

**МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РФ
ТОМСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
БИОЛОГИЧЕСКИЙ ИНСТИТУТ**

СТАРТ В НАУКУ

МАТЕРИАЛЫ

**LXX научной студенческой конференции
Биологического института**

Томск, 26–30 апреля 2021 г.

**Томск
2021**

ELECTRICAL SIGNALS IN PLANTS

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Plants lead a motionless or sedentary lifestyle and outwardly do not show quick reactions to stimuli. However, plants are characterized by elementary sensitivity, in the implementation of which the electrical type of signaling plays an important role. Plants have the ability to generate different types of long-range electrical signals in response to different stimuli such as light, temperature variations, wounding, salt stress, or gravitropic stimulation. The presence of electrical signals, such as action potentials (AP), in both animal and plant cells, suggest that plant cells, too, make use of ion channels to transmit information over long distances. A variation potential (VP) is a hydraulically propagating electrical signal occurring exclusively in plant cells, VP is transmitted through the dead xylem of plants.

The purpose of my work is to study the generation and propagation of various electrical signals, their ways of transmission within the plant body and various physiological effects.

The analysis of scientific material revealing the mechanism of electrical signals of plants was carried out, and two types of plant signals were compared: action potentials (AP) and variable potentials (VP).

With the help of the studied material, it was concluded that elementary undifferentiated sensitivity is inherent in plants. Elementary sensitivity plays an essential role in the relationship of the plant with the environment. Finally, under the action of strong stimuli, PDs play the role of a primary emergency signal connection, which allows the plant to quickly begin the restructuring of vital functions under extraordinary conditions.

Overall, the knowledge of electrical signaling in plants will help to unravel the nature of information exchange within plant cells and organs.

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