حسام مغربى

شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

حسام مغربى

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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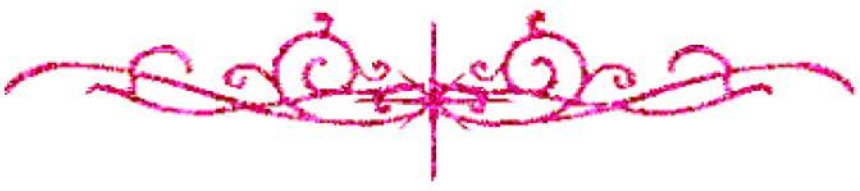

حسام مغربى

شبكة المعلومات الجامعية

بالرسالة صفحات لم ترد بالأصل

GENETIC STUDY ON SOME ECONOMIC CHARACTERS OF PEAS

By

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ABSTRACT

This study was conducted in research fasilities of the Horticulture Research Institute during the period from 1998 to 2001. Six crosses and their reciprocals were made between peas cvs Cascadia, Lincoln, Master, and Toledo. Parental, F_1, F_1r, and F_2 populations of each cross were evaluated. Maternal effect was existed only in one out of the six crosses for each of number of days to flowering, number of seeds/pod, and reducing and total sugars contents, and in two out of the six crosses for green pods yield/plant. In all or most crosses, dominance was detected for each of tall parents, high number of branches/plant, small number of days to flowering, high green pods yield/plant, high number of pods/plant, high number of seeds/pod, and high shelling percentage. Meanwhile, dominance of the low parent was found in most crosses for each of mean seed weight and reducing and total sugars contents. Positive heterosis over the better parent was found in most or all studied crosses for each of the characters plant height, number of branches/plant, green pods yield/plant, number of pods/plant, and number of seeds/pod, while, negative heterosis in most or all studied crosses was detected for each of the characters number of days to flowering, shelling percentage, mean seed weight, and reducing and total sugars contents. Minimum number of gene pairs estimated was 1, 1, 1-2, 1, 1, 1-7, 1, 1-2, 1-10, and 1-10 for plant height, number of branches/plant, number of days to flowering, green pods yield/plant, number of pods/plant, number of seeds/pod, shelling percentage, mean seed weight, reducing sugars content, and total sugars content, respectively. BSH estimates for previously listed characters were respectively, 16.19 % - 76.60 %, 71.19 % - 79.49 %, 65.64 % - 94.23 %, 75.39 % - 90.53%, 54.88 % - 86.01 %, 14.67 % - 43.47 %, 15.50 % - 47.45 %, 18.18 % - 94.29 %, 54.17 % - 63.53 %, and 59.38 % - 81.32 %.

Key words : Peas, *Pisum sativum*, Inheritance, Dominance, Number of genes, Heritability, Flowering, Yield and its components, Reducing and total sugars contents.

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INTRODUCTION

Garden peas, (*Pisum sativum* L.) is an important vegetable crop in Egypt for local marketing.

The cultivated area of green pea in Egypt reached 83591 feddans in 2000*, yielded 339994 tons with an average of 4.07 ton per feddan. Green seeds are rich in certain nutrients especially minerals and vitamins. Each 100 g of raw pea contains 78.0 g water, 84 calories, 6.3 g protein, 0.4 g fats, 14.4 g total carbohydrates, 2.0 g fibers, 26 mg calcium, 116 mg phosphorus, 1.9 mg iron, 316 mg potassium, 640 IU of vitamin A, 0.35 mg niacin (nicotinic acid), and 27 mg ascorbic acid (Watt & Merrill, 1963).

In developing countries, there is an important role for breeding programs to improve the quality of agricultural production, firstly to provide secondary sources of nutrients such as minerals and vitamins and secondly to raise the income of small farmers. Therefore, the improvement of pea yield is always in demand. The improvement of both quantitative and qualitative traits of peas depends on the present of genetic variability that permits effective selection. Also, hybridization considered as an effective factor for inducing variabilities.

Thus, the aim of the present investigation was to study the inheritance of some economic characters of pea plants, viz., plant height, number of branches/plant, number of days to flowering, green pods yield

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*Department of Agricultural Statistics, Ministry of Agriculture and Land Reclamation, Egypt, 2000