# IMPORTANCE OF PLANT BODY STRUCTURE IN DEFENSE OF HIGHER PLANTS AGAINST FUNGAL AND BACTERIAL DISEASES (MECHANICAL IMMUNITY)

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***ABSTRACT:*** *In the article, the importance of the structure of plant organs in the plant's immune system, by which properties they increase resistance to bacterial and fungal diseases are shown with the help of various examples.*

***Keywords:*** *Mechanical immunity, cuticle, wax, stomata, arrangement of stems.*

**INDRODUCTION:** It is known that unlike animals, plants grow steadily in one place, and because of this, they face many difficulties during ontogeny. For example, as soon as seeds begin to germinate, viruses, microorganisms, fungi, insects, soil nematodes and other pests begin to attack them. Later, herbivorous animals will join them. That is why a number of physiological-biochemical and anatomo-morphological changes occurred in plants during their evolutionary development. These changes are aimed at protecting plants from pests or scaring them away. For a long time, when studying the phenomenon of plant diseases, scientists focused not on the study of plants, but on the study of plant disease-causing parasites. However, plants themselves mechanisms that prevent parasites from entering the tissues, and neutralize them if they do enter has a system. Each plant has an anti-parasitic system due to the unique structure of its leaves, stems, roots and other organs. By studying these properties of plants, it is possible to increase the resistance of fruits and vegetables used in agriculture to bacterial and fungal diseases and to create new resistant varieties. Plant immunity means preventing the entry of pathogens from the outside into the plant's body, or protecting the plant from damage by special cells when something foreign enters the tissue, and the plant maintains its integrity.

**LITERATURE ANALYSIS AND METHODOLOGY:** Due to the fact that there are many factors that harm organisms and lead to their destruction mechanisms of protection against them are not limited to metabolic changes, but also morphological changes. It should be mentioned that most plants, like humans and animals, have

"innate immunity" to pathogens. Examples of this are cell walls and outer shells of plants. The structure of the plant organs and the mechanical properties of the plant include all aspects of plant resistance, they cannot parasitize the plant tissues and harm the plant. Such resistance is called mechanical or passive immunity.

This type of resistance covers a wide range, the reason for which the bacteria penetrates the tissues and is attributed to the specific properties of the plant organs. For example: rapid growth of the cuticle, waxy coating, rapid growth, hair growth, etc.

According to scientists, apple varieties with a thick cuticle and waxy layer (for example: Titovka, Strumilovka) are less damaged by Fusculadium (Trebimsky, 1912). The different degrees of cloves damage by Zorawer (Sorauer) are related to the thickness of the cuticle layer of the stems (Appel, 1915). Appel found that the wax coating is an main factor in the resistance of some raspberry cultivars to the mushroom Coniothrium. At the same time, the wax layer acts in two ways: in part, it makes it difficult for hyphae to penetrate into plant tissues, and in part it acts indirectly, contributing to rapid drying in foliage and stems and thereby the death of fungal spores. Resistant to leaf rust and yellow rust, the Blue Stem variety stands out among soft wheats with a strong wax coating on leaves and stems.

That macrospore sclerosis, which affects corn, usually develops on leaf blades with a more delicate parenchyma and does not affect leaf sheaths with a long epidermis. Potato cultivars differ sharply in the thickness of the tuber bark: Kreitz (Kreitz, 1907) and Appel (Appel, 1915) found that as the tuber bark thickened, resistance to Phytophtora, Fusarium and bacterial diseases increased accordingly, although Phytophtora infestans and Fusarium could penetrate under favorable conditions and through the cortical layer.

Leaf wilting and hairy leaves are considered one of the main factors in plant defense against parasites, and Fyoks found that the parasite Oidopsis tawrica easily penetrates the mesophyll of esperest and develops only on the surface of the most strongly developed Pholomis leaves. This condition was found only in the strongly developed leaves of the plant, and was not observed in the wilted leaves.

Pietsch (Appel, 1915) found that some of the remontant carnations are resistant to Peronospora due to the peculiarities in the structure of the stomata, which in this case are arranged in such a way that they do not allow hyphae to penetrate them.The most resistant of all wheats to brown, yellow and linear rust, einkorns also have the smallest stomata. The length of stomata, on average, according to our measurements, in Triticum monococcum var. flavenscens is 44.8 microns, while common affected common wheat averages about 60 microns.Varieties of potatoes differ sharply in the structure of lentils on tubers. The structural features of these lenticels in different varieties are an essential factor in resistance to fungi such as Oospora scabies, whose

hyphae penetrate the tissues through the lenticels and cause a common potato disease - tuber scab.

According to Appel's observations, potato cultivars with flat, smooth leaves and a flattened bush shape retain moisture longer after rains and therefore suffer more from Phytophthora infestans potato disease than cultivars with small pubescent leaves. Foliar infection in potatoes is caused by wind-borne conidia; conidia adhere to the surface of leaves and release zoospores in drops of water; zoospores swim for some time in water, then lose their flagella and germinate, penetrating stomata with hyphae. After heavy rains, according to Appel's observations, the leaves of some varieties dry up after half an hour, while others remain moist for several hours. Quickly drying varieties are just less affected than slow drying ones. Stewart [Stuart, 1906] in America, based on a study of 115 varieties of potatoes, came to the conclusion that the most resistant to Phytophtora infestans and other fungal diseases are varieties with raised stems, little branching, with small pubescent foliage; On the contrary, varieties that are characterized by a strongly branched and flattened bush with large smooth foliage are affected.

## REFERENCES:

1. B.O.Beknazarov "O'simliklar fiziologiyasi" Toshkent. "Aloqachi"
2. N.I.Vavilov. Immunity to fungous diseases as a physiligical test in genetics and sistematics, exemplified in Cereals.-J. Genetics. 1914.
3. R.A.Eshmuratov, A.K.Yuldasheva "Methods of Growing Some Medicinal Plant Species in the Condition of Introduction". J. International Journal of Pharmaceutical and Bio Medical Science. 30.11.2021.
4. Л.П.Брюлова. К вопросам о самозащите растительной клетки при грибной инфекций.-Болезни растений. 1908.
5. Н.И.Вавилов. Гибрид обыкновенной пшеницы (Triticum vulgare Vill.) с однозернянкой (Triticum monococcum L.) 1913а
6. Н.И.Вавилов. "Иммунитет растений к инфекцённым заболеваниям" Москва. 1986.
7. Н.И.Вавилов, О.В.Якушкина Анатомическое исследование нескольких рас овса в связи с вопросом о отношении физиологических свойств с анатомическими коефицентами. Журн. опытная агрономия. 1912.