

ACCORDING TO THE SOIL
SPECIALIZATION...)))

(And some botanical
science...)

Chamaedaphne calyculata



Ericaceae family:



Andromeda sp.



Calluna sp.

Ericaceae family:



Vaccinium...

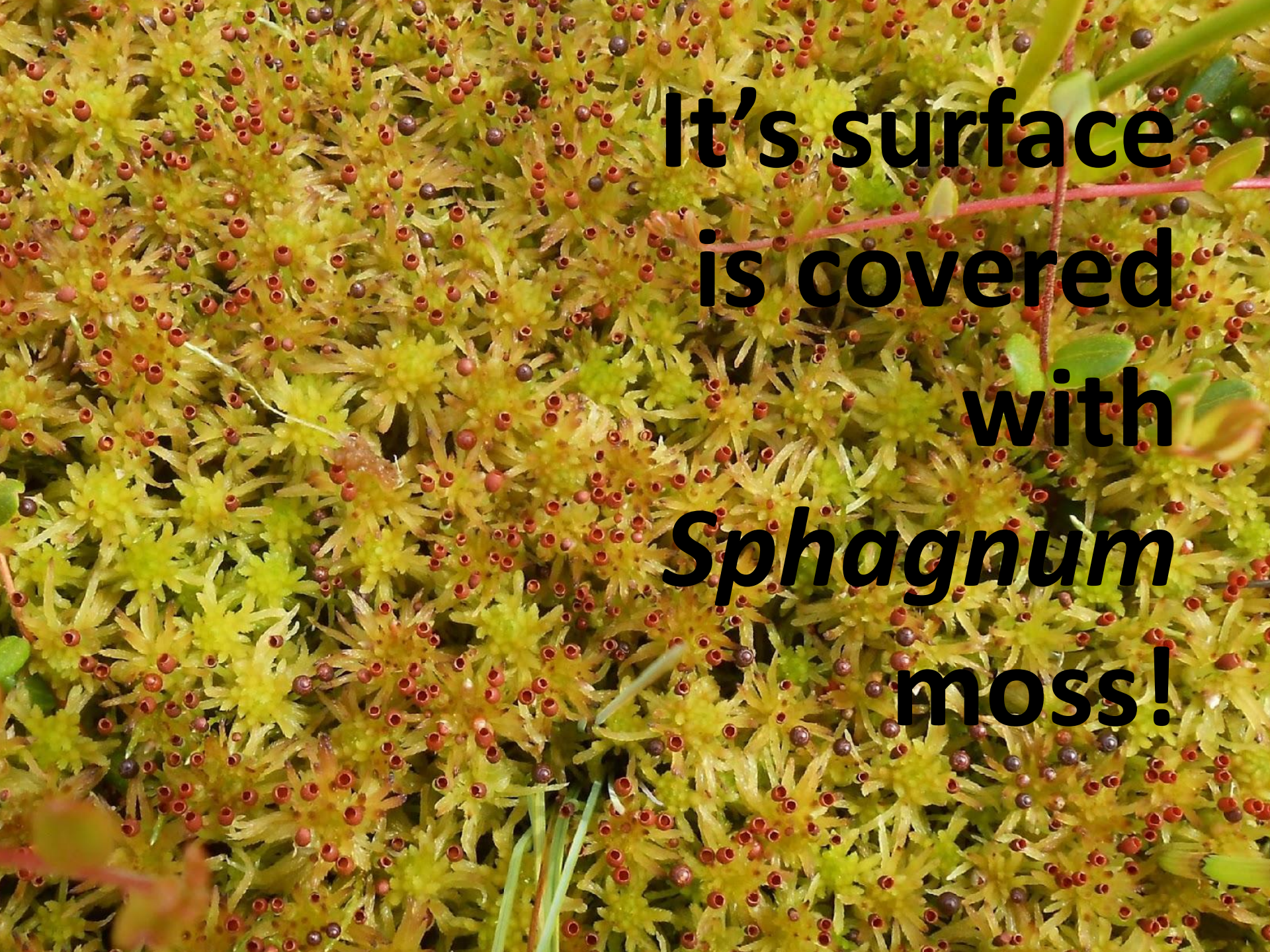
Chamaedaphne *calyculata*



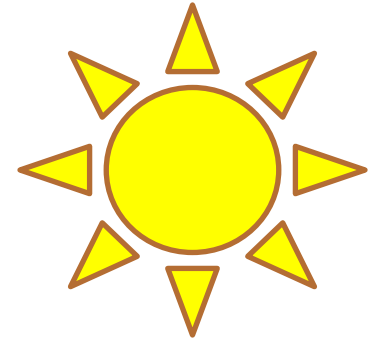
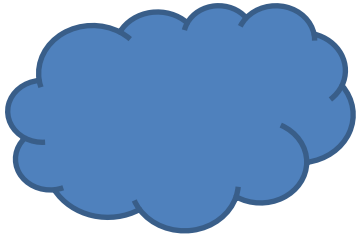
Plants of the olygotrophic swamps

An oligotrophic swamp



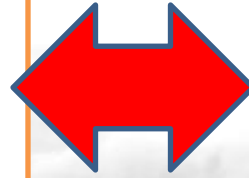


**It's surface
is covered
with
Sphagnum
moss!**



- There are a lot of ecological factors, which is *Chamaedaphne* affected by.

Moisture



Drought

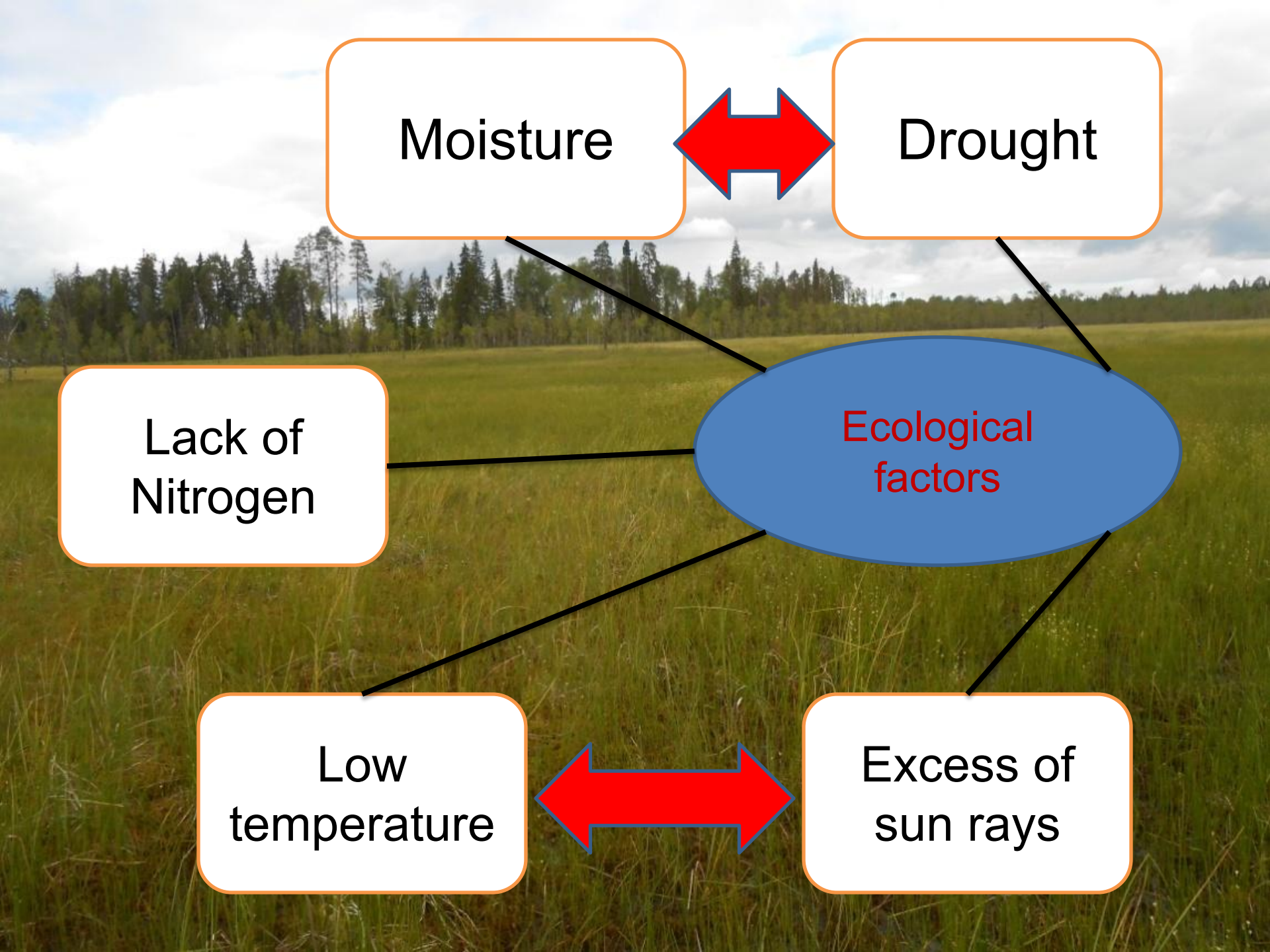
Lack of
Nitrogen

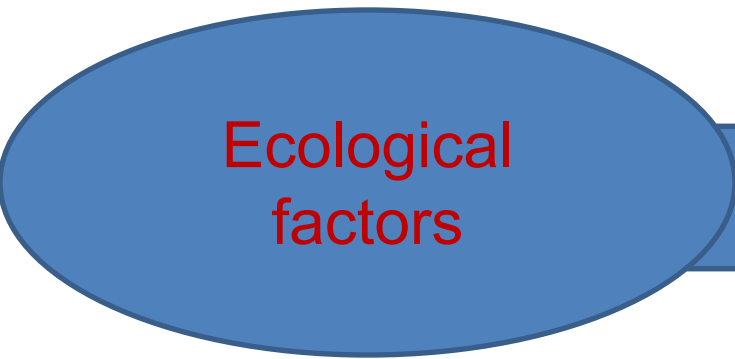
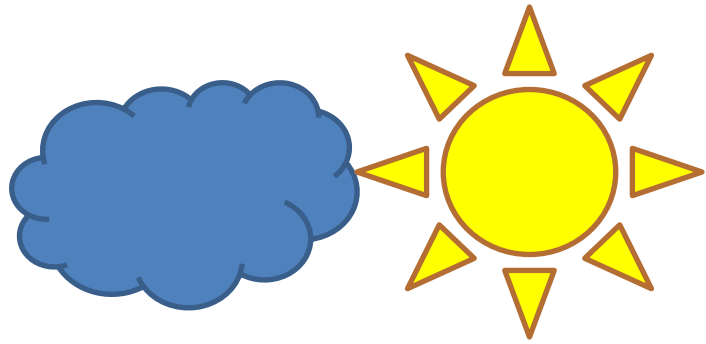
Ecological
factors

Low
temperature



Excess of
sun rays





- Due to such severe conditions, plants of swamps, or OXYLOPHYTES as *Chamaedaphne*, have some special characteristics.

1. The leaves



Drought

Drought

The leaves



The leaves



Drought

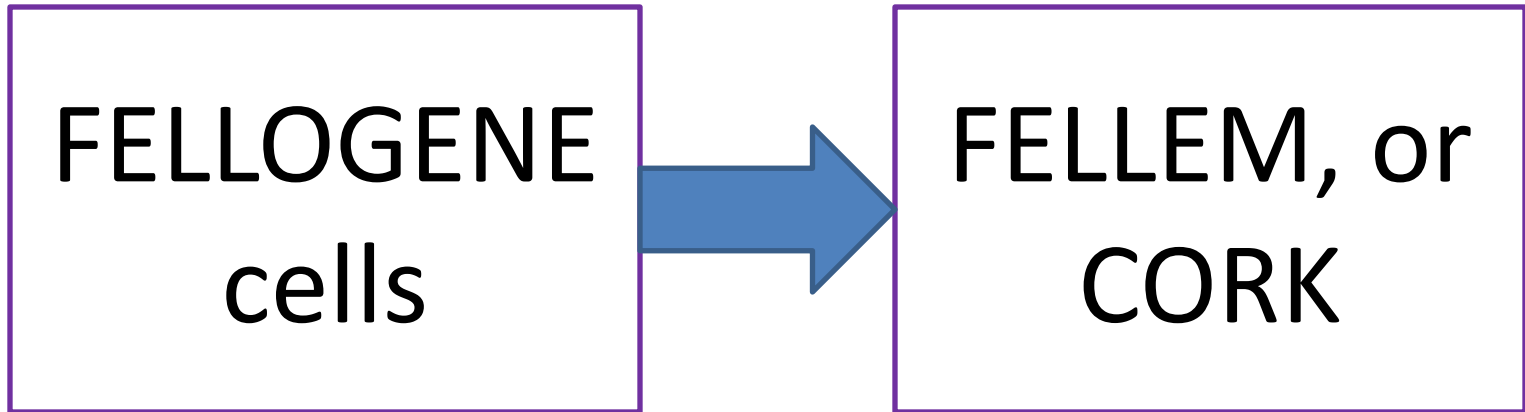
Excess of
sun rays

leaves of *Andromeda*
are placed at an angle to the horizon.

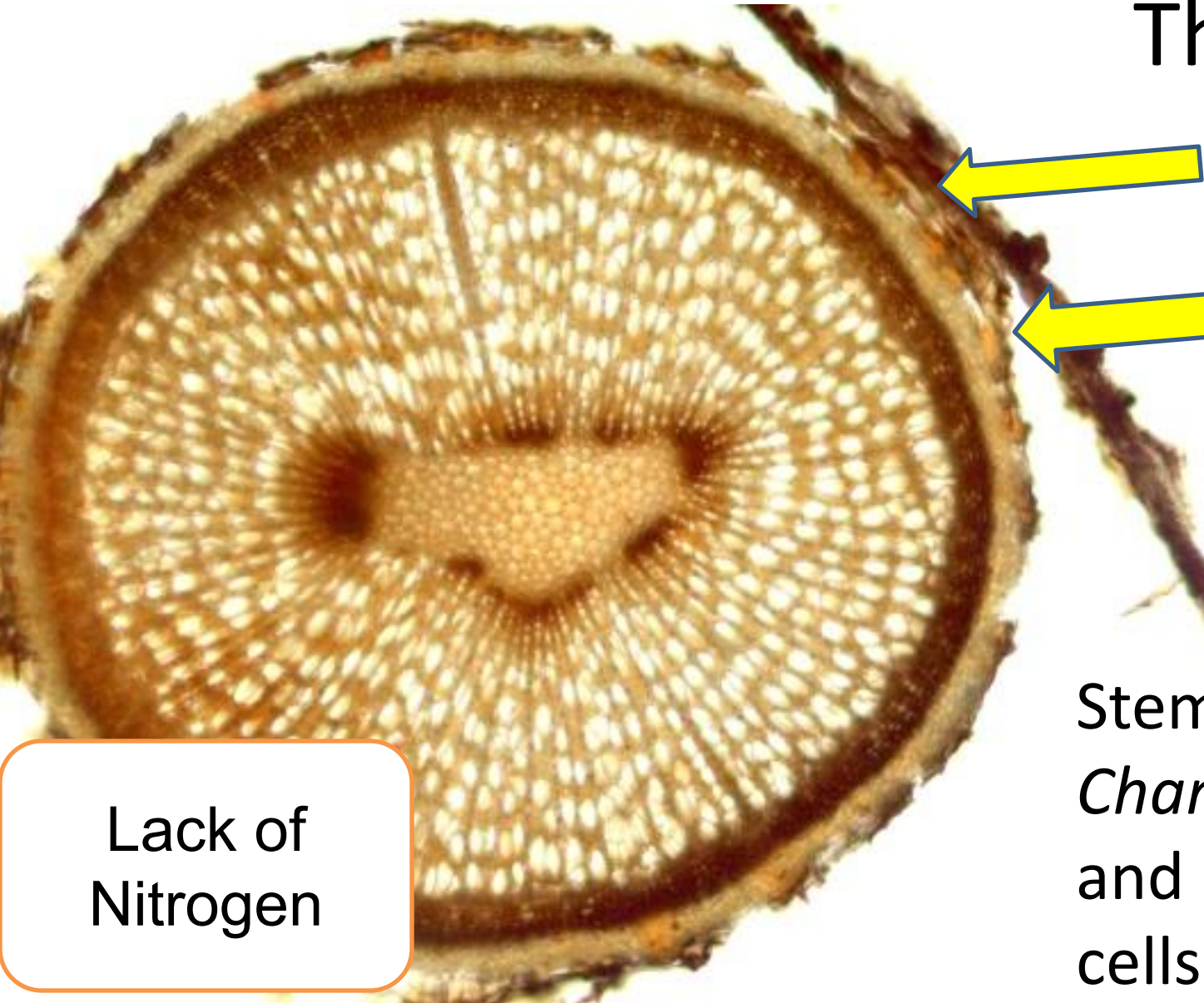


Excess of
sun rays

2. The stem



Lack of
Nitrogen



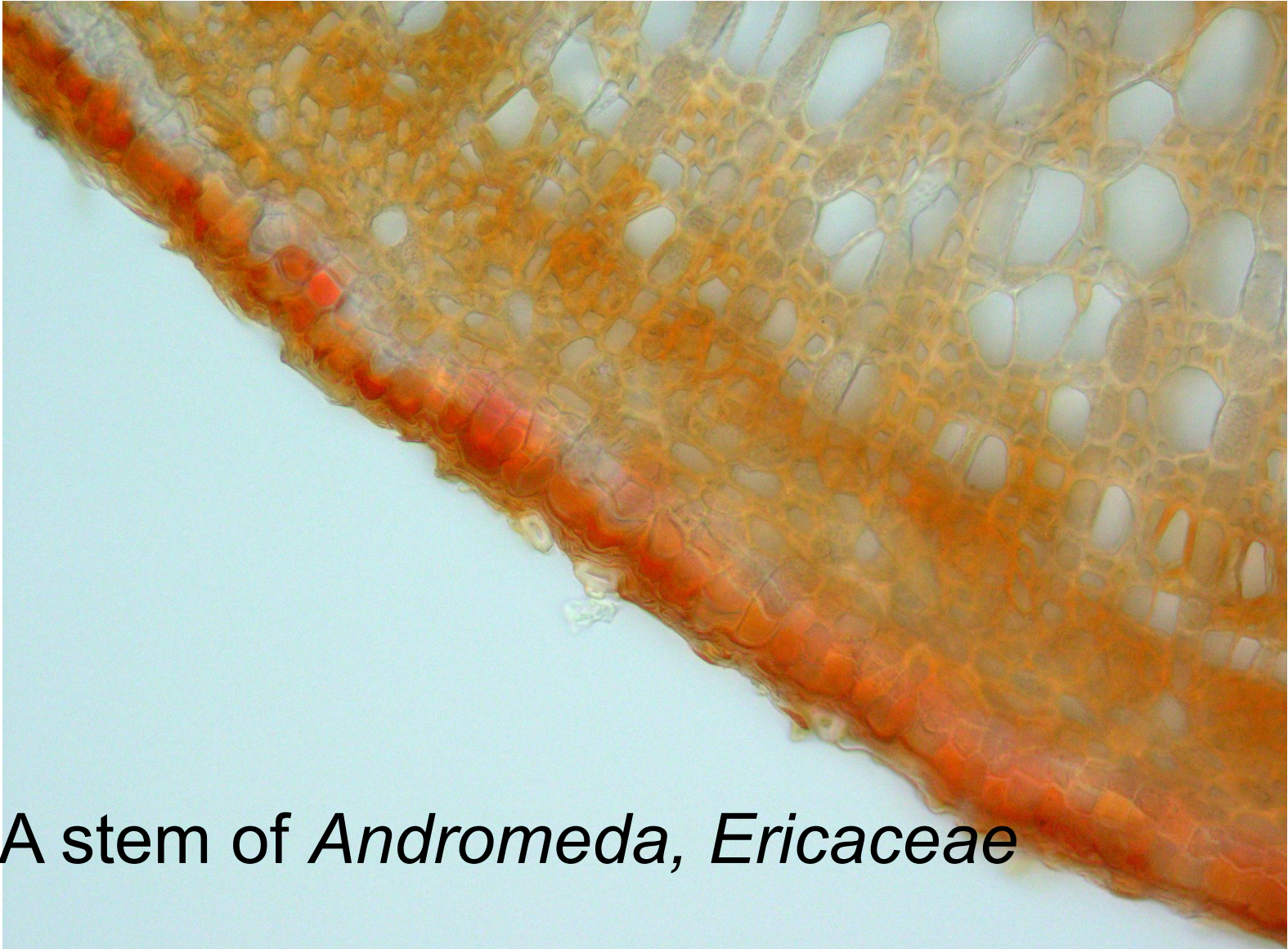
The stem



Lack of
Nitrogen

Stem of
Chamaedaphne,
and FELLOGENE
cells

The stem. Tannins in the cork



A stem of *Andromeda*, *Ericaceae*

-has some special cells, which produce fellein.

1. Lack of nutrition

- Olygotrophic swamps are water reservoirs which are poor with organic matter, actually with nitrogen compounds.

- For example, plants of *Ericaceae* family –



- *Andromeda
polifolia*,
- Подбел
МНОГОЛИСТНЫЙ,



*Chamaedaphne
calyculata, ...*
...Мирт
БОЛОТНЫЙ,...

19. 7. 2016 19:05

- These cells, or FELLOGENE cells, also are A BORDER between a stem and some outer tissues, which are to be separated from the stem.
- Эти клетки, или клетки ФЕЛЛОГЕНА, также находятся на ГРАНИЦЕ стебля и других тканей коры, которые затем отваливаются от стебля.

- So the parts of tissues located ABOVE the FELLOGENE separate from the stem. It leads to decrease in nutrition losses during growing season.

2. Low temperature

- These swamps are regions with relatively low-temperature soil.
- Олиготрофные болота – зоны со сравнительно низкой температурой почвы.

- It influences badly on roots, because **absorption** of water is complicated.
- Это плохо влияет на корни, т.к. **всасывание ВОДЫ** [при низких температурах] затруднено.

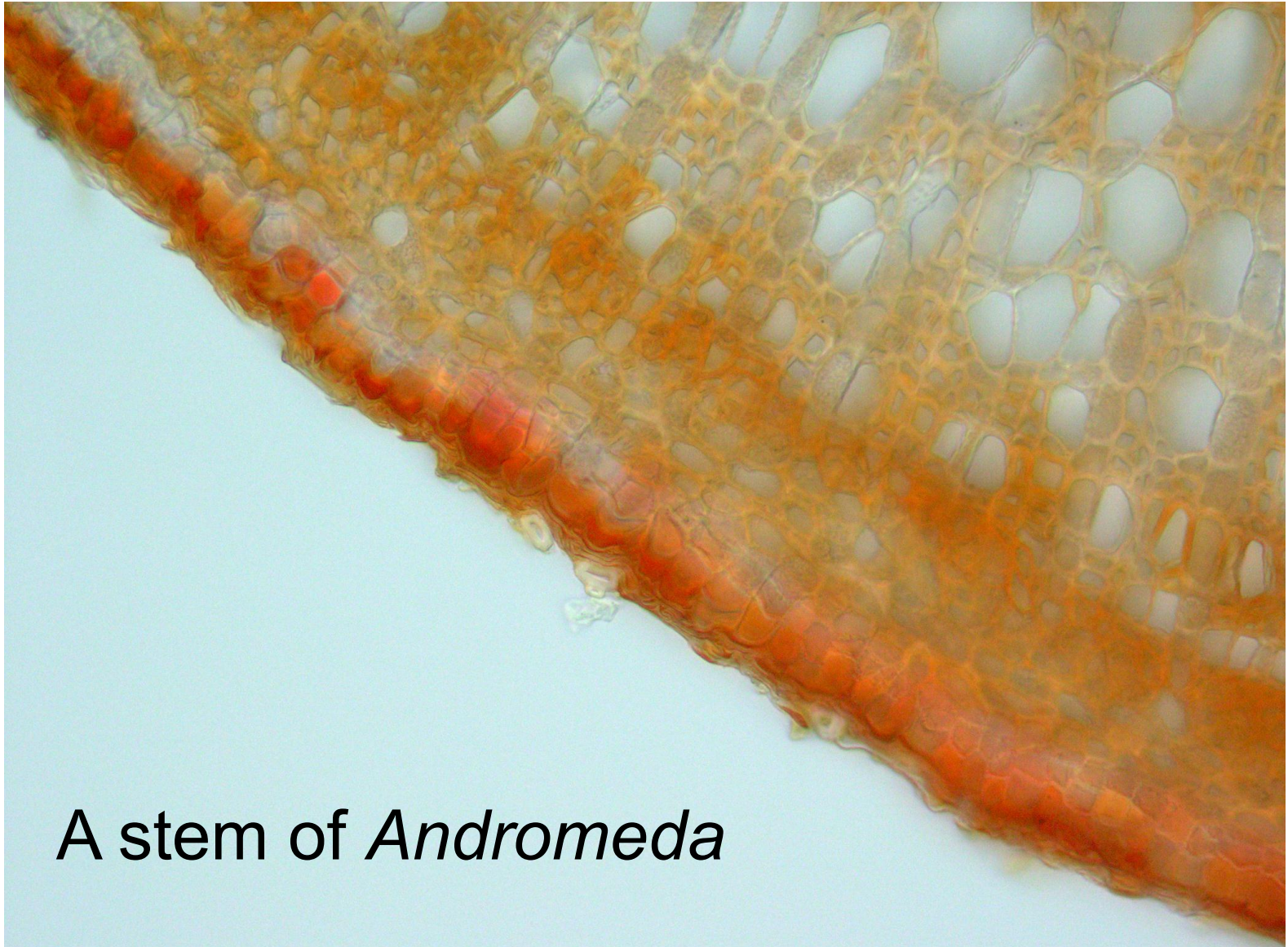
- On the other side, the sun rays reach plants very fast, which makes all the aerial runners warmer.



But leaves of *Chamaedaphne* (*mupm*) also have double layers of photosynthetic tissue to accumulate more sun rays.

- As a result, subterranean organs of OXYLOPHYTES are subjected to cold, but aerial ones are overheated.

Tannins in the cork



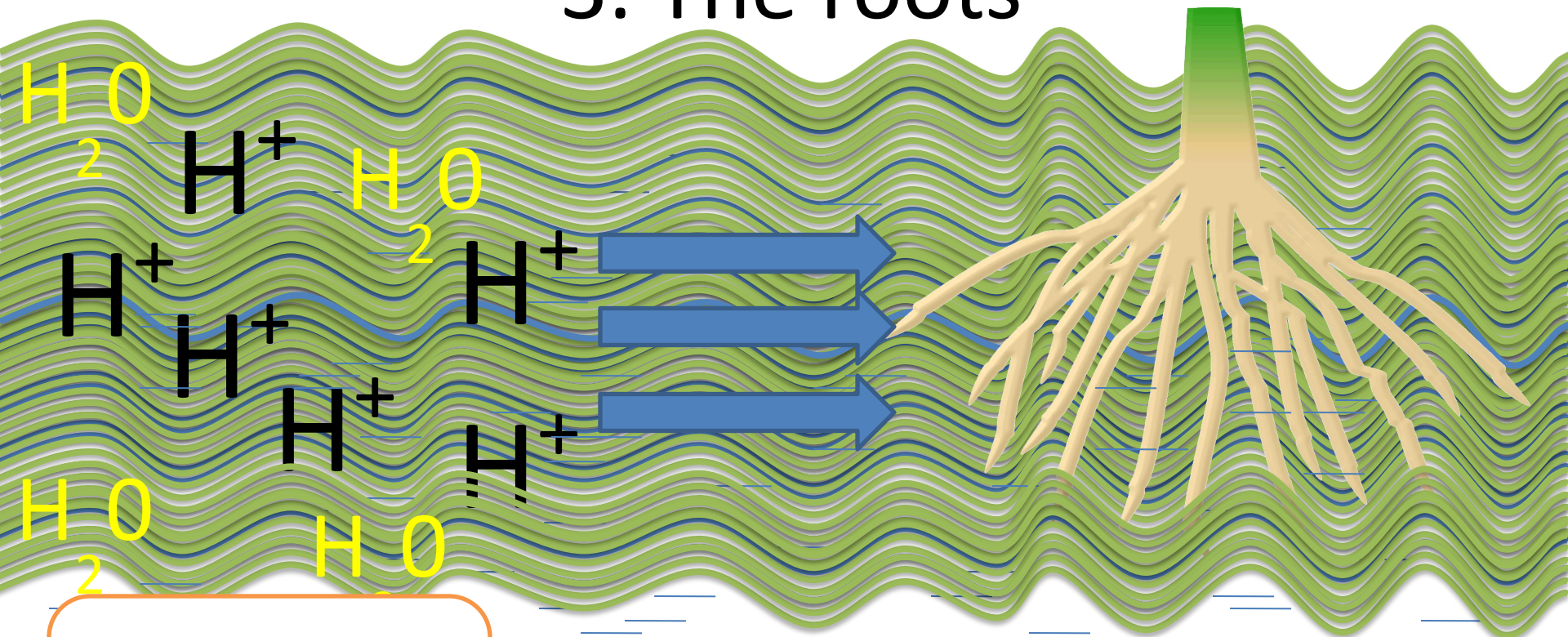
A stem of *Andromeda*

- It contributes to decrease influence of solar rays.

3. Water excess

- Finally, the soil of oligotrophic swamps is very MOISTENED, so atmosphere OXYGEN can not penetrate through it.

3. The roots



Moisture

- According to this, roots do not get enough oxygen for respiration.

- And OXYLOPHYTES have some adaptations for breath:
- They possess special tissue termed AERENCHIMA. It contains cells and plenty of air cameras!



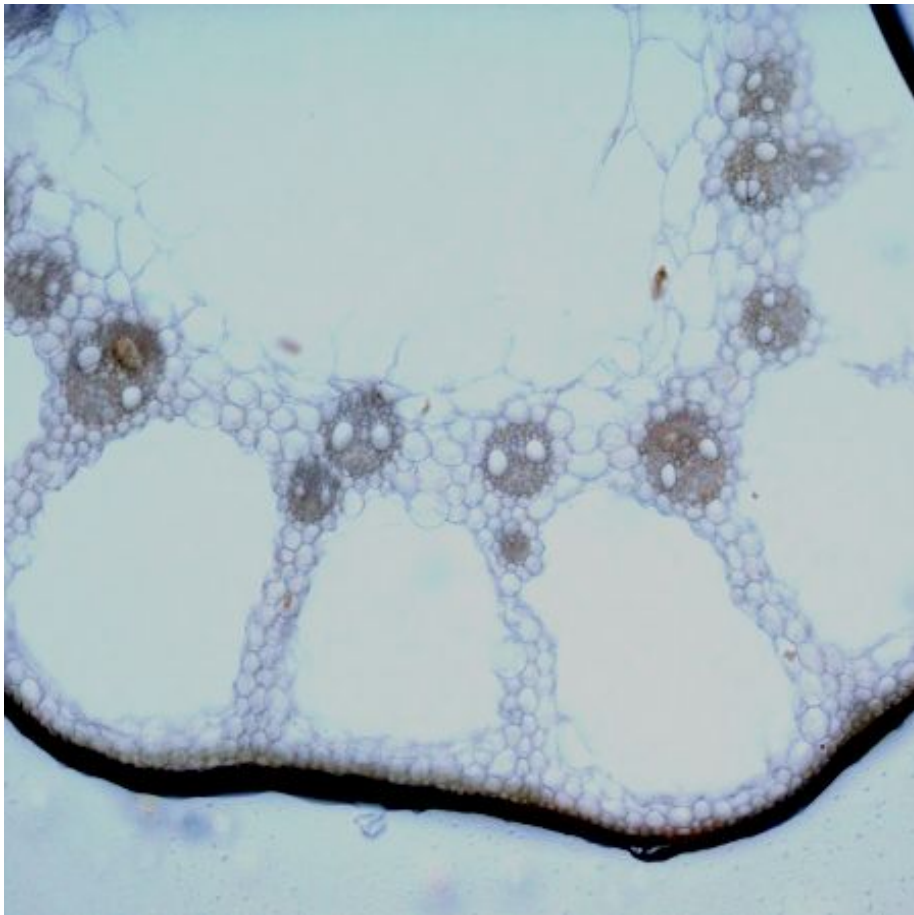
*Вахта
трехлистная*



Aerenchima in
Menyanthes
trifoliata rhizome
(вахта
трехлистная)

Aerochima of *Eriophorum* (пушица):

stem



leave

- There are much more ecological factors, which influence on the OXYLOPHYTES; these factors caused evolutionary adaptations in plants.

- So the plants of oligotrophic swamps are adapted to high and low temperatures, lack of nutrients and oxygen.



- (that was a leafstalk of *Commarrum palustre*)