Evaluation of dormancy and viability weed seeds of *Plantago lanculato*

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Abstract: To study dormancy, viability and germination of *Plantago lanculato*, an experiment was conducted at College of Agriculture, Shoushtar University (Iran), in 2010. The experimental design was Completely Randomized Design, with four replications. Treatments were in different storage conditions (room, refrigerator and soil) and species *Plantago lanculato*. After one month storage, seeds of each species were checked for dormancy and germination. To determine if no germinated seeds were alive, Tetrazolium Test was done. The results showed that germination percent of the species in soil was the highest and the lowest germination was seen in refrigerator. However, viability of these species in refrigerator and room condition were higher rather than in soil.

Key words: *Plantago lanculato* and storage conditions

INTRODUCTION

One of the aspects of plant ecological studies review factors germination and plant development is. Affected germination in soil seed physiological readiness and environmental factors placed each plant species has specific environmental needs for germination is. Seeds of some plant species reach the stage after separation from the mother by a lack of sleep and are germination. One of the most important survival mechanisms in plants, their ability to delay seed germination and seed dormancy (Baskin et al., 1998). Seed dormancy, rest, or temporary interruption of growth in this situation, despite suitable conditions for germination, seed for an unknown period remains at rest (Chhetri *et al.*, 1993). A seed of wild species is usually more severe seed dormancy show (Sanchez *et al.*, 2000).

Factors such as physical characteristics (despite the hard coating and impenetrable to water and gases) and physiological substances such as inhibitors, premature, unbalanced ratio of the hormones needed for germination, each alone or combination of them cause the seeds are sleeping. Order to overcome physical barriers such as different methods of forming mechanical abrasion and chemical removal of hard coatings, etc. are used. To clear physiological sleep, according to sleep (despite inhibiting substances, hormonal imbalances to stimulate germination and physiological prematurely, fetal body unfavorable physical and chemical characteristics of Seeds) of different treatments are used. Fetal body unfavorable physical and chemical characteristics of seeds) of different treatments are used. Seed washing with water, before applying the cold, pre-heating and use of chemicals, including some that are way over to the large number of physiological sleep seeds are used. For germination of those seeds have immature embryos are placed seed for a specified period (according to the rate of embryo development) in normal environmental conditions are required. With time and if circumstances are favorable, physiological maturity of fetal complete physical and chemical conditions for seed germination is good, and then this process is called clay. With dry storage is one of the ways in which in addition to mature physiologically immature embryos, active enzymes necessary for germination and seed also suffered physical and chemical changes are conducive to germination and seed are.

MATERIALS AND METHODS

Order to study the sleep level changes, the rate of survival and seed germination in experimental medicine bag priest Shoushtar year 2010 was agriculture. Test a completely randomized design was 3 replications. Treatments include various storage conditions (room, refrigerator and dept 40 cm soil), respectively. To determine the percent germination seed germination test was performed at this stage due to being fresh seeds, germination was observed. Then seed the desired plant species into paper bag at room temperature (20 -25 degrees C) and refrigerator (2 -4 degrees C) were incubated in soil for seeds kept in a separate mesh bags are encountering and 40 cm depth been buried and for 1 month have been in This situation. And after a month out of the soil seed cholera 1% sodium hypochlorite for 1 to 2 minutes were disinfected. Determine the percent germination of 25 seeds per Petri was taken and 5 ml of distilled water was added to Petri inside temperature 20 degrees C and 13 hours to cycle 14 days and seeds were grown and counted were removed from Petri. And 14 days after seed no germination collected survival test was performed. And seed no germination by Tetrazolium chloride and 1% treated for 48 hours in 30 degree temperatures were. Statistical data analysis software SAS and charts by date EXCEL software was done.
RESULT AND DISCUSSION

The results showed the effect of different storage conditions on seed germination percentage was significant. The seeds in the refrigerator had the lowest germination percentage and the highest germination percentage was related to the soil (Figure 1). Difference between seed germination in species listed in different storage conditions are caused by temperature differences. The results also showed that daily changes in soil temperature between months in the Persian month July and August had the highest temperature in the soil to the assembly room and refrigerator. Therefore be concluded that one of the factors of temperature changes affect the germination of seed plant species. In fact, the summer temperature conditions, such as warm (20 to 35 degrees C) operations and the possibility of seed germination are low levels of sleep in temperatures below provides.

[Chart 1: Comparison of different germination conditions]

After separating the seeds no sprout different condition of maintenance percent survival were determined through testing tetrazolium. As can be seen in Figure 2 and refrigerator in room conditions with the highest survival of seeds stored in soil had the lowest survival rates are.

[Chart 2: Survival rates seeds]

The maintenance period and all germination one month after such an ideal can be said that the main factor in the Germination of seeds of physiological sleep. Different levels of physiological sleep as a result of internal physiological mechanisms and prevent seed germination is. Therefore, temperature during summer in reducing sleeps and is effective in increasing germination. The results indicate low-temperature environment and room refrigerator little effect on mortality rate and no seed survival under the impact of the above and keep seeds after harvest is good.

Higher percentage of seed germination of Plantago lanculato stored in soil conditions and cold conditions than the room can be demonstrated following two issues:

Plantago lanculato Seed has been sleeping with physiological conditions to keep the cold, nearly 10% increase in germination compared to seeds and soil is room. The full effect of cold on physiological sleep fixes seed, as alternately cold is therefore in this study, only seeds stored in cold conditions and research objectives of the study were in cold alternately.
Thus, soil is one of the ways in which in addition to mature physiologically immature embryos, enzymes necessary for germination and seed activated suffered physical and chemical changes and the phenomenon is on the side of the clay was for seed germination Are conducive to germination [5]. Plantago lanculato plant seeds may contain clay and the maintenance of the soil conditions and room to be resolved this phenomenon. Survival in soil conditions and stability with less.

On the other hand a significant difference for the traits of germination and seed vigor index in the above conditions could show much deterioration process of seeds of this plant in soil conditions and cold conditions is low.

REFERENCES


