V-Summary

The present work included the results achieved from storing soybean seeds (variety Crawford) and two varieties of sorghum grains (variety Dorado and variety Framida) which characterized by low tannin content and high tannin content, respectively.

The inoculated soybean seeds and sorghum grains stored under atmospheric air, carbon dioxide and nitrogen for 3 and 6 months. The isolates of aflatoxin-producing fungi have been chosen to inoculate the tested samples of soybean seeds and sorghum grains. They were isolated from the soybean seeds and sorghum grains which have been used in this study. The aim of this work is to study the effect of storage conditions under different gaseous condition on the chemical composition of soybean and sorghum and on the production of aflatoxins.

The obtained data for soybean seeds and sorghum grains are summarized as follows:

1- Soybean seeds:

1- *Aspergillus niger* was the dominant fungus from fungi which were isolated from soybean (variety Crawford).

2-Chemical composition of soybean seeds has been determined before and after storage under carbon dioxide and nitrogen in the presence of fungi compared with storage of seeds under atmospheric air. Total carbohydrate was decreased under atmospheric air.

3-The percentage of oil is high under atmospheric air.

4-Each of proteins, total soluble sugars were increased.

5-Each of ash and fiber were increased directly with increase storage periods.

Conclusion: storage under N_2 is best than storage under CO_2 and atmospheric air.

6-The separation, identification and determination of fatty acids extracted from soybean seeds before and after storage under air, CO_2 and N_2 in the presence of fungi for 3 and 6 months were determined and the results revealed the following points.

When soybean seeds stored under air for 3 and 6 months, short chain fatty acids were appeared and each of oleic, linoleic and linolenic were decreased but palmitic, and stearic acids increased under these conditions.

Storage of soybean seeds under CO_2 for 3 and 6 months showed an increment in palmitic and stearic acid. Showed an increment after 3 months of storage and it decreased after 6 months of storage, also oleic acid decreased when soybean seeds stored under CO_2 months, each of linoleic and linolenic remained constant.

Storage of soybean seeds under N_2 for 3 and 6 months caused an increase in palmitic and stearic acids, but there is a slight decrease in oleic acid. On other hand, each of linoleic and linolenic remain constant.

2- Sorghum grains

1- *Alternaria alternatia* is the dominant fungus in case of sorghum (low tannins, variety Dorado). *Penicillium corylophilum; Aspergillus niger* and *Alternaria alternatia* were the most dominant fungi, in case of sorghum (high tannins, variety Framida).

2- Chemical composition of sorghum grains has been determined before and after storage under carbon dioxide and nitrogen, in the presence of fungi, compared with storage of seeds under atmospheric air. Total, a carbohydrate was decreased under atmospheric air.

3- The percentage of oil is high under atmospheric air.

4- Each of proteins, total soluble sugars were increased.

5- Each of ash and fiber were increased directly with increase storage periods.

Conclusion: storage under N_2 is best than storage under CO_2 an atmospheric air.

6- The separation, identification and determination of fatty acids extracted from sorghum grains before and after storage under air, CO_2 and N_2 in the presence of inoculated fungi for 3 and 6 months were determined and the results revealed the following points.

When sorghum grains stored under air for 3 and 6 months, short chain fatty acids were appeared and each of oleic, linoleic and linolenic were decreased but palmitic, and stearic acids increased under these conditions.

Storage of sorghum grains under CO_2 for 3 and 6 months showed an increment in palmitic and stearic acid. Showed an increment after 3

months of storage and it decreased after 6 months of storage, also oleic acid decreased when sorghum grains stored under CO_2 months, each of linoleic and linolenic remained constant.

Storage of sorghum grains under N_2 for 3 and 6 months caused an increase in palmitic and stearic acids, but there is a slight decrease in oleic acid. On other hand, each of linoleic and linolenic remained constant.

7- The tannin content when sorghum grains were stored under nitrogen, showed no variation compared with the control and the percentage of tannin content, remained constant, (because N_2 may be inhibit fungal or prevent fungal growth).

While the content of tannins increased in sorghum grains which were stored under atmospheric air, the tannins content decreased in sorghum grains which were stored under CO_2

Conclusion: The storage under N_2 is best than storage under CO_2 for the content of grains for tannins.

8- The isolates of fungi which were screened for the production of aflatoxins in the yeast-extract sucrose-medium (YES) showed variation for the response of aflatoxin production.

9- Analysis of aflatoxins which produced by the isolated fungi, which was performed by thin layer chromatography or liigh performance-liquid-chromatography (HPLC), showed that nitrogen prevents the production of aflatoxins and that the type of fungus involved affects the type and amount of aflatoxins produced.