# EFFECT OF ORGANIC FERTILIZERS AND HUMIC ACID ON PRODUCTIVITY, QUALITY AND STORABILITY OF GRAPES

By

**SABRY NASIF GIRGIS**

B.Sc.Agric.Sc.(Organic farming),Ain Shams Univ.(2010)

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# ABSTRACT

**Sabry Nasif Girgis: Effect of Organic Fertilizers and Humic Acid on Productivity, Quality and Storability of Grapes (*Vitis vinifera*). Unpublished M.Sc. Thesis, Department of Horticulture, Faculty of Agriculture, Ain Shams University, 2016.**

This study aimed to focus on effect of some sources of organic fertilizers (compost, chicken manure, and animal manure) as a partially replacement of mineral nitrogen fertilization and some concentrations of Humic acid (6, 9, and 12 liter / feddan) as a foliar application on productivity ,quality and storability of superior grape. The clusters were stored in a cooler at 28±2 days º C.

This experiment was executed in two successive seasons 2013/2014 & 2014/2015,and in a vineyard in Wadi El- Natroon , Beheira governorate, Egypt.

Some parameters were measured at harvest and postharvest as follows: Total yield (Kg/vine), Cluster number/vine, Wood weight, Cluster weight (g), Weight of 100 berries (g), Cluster length & width (cm), Berry length & width(cm), Brush length (cm), Pedicel length & width(mm), Tours width(mm), T.S.S (Brix ◦), Acidity% , T.S.S /acid ratio, Juice percentage , N P K percentage content in leaves, The Discarded berries percentage, Shattering berries percentage, Shrinkage berries percentage, Weight loss percentage, Total loss percentage.

The obtained results showed that, the application of humic acid with 9 and 12 litter with 100 % mineral source of nitrogen increased the pruning wood weight, total yield, weight of cluster, weight of 100 berries, juice percentage and decreased the number of clusters per vine. On the other hand, the application of 50% compost with 12 litter of humic acid increased the berry and brush length which might cause decreasing of shattering berries, while the application of 50% chicken manure with 9 and 12 litter of humic acid increased the pedicel length and weight. The postharvest results showed that the storability has been decreased by the

using of mineral nitrogen sources fertilization. 100 % mineral nitrogen showed high values of weight loss percentage, discarded berries percentage, shattering berries percentage, shrinkage percentage, total loss and the changes of T.S.S and acidity. The use of humic acid with 100% mineral fertilization decreased the weight loss. The use of compost and animal manures with 6 and 9 litter of humic acid decreased the shattering percentage.

**Key words:**

Grapes - *Vitis vinifera* – Organic fertilizer – Quality – Productivity – Storage.

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# INTRODUCTION

Grape (*Vitis vinifera* L.) is considered the first major fruit crop in its production all over the world. In Egypt grapes rank second g fruit crop after citrus crop.

*V. vinifera*, "European grape" (Old world grape) is the major species of grape, accounting for >90% of world production. Probably it is native to the area near the Caspian Sea, Asia Minor. **(Fabio *et al*, 2005)**.

Table grapes are consumed as fresh fruit. They have large clusters and berries of attractive appearance and fine flesh with low acidity and few or no seeds. The sugars of *V. vinifera* grapes are primarily glucose and fructose, generally accounting for 99% or more of carbohydrates in the must (crushed grapes) and from 12% to 27% or more of the weight of the mature fruits. In addition of glucose and fructose, several other sugars are in small amounts in grapes, such as sucrose, and galactose. **(Salunkhe & Khadam , 1995).**

**Denis, 2010** introduced that Grape quality is determined by primary metabolites as carbohydrate and organic acid concentrations by secondary metabolites (phenols and aromatic compounds) and their ratios in grape berries, but also by morpho-physical parameters (color, size) however, grapes are also an important source of minerals, vitamins and amino acids, and are therefore used not only for fresh consumption, but also in the food, pharmaceutical and cosmetic industries.

A statistical data from **UPHEC, Egypt, 2014** illustrated that the international production of grape in 2011 was million ton and in 2012 was 65.2 million ton, while The Egyptian production was 1.4 million ton which was 2% of the international production. The rank of the biggest production of countries was China, USA, Italy, France, and Spain