MICROMYCETES ON STORED BARLEY AND OAT CARYOPSIS

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During storage, on the cereal caryopses develop micromycetes which produce a quality degradation of these.

For a precisely determination about micromycetes species which are present on barley and oat assayed from the household deposits, represented by stores and bins, in which the cereals (barley and oat) were deposited, for a period of one and respectively two years (2004-2006), was effected specific phytopathological and mycological analyses, by putting the caryopses in Petri recipients with PDA nutritive medium, every variants was analyzed using 4 rehearsal and then followed by their incubation on a 7 days period at a temperature of 22^0C, for determining of the increase and development of the existent mycoflora, it was, resulting 10 micromycetae saprophytic: Rhizopus sp, Trichotecium roseum (Pers) Link; Trihoderma viridae v. Teigh, Alternaria alternata Ness, Cladosporium herbarum (Pers.) Link, Stemphyllium graminis (Corda) Bonord, Penicillium spp., Epicoccum sp, Aspergillus spp., which one only two were parasitic: (Drechslera sp. and Septoria sp).

The analyses are imported for establish the measures of prevent and combat which should be taken.

***Keywords**: storage, caryopses, micromycetes, parasitic, saprophytic.*

Because of the fact that through the evolution of pathogens agents, the commercial value of the cereal products decreased, the agricultural producers lost a lot from this phenomenon, and great quantities of degraded product could not be used not even for the food of animals, because of the enzymes and toxins eliminated by these fungi.

From the above data, one the praise vast number by micromycetes saprophytic and parasitic founded on samples by barley and oat analyses, as and diminution percentages by caryopsis assailed by micromycetes parasitic and saprophytic at the same time with the storage period development.

MATERIAL AND METHOD

The analysis was performed at the barley (*hordeum vulgare L., ssp. vulgare*) and oat (*avena sativa, L.*) caryopses deposited for variable periods of time.

In order to identify the saprophyte microorganisms from these, we studied the samples assayed from the household deposits, represented by stores and bins, in which the cereals (barley and oat) were deposited, for a period of one and respectively two years (2004 – 2006).

The average samples were assayed from the quantity of deposited products and were brought to the laboratory for carrying out specific phytopathological and mycological analyses, in the aim of establishing with exactitude of the number and the species of micromycetes presents on these caryopses.

The analysis of samples was carried out by putting the caryopses in Petri recipients with PDA nutritive medium, every variants was analyzed using 4 rehearsal and then followed by their incubation on a 7 days period at a temperature of 22^0C, for determining of the increase and development of the existent mycoflora.

RESULTS AND DISCUSSIONS

On the basis of these analyses, on the studied caryopsis we have founded a whole range of micromycetes (table no.1) saprophytic and parasitic that was established on these during the storage period.

Table 1

Species by micromycetes founded on the barley and oat caryopsis

No	Species by micromycetes founded	Proportion by micromycetes (%)		
		Caryopsis by barley deposited during one year	Caryopsis by barley deposited during two years	Caryopsis by oat deposited during two years
1.	*Drechslera graminea*	**25**	15	15
2	*Septoria nodorum*	**17**	5	0
3	*Rhizopus nigricans*	70	**95**	**85**
4	*Trichotecium roseum*	10	15	0
5	*Trihoderma viridae*	30	30	0
6	*Alternaria alternata*	**85**	50	75
7	*Cladosporium herbarum*	**45**	30	35
8	*Stemphyllium botryosum*	20	5	0
9	*Penicillium ssp .*	**45**	20	20
10	*Epicoccum sp.*	10	0	10
11	*Aspergillus sp.*	12	5	0
12	*Stachybotrys atra*	5	0	0

From the above data, one the praise vast number by micromycetes saprophytic and parasitic founded on samples by barley and oat analyses, as and diminution percentages by caryopsis assailed by micromycetes parasitic and saprophytic at the same time with the storage period development.

Of sample analyses was find 12 species by micromycetes on barley and oats deposited, among which only *Drechslera sp.* and *Septoria sp.* type was pathogenic and the rest of them are saprophytic micromycetes from type: *Rhizopus sp., Trichotecium roseum* (Pers) Link*, Trihoderma viridae* v. Teigh*, Alternaria alternata* Ness*,, Cladosporium herbarum* (Pers.)Link*, Stemphyllium graminis* (Corda)Bonord*, Penicillium spp., Epicoccum sp, Aspergillus spp.*

The types pathogenic *Drechslera sp.* and *Septoria sp.* it was identified in a smaller proportion on caryopsis two years storages, because these louse enviable all at once with the storage period development.

Types of species by micromycetes saprophytic was founded in all the analysis samples, in deference proportion with specification that they have emphasize on diminution of their number, all at once with the storage period

development with exception types *Rhizopus sp.*, witch manifested exaggerated development of percentages as diseased caryopsis.

The barley caryopsis with difference of the oat was a manifested one small with micromycetes populate.

Macroscopic and mycrosopic images of micromicetes

Figure 1. **Caryopsis by barley deposited during one year**

Figure 2. **Caryopsis by barley deposited during two years**

Figure 3. **Caryopsis by oat deposited during two years - V1**

Figure 4. **Caryopsis by oat deposited during two years - V2**

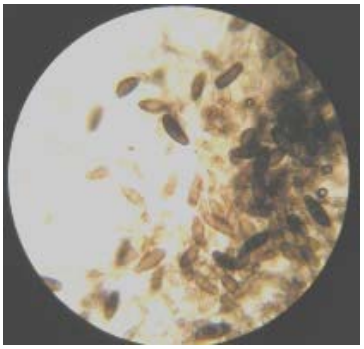

Figure 5. ***Drechslera sp***

Microscopic images

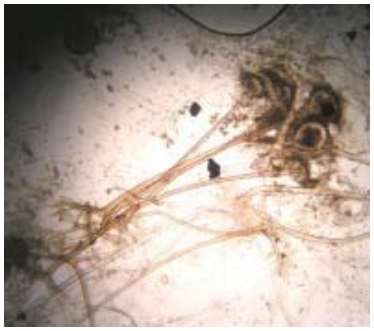

Figure 6. ***Rizophus sp***

Types of species *Drechslera sp.* (fig.5) and *Septoria sp.* was only parasitic micromycetes which was emphasized in the analyzed samples, but whit was a manifested one small of oat analyses samples.

Saprophytic mycoflora founded of this samples, was represented by: *Rhizopus sp.* (fig.6) in proportion by 85%, *Alternaria alternata* Ness in proportion by 75%, and *Cladosporium herbarum* (Pers.)Link, *Penicillium ssp., Epicoccum sp* in very small proportion.

CONCLUSIONS

Of sample analyses was find 12 species by micromycetes on barley and oats deposited, among which only *Drechslera sp.*and *Septoria sp.* type was pathogenic and the rest of them are saprophytic micromycetes.

From the 12 species by micromycetes founded in all samples analyses, and only 6 species was a founded on the oat samples deposited for 2 years.

Species of *Penicillium sp., Aspergillus sp.* and *Fusarium sp* types are funguses which produce damaging micotoxine for humans and animals, so optimum storing conditions must be created in order to prevent the growing and developing of such micromycetes.

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