

SOME PEROXIDASE ENZYME ACTIVITY IN GRAINS OF REPRESENTATIVES OF SOYBEAN GENETIC COLLECTION SAMPLES

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ABSTRACT: This article discusses the peroxidase enzyme activity in grains of some representatives of soybean genetic collection samples. The shadow collection samples of each sample were separated from the grain husk and ground using a porcelain mortar. The crushed flour and husks of the grain were degreased in Sok-Slet using ethyl ether. In other words, research is being conducted on the role of the enzyme peroxidase in the body of a plant infected with a virus or various pathogens, its participation in the protective reaction process, and how the increase in enzyme activity is associated with resistance.

KEYWORDS: Peroxidase enzyme, activity, soybean, genetic collection, shadow collection, porcelain mortar, flour, husks, plant, various pathogens, participation, protective reaction process, resistance.

INTRODUCTION

Preliminary data on the enzyme peroxidase began to appear in 1855 when scientists studied the oxidation of extracts from plant and animal tissues in the presence of hydrogen peroxide [1; 7 p]. Research on the function, structure, and role of this enzyme in biochemical processes in the body continues today.

Plant peroxidase is made up of many isoenzymes that exhibit multifunctional properties. Peroxidase is involved in plant growth, development, respiration, nitrogen metabolism, phytoalexin synthesis, lignin and suberin biosynthesis [7; 1879-1893 p].

The main findings and results

Isoforms of the enzyme peroxidase are involved in the plant's adaptation to low temperatures and provide resistance to cold. Peroxidase catalyzes biochemical reactions in all cells and tissues. For example, it is involved in redox reactions in chloroplasts, cellular energy exchange in mitochondria, and others [5; 274–283 p], [4; 645–660 p], [9; 3-18 p].

One of the main problems facing modern biology today is the study of the mechanism of resistance of plants to viruses and various pathogens, the development of measures [1; 91 p] and the adaptation of organisms to environmental conditions and the maintenance of homeostasis [8; 568 p]. There is a lot of research being done by scientists around the world to this end. In other words, research is being conducted on the role of the enzyme peroxidase in the body of a plant infected with a virus or various pathogens, its participation in the protective reaction process, and how the increase in enzyme activity is associated with resistance [1; 92 p]. G.Vegetti [3; 153-171 p] summarizes his research on plant resistance and the enzyme peroxidase as follows: Peroxidase not only localizes viral infections, but also plays an important role in ensuring the resistance of plant cells to environmental factors and various pathogens.

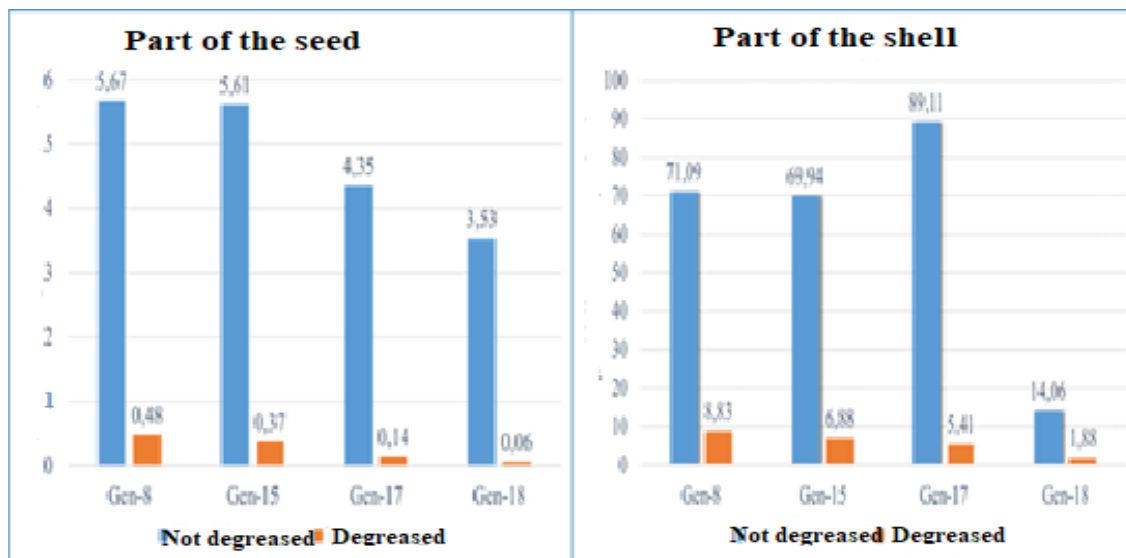
Scientists have found that soybean husks contain large amounts of peroxidase [6; 221-225 p].

Our research also focuses on the level of peroxidase enzyme activity in soybeans, taking into account the above considerations. For this purpose, samples of the genetic collection of soybean quality Gen-8, Gen-15, Gen-17, Gen-18 were selected as the object of study. The shadow collection samples of each sample were separated from the grain husk and ground using a porcelain mortar. The crushed flour and husks of the grain were degreased in Sok-Slet using ethyl ether. Checking peroxidase activity before and after degreasing A.N. Boyarkin [2; 352-357 p].

According to the results of the study, the activity of peroxidase enzyme in 1 mg of protein in the seed part of soybean samples ranged from 3.53 (Gen-18) to 5.67 (Gen-8) per gram of protein before degreasing, and 0, after degreasing. Showed values from 06 (Gen-18) to 0.48 (Gen-8). Enzyme activity in the husk of the sample grain ranged from 14.06 (Gen-18) to 89.11 (Gen-17)

before degreasing and from 1.88 (Gen-18) to 8.83 (Gen-18) after degreasing. -8) results were determined (Figure 1).

Figure 1. Activity of peroxidase enzyme in grain of some representatives of soybean genetic collection samples



CONCLUSION

Based on the results, we can see that the amount and activity of the enzyme peroxidase is high in the husk of soybeans, and the activity of the enzyme decreases after degreasing. However, the presence or absence of this enzyme in the plant organism and its level of activity may depend on the stress factors that affect the individual development of each plant species and the agro-technical measures used.

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