



# Plants' Rules in Ecosystems

„Mihai eminescu” national college, constanta

Llombai, Spain, Short-term of exchange of group of people  
6-11 March 2022

relationships with  
other living beings:  
symbiosis, commensalism, parasitism

“P.O.L.L.E.N — Plants, Over their Life, Learning European Nature” — 2020-1-FR01-KA229-080120\_4

# Table of Contents

- Symbiosis
  - Lichens
- Commensial plants
  - Common bladderwort
  - *Utricularia vulgaris*
- Hemiparasitism
  - Mistletoe
  - *Viscum album*

Symbiosis

# Lichens

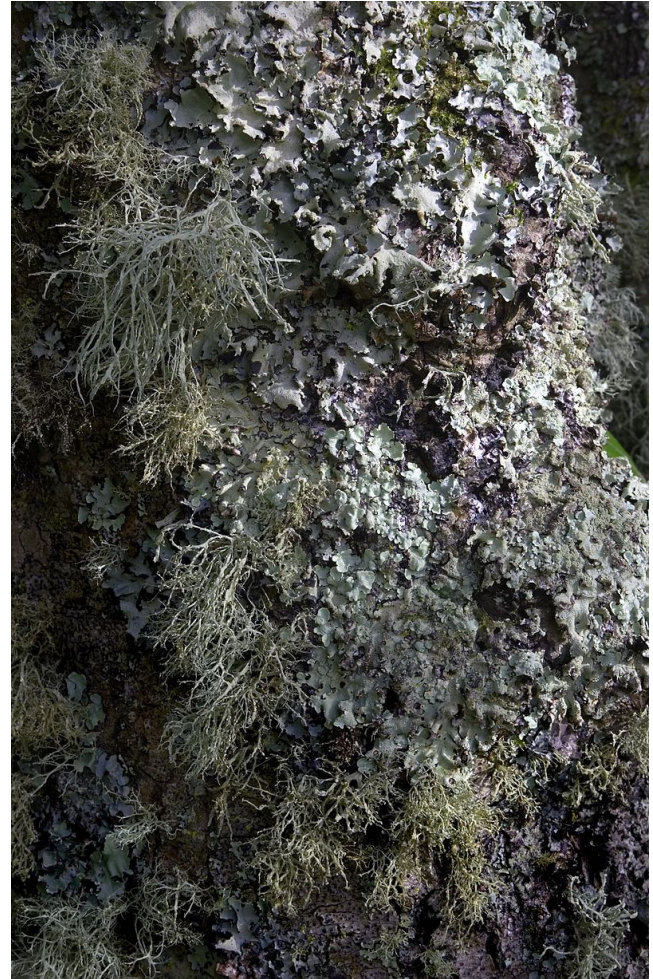


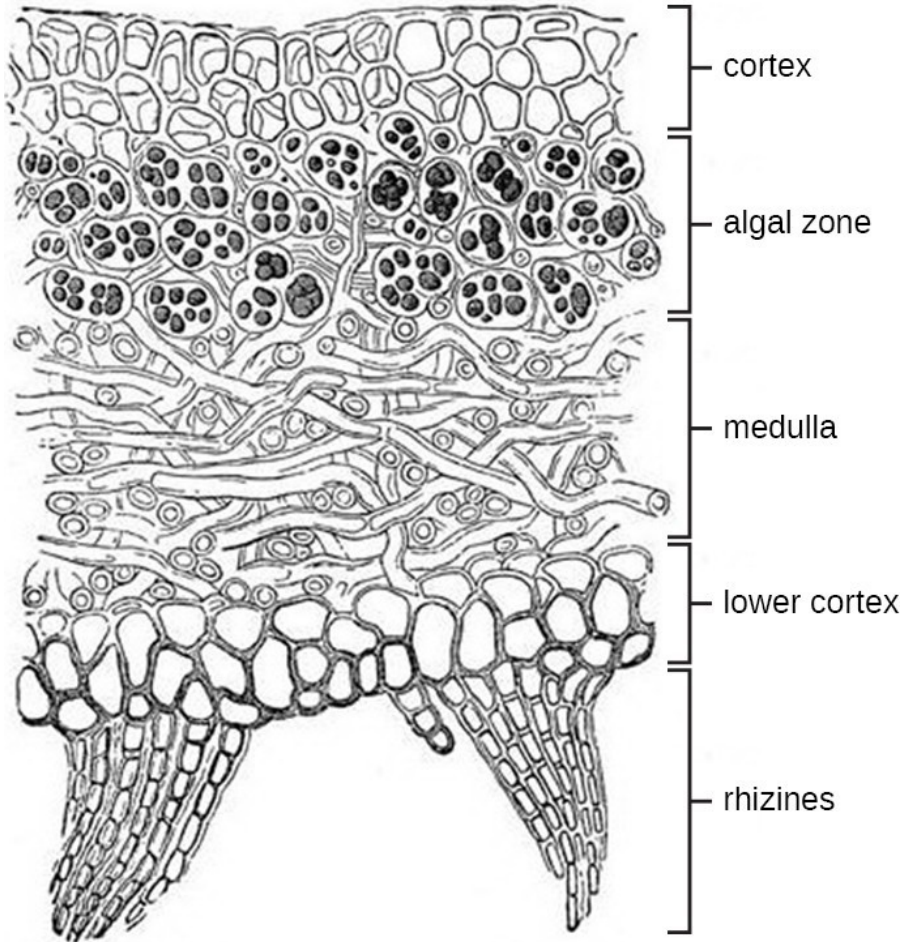
© Elena-Andreea Anisia

Although symbiosis refers to the coexistence of two different species, the reality is that the two partners are actually exploiting each other.

Symbiosis can be seen as a particular case of parasitism in which beneficial relations are established between the individuals.

Notable examples of symbiosis include lichens and the mycorrhizal root systems — the Wood Wide Web.





Lichens are a special group of less evolved organisms.

Lichens occur from sea level to high alpine elevations, in many environmental conditions, and can grow on almost any surface.

They are made up of two very distinct organisms:

single-celled algae  
fungi

### **How does it work?**

The hyphae of the fungi absorb water and mineral salts from the ground, making them available to the algae, making photosynthesis possible.

Commensial  
plants

Common  
bladderwort  
~ *Utricularia vulgaris*

~

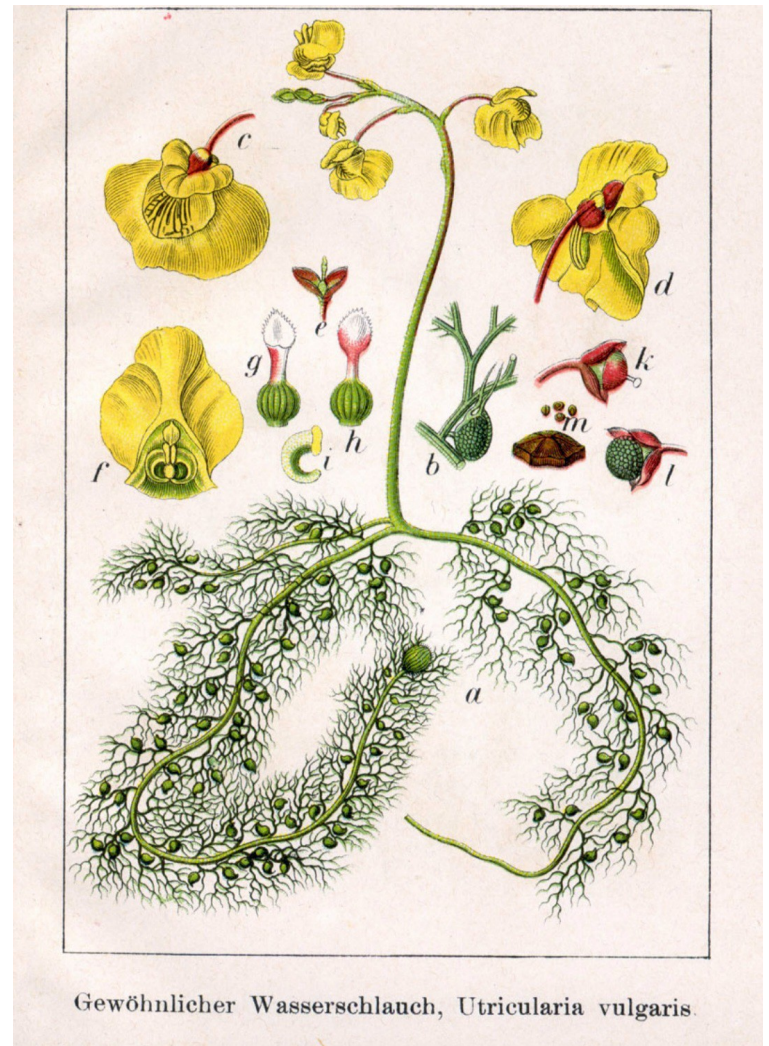


© Elena-Andreea Anisia



# Anatomy of the Common bladderwort

plant;  
utricle leaf (magnified);  
flower A;  
flower B  
immature fruit in calyx;  
upper lip of the corolla with anther and stigma  
(enlarged);  
ovary (magnified) A;  
ovary B;  
stamina (magnified);  
fruit;  
fruit without cap;  
life-size (top) and magnified (bottom) seeds.



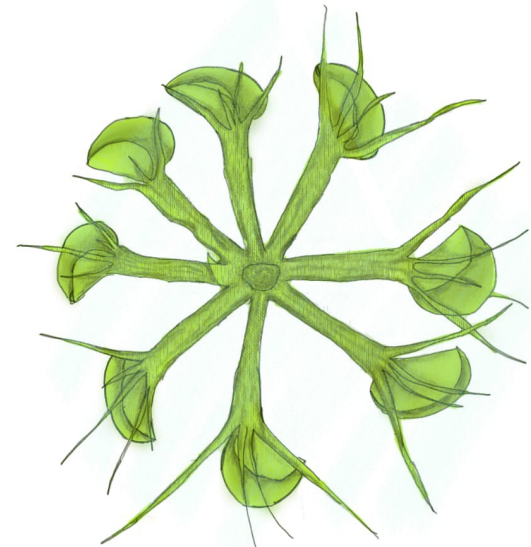
Gewöhnlicher Wasserschlauch, *Utricularia vulgaris*

Utricularia, more commonly known as the bladderwort, is one of the many carnivorous plants found throughout the globe.

The common bladderwort is an aquatic plant with delicately branched leaves, upon which numerous enclosed little urns can be found.

These urns are prescribed with sensitive hairs, aiding in the feeding process of the plant.

The common bladderwort can be found in the Danube Delta.



10 mm

Section through the bladderwort's  
root

# Hemiparasitism

# Mistletoe

~ *Viscum album* ~

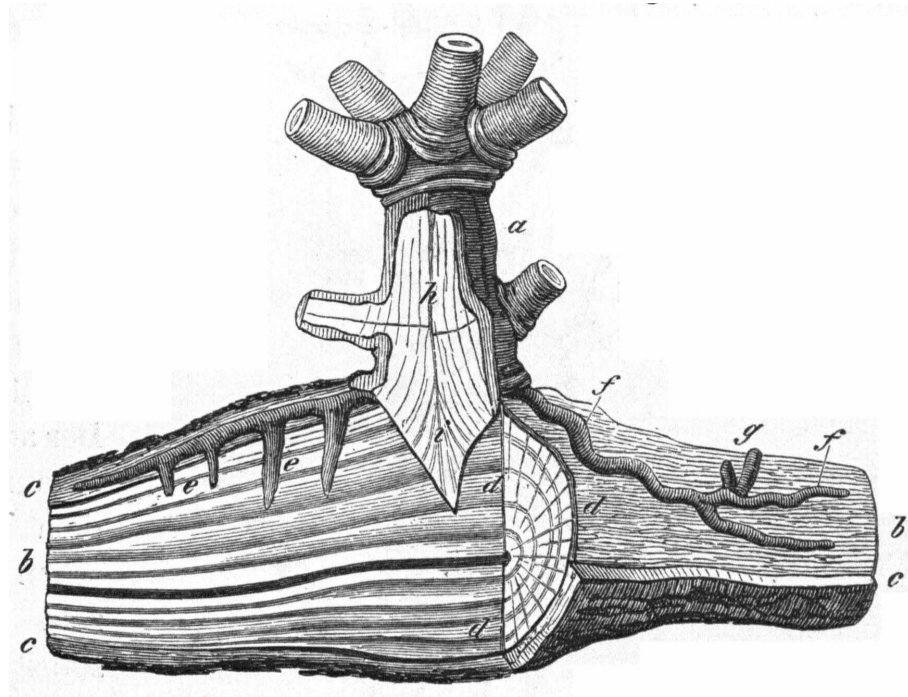


© Elena-Andreea Anisia

Mistletoe is a hemiparasitic plant, belonging to the Loranthaceae family. It is native to Europe and western and southern Asia.

It can be found on the branches of many species of trees, though it is most commonly found on poplar, oak, apple, and pear trees.

The plant is attached to their host tree or shrub by a structure called the haustorium (h), through which they extract water and nutrients from the host plant.



Mistletoe has also been an important part of European mythology and folklore throughout the ages, being attributed as a symbol of love and fertility during antiquity.

Nowadays, mistletoe is usually hung up around the winter holidays, above doorways and on chimneys, in order to bring good health and long-lasting love in the lives of people that pass — or kiss — under the mistletoe wreaths



# Thank you for your attention!

## Worked on this presentation:

Francisc-Ioan  
Dâncă  
Elena-Andreea  
Anisia

Robert-Mihai Pivodă  
Mehmet-Deniz  
Karakaya  
Patricia Nicole Tudor

Ana Adriana  
Dumitrache  
Alexandra Drăguș  
Daria-Ioana Ciulei

Nathalie-Andreea  
Hârbu  
Irina-Maria Bănică  
Bianca-Ioana

Alexia-Maria  
Popescu

Coordinating  
professors:

Mihai Magda  
Mariana Neacșu  
Felicia Skolka

Bianca Alina Raftu  
Claudia Portase  
Bianca-Virginia  
Ibadula

Mavrodin  
Illustrations made by:  
Elena-Andreea Anisia

