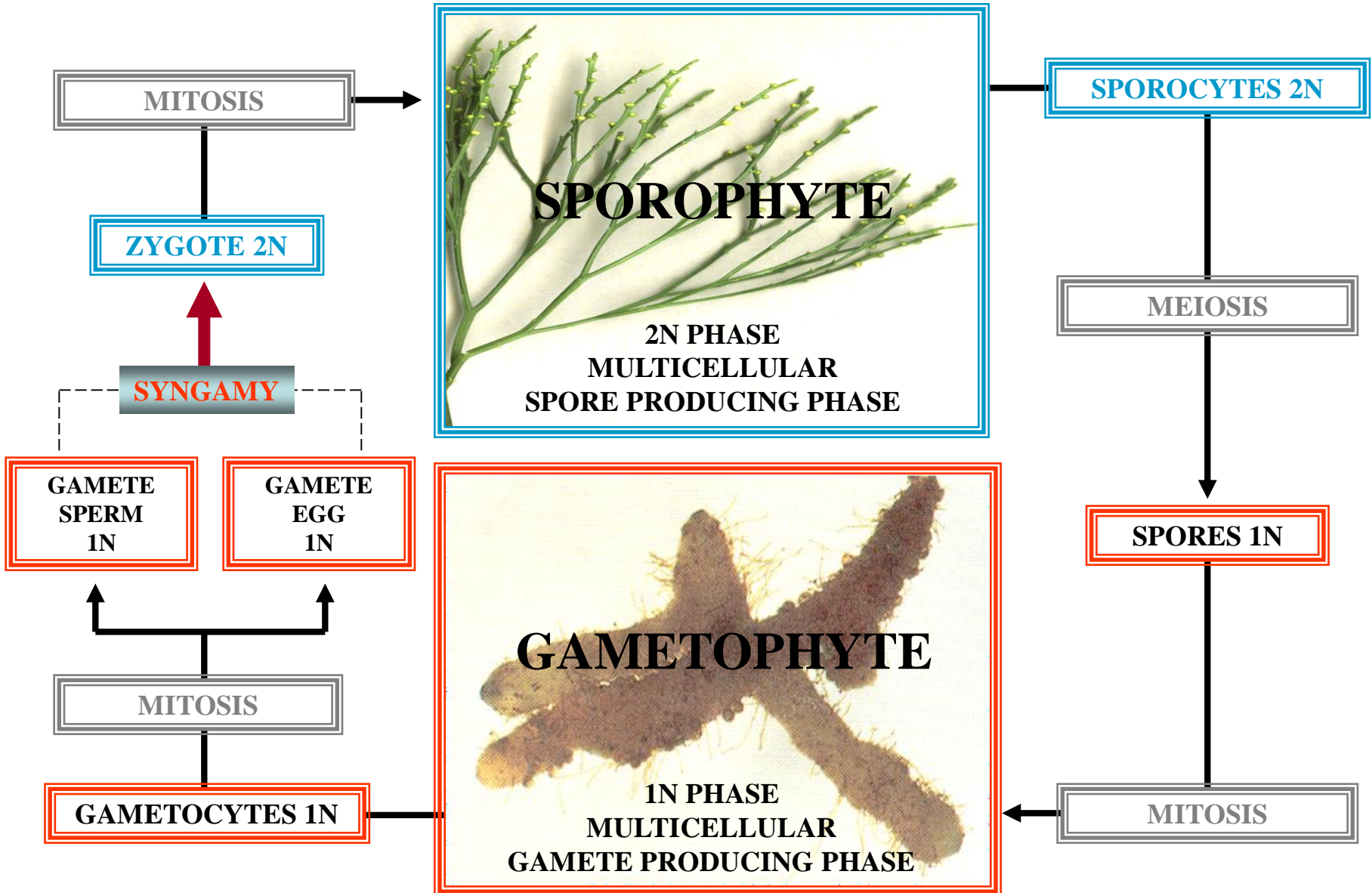
ISOSPORES

HOMOSPOROUS





PSILOTALES LIFE CYCLE



GAMETOPHYTE CHARACTERS

PSILOTUM

L.S.



ISOSPORES

ISOSPORES

HOMOSPOROUS





EXOSPORIC GAMETOPHYTE

PSILOTUM

S



EXOSPORIC

GAMETOPHYTE

PSILOTUM

N



SUBTERRANEAN

GAMETOPHYTE

PSILOTUM

M



NON-PSYN

GAMETOPHYTE