

# PLANT MOTION METHODS

E.V. Marfunenkova

Ivanovo State University, Institute of Mathematics, Information Technology  
and Natural Sciences, 2<sup>nd</sup> year Bachelor in Biology

The ability to actively move for an organism or its parts in space, that is, to move with the expenditure of energy, is a characteristic property of all living organisms.

Purpose of the research: to study the causes and methods of plant movement.

Research objectives:

1. Find out if there is something in common in the movement of plants and in the movement of representatives of other kingdoms.
2. Find out what movements are typical for plants.
3. Find out the reasons for the movement of plants.

Relevance: knowing the life processes of plants, you can create better conditions for their growth and increasing yields.

Research object: seeds, seedlings and adult plants.

Subject of research: ways of plant movement

Plant movements are based on the functioning of contractible proteins, like it commences in animals, or occur due to cell extension growth and the changes in cell hydrostatic (turgor) pressure, which are specific for plants.

The question arises: how did such different types of movements appear?

It is believed that higher plants evolved from green algae:

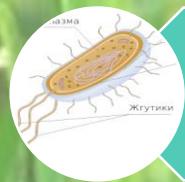
chlamydomonas -> chlorococcal -> ulotrix -> chaetophoric -> first terrestrial higher plants (rhinophytes) -> ferns -> gymnosperms and flowering

Monad forms of green algae, living mainly in fresh waters, move using flagella. Multicellular filamentous algae (derived from chlorococcal) such as ulotrix are attached organisms, and their movement towards the light falling from above is carried out slowly - due to cell division. In the course of further evolution in plants, everything in to a greater extent, the ability to reversible movements develops on the basis of changing turgor pressure.

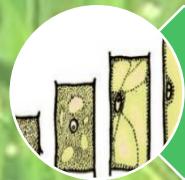
«The plant grows –  
it means that the body is in motion»



## 1. Into the nutricellular movement.



## 2. Locomotor movements of cells using flagella.



## 3. Growth movements based on cell growth by stretching.



## 4. About brotherly turgor movements: movements of stomata, nastia, seismonastia.

From what has been said it is obvious that the plant world is characterized by a wide variety of modes of movement. All available data confirm the correctness Charles Darwin: “At the moment we know that movement occurs constantly and that only his swing or direction or both must be modified for the benefit of the plant according to the internal and external stimuli ”.

Literature:

1. Vainar R. Movement in plants. Moscow: Knowledge, 1987. 176 s.
2. Field V.V. Plant physiology. M.: Higher. shk., 1989.464 p.
3. Kamiya N. Movement of protoplasm. M.: Publishing house foreign lit., 1962.306 p.