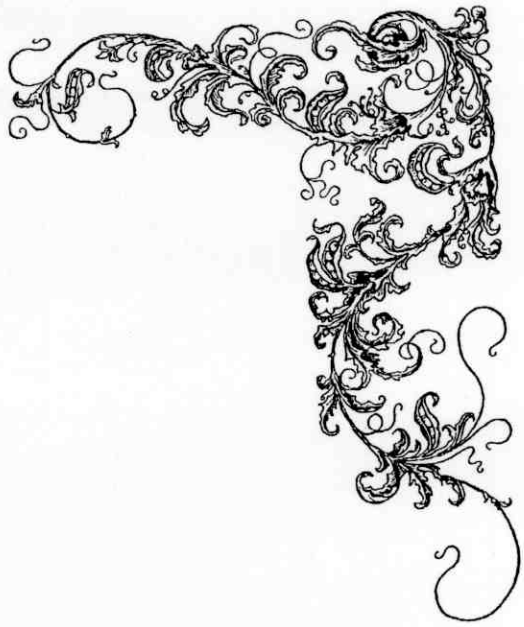
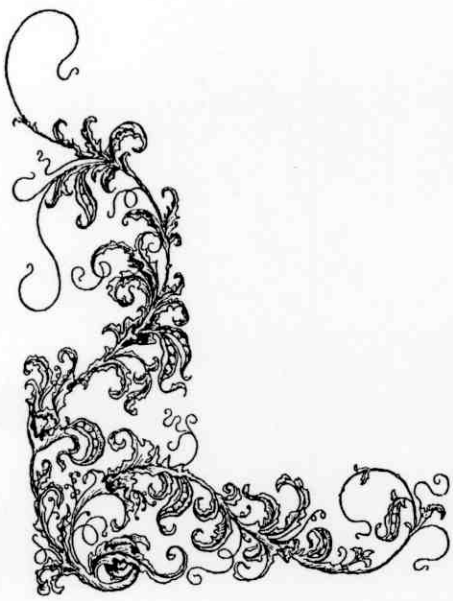


INTRODUCTION



1- INTRODUCTION

Common bean (*Phaseolus vulgaris, L*) is one of the most important leguminous vegetable crops grown in Egypt for local market and exportation. The green pods of bean are rich in protein and contain considerable amounts of carbohydrates, vitamins and minerals.

The cultivated area of snap bean in Egypt was 54897 feddan for green pods production with total green yield 233526 tons with an average of 4.25 tons per feddan in 2002 season.

In this respect, the major agricultural practices for improving the quantity and quality of pod yield, are the applications of fertilizers that contain the major nutrients, i. e. N, P and K to satisfy the needs of plants from such nutrient elements since, good growth is mostly associated with good yield and best quality. However, with application of such mineral fertilizers to the soil, some problems could be arising, e.g. some nitrogen could be lost via nitrate reduction, denitrification and ammonia- volatilization. Furthermore, under Egypt soil condition, immobilization of phosphorus is the most important problem of phosphate fertilization.

Therefore, the use of bio- fertilizer suggested being one of the most important possibilities to restore the natural conditions by fixing atmospheric nitrogen, mobilizing phosphate and micronutrients and produce some stimulant compounds. In addition, bio-fertilizer avoids also environmental pollution

problems and produces a product free from the residual effect of some chemical compounds.

On the other hand, Egyptian soils characterized by a rapid rate for organic matter oxidation; therefore, the soils are characterized by low content of organic matter, which rarely exceed 1.5 %, which necessitates the continuous application of organic manure (***Antoun*** and ***Jensen, 1979***). Organic matter is a natural substrate for saprophytic microorganisms. It is essential for the aggregating soil particles and hence improving soil structure, which ultimately determines the extern of plants.

The process of biogas generation via the anaerobic digestion of organic wastes such as human and animal wastes, crops residues and weeds, saves local fuel for domestic use and maintain the fermented dried material as a nutritionally rich manure ***(Sathianathan, 1975***), biogas manure is considered as a good source of organic manure rich in organic matter, macro and micro plant nutrients.

Therefore, this investigation was carried out to study the effect of bio-fertilizers, organic manure "biogas manure" and mineral fertilizers on vegetative growth, chemical composition of plant foliage, green pods yield of bean plants and its quality under the conditions of Kalubia governorate.

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