

Evaluation of fungi in cereals seeds before and after medium term storage

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Introduction

The maintenance of seed collections in genebanks it is an important strategy to save populations from physical destruction, genetic deterioration and to guarantee breeders material for the commercial development of species (FAO, 1989).

In order to be stored in controlled conditions the cereal seeds should present physiological and health conditions because plant pathogens can be seed transmitted, providing the primary inoculum foci for the secondary spread of diseases (IPGRI, 1977). Further they can cause losses in seed viability, as well as plant death before or after emergency (Diehl., 1983, Silva, 1983).

These studies emphasize mycobiota associated on the wheat, rye, barley, oat seeds before medium term storage and after medium storage (nine to twelve years on stored).

Materials and methods

Studies were make during period 1998-2004, in Suceava Genebank using some samples cereals seeds from our collection.

The researchers were performed in the laboratory conditions where was determined the presence on and in the analyzed seeds of the specific parasite and saprophyte micromycets, before and after storage distinct periods (9 and 12 years). The experimental biologic material is represented by advanced cultivars, inbred lines to wheat and rye and local landraces to barley and oat.

For performing of this phytopatological study on the saprophyte and parasite micromycets evaluation which are on the cereals seeds and their action upon the analyzed samples viability losses it was used the following research methods: the seeds macroscopic analyze, the Ulster (Malone J.P., Muskett A.E., 1964) method on the agharized medium and the germination standard test.

The endophyte and epiphyte micromycets were evaluated through the colonies counting, and the attack frequency was measured in percentages. The germination seeds were determined concerning the standard tests.

The obtained information from the performed analyzes and determination were processed through statistical methods for emphasizing of some significant regressions.

Results and discussions

The experimental results were interpreted and capitalized in the following main directions:

The endophyte and epiphyte micromycets action determination on the cereals seeds through the pointing the colonies number and the isolated fungus genus proportion;

Emphasizing of the parasite and saprophyte micromycetes evolution function by genotype and the seed keeping length;

Estimation of the micromycetes action influence upon the cereals seed germination.

The experimental results synthesis testify that some parasite, opportunists, saprophytes and michotoxyne generated were affected the action keeping length period at seeds. These fungus had a enough mighty influence upon analyzed seed germination.

It observe that the losses germination of the infested seeds is produced by:

Alternaria alternata (**photo 1**: Colonies of *Alternaria alternata* groon on fresh harvested seeds of wheat on potato-dextrose-agar medium, photo: D. Placinta) on the wheat, oat and the fresh rye seed samples.

Cladosporium herbarium on the stored wheat, oat and barley the seed samples.

Drechslera sativum on the fresh rye and oat seed samples.

Trichoderma viride (**photo 2**: Colonies of *Trichoderma viride* groon on fresh harvested seeds of barley on potato-dextrose-agar medium, photo: D. Placinta) on the fresh barley seed samples

Epicoccum sp. on the fresh wheat seed samples.

Acremoniella atra on the fresh barley seed samples.

The stored seeds period affected the following micromycetes longevity:

Alternaria alternata was manifested on the all studied fresh and stored samples at the all species (wheat, rye, barley, oat). It was remarked a quantitative diminution of the inocul at one time with the storing increasing period until to its total depletion.

Cladosporium herbarium was manifested through an inocul quantitative diminution, higher at the oat samples comparative with the other studied species, the micromycetes longevity being influenced by keeping period of the seeds.

Epicoccum sp., *Rhyzopus sp.*, *Penicillium sp.*, *Trichoderma viride*, the longevity of these micromycetes is influenced littler by the keeping period.

These results showed that seed health tests are extremely important because for introduction of the health seeds in the controlled atmosphere storage (genebanks), it is necessary the analyzed seed samples from point of contamination view with parasite or saprophyte micromycetes Also, during keeping period, at one time with seed germination determination (5 years intervals), must be effected some analyzes concerning the attack level with different micromycetes, for avoidance the dissemination risks and the genetic material losses.

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