MAIZE SEED GERMINATION AT LOW TEMPERATURES

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Abstract

The maize ideal range for development is between 20 and 30°C approximately. Thus, the germination test was performed at 5, 10, 15, 20, and 30°C, in order to check the maize seed sensitivity at low temperatures. It was verified that the maize germinated only in the usual range. The low germination rate, even in the ideal range, happened due to inadequate storage of the product.

Key words:

Zea mays, germination test, temperature.

Introduction

Despite its tropical origin, maize has cultivation possibility in a large range of the globe with a vast climatic variation, due to the large number of existing varieties and to genetic improvement.

In 1950, W. J. Franck proposed that the tests carried out on artificial substrates and at optimal conditions be called germination tests and that their results be seed standards for commercialization (KRZYZANOWSKI et al., 1999).

The most favourable climate for the cultivation is the one which presents warm and humid summers during the vegetative cycle, followed by dry winters, which makes the harvest and the storage easier.

One of the most important stages of the seed is the germination. A good germination is related to good productivity. Factors such as temperature, water, and light have a direct influence on that stage.

Before the stress conditions, possible to happen in the field at the time of the implementation of the maize culture, the germination test at low temperature (ILBI; KAVAK; ESER, 2009) may be considered as an option to evaluate the seed vigour.

This paper aimed to verify the sensitivity of that cultivation at different temperatures.

Results and Discussion

The test was carried out in compliance with RAS with four treatments of 200 seeds each at different temperatures (5, 10, 15, 20, and 30°). The counts were performed on the fourth and the seventh day after the start of the test.

Figure 1. Distribution of the maize in the germination test.

Table 1. Percentage of normal seedlings.

	5°C	10°C	15°C	20°C	30°C
Count 1	-	-	-	20,2%	20,5%
Count 2	-	-	-	23,2%	23,5%

Conclusions

It was verified that the germination occurred only in the ideal range for the studied species. And it resulted in a percentage much lower than expected. Thus, the conclusion is that the seeds did not have a good storage.

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