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The genetic variants and its relationship to genetic stability of the plant

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Abstract

The estimation of genetic parameters such as variations, inheritance expected genetic improvement and genetic stability analysis determines the direction of breeding and improvement programs to choose the appropriate breeding method where it is possible to carry out genetic stability analysis of cultivated structures with agricultural dates specific distances, appropriate amount of fertilizer and an organized irrigation level.

Keywords: Genetic variants, Genetic stability, plant, Genetic

Introduction

The genotype means many of gene it is transmitted from parents to the children it is constant over the plant life interval.

We can recognize the plants by the phenotypic not by genotypic we cannot directly select it but we can select it by study

many phenotypic in the different environmental conditions it called rang of reaction the variation between the organism it is essential to the success of the genetic improvement process in plants because the different among them.

these differences are taking very wide and clear. The purpose of the study of genetic stability is to reach the best evidence for the selection of superior strains in the plant breeding and improvement programs.

Literature Review

The different between the watermelon and tomato in the phenotypic and genotypic and it have a small different between the pumpkin and yellow melody and smaller different between two plant of cucumber growth to gather. And the different we can be converted to digital values with special measuring devices like the weight, length and size these measurements are subject to the methods of survey analysis according to different measures like the medium variance and standard deviation and this different between the plants returns to one of the following sources:

1. Genetic variation
2. Environments variance
3. G*E interaction

The genetic variance means the different gene its component for the genotypic with another genotypic like the different between the number of branches and the flower number in the category with another or type with another. (11)

The reason of the variance it is genetic by the farming some of plant by the semi environmental and controlled in the features group for this plant.

The variance of plants. Material of the basic

The plant breeder it works and the selection basic of phenotypic characters for always of studied characters to success the improvement and the breeding program for plant breeding and should know the characters that is elected on the genetic qualities and the range of affected by the environment. some of genetic variance it be easy and clear note such as :color

seed and fruit and the existence of symptoms of some leaves in some variances and it is lack of other varieties. while more qualities are more complex like the green yield and branches number and plant high ...etc.(1)

In another side the environment it most important to show the characters of human beans likes the genetic structures. The genes enable alone to give the phenotypic without environmental media in which you live we can recognize the environmental variance in the grow plants genetically similar in different settings (the first is fertile and the second poor in nutrients) we will notice a big different in the always phenotypic characters it possible measured (2).the environment is different in the always phenotypic characters it possible measured. the environment is different and environmental factors may be external or internal.

The genetic and environmental variance not stable and they cannot be separated from each other and the plant cannot be separated from the environment in which it lives.

and this means the genetic and environmental factors are intertwined in affecting plants. For example, cucumber plant variety resistant to powdery mildew and another type is sensitive. We powdery mildew and another type is sensitive.in another study observe variation in leaves number of Pepper and Eggplant plants treated with aqueous extracts (myrtle, orange, myrtle + orange) that this may be due to genetic factors (15), We will see clear different between the varieties and in the inspected season for the growth and development of the outer disease and the genetic variance between the winter barley varieties it bear the cold we can recognize if the season be moderate.

The characters genetic and their study it is the basic of the plant breeding if the self-pollination or hetero pollination the genetic variation in plants included two groups in characters

Qualitative characters feature the following.

1. Discount measures characters: it describes the description and not for the measurement of measuring units for example flower color and eyes color...Etc.
2. Her inheritance is controlled by a small number of genes two or three double at most and during isolations the genetic classifications (the number of division or the genetic shape is limited).
3. The effect of gene is very large on the trait and the degree to which the gene expresses itself in the trait is up to 100% such as: the red flower stay red because the genes responsible for this adjective so that the flower color most are red.

The introduction method is one of the quick ways for plant breeders in order to obtain the genetic variations and to obtain new inputs with desirable genes that contribute to improving the outcome in terms of quantity and quality, and the first step in the different breeding program is one of the complex characteristics.

Where it is controlled by a large number of genetic factors (7) and in that dominance (14) stated that the practice of direct selection for seed yield was not clear due to the influence of fluctuating environmental factors. Therefore, plant breeders try to improve the quality of the seed yield indirectly by improving associated traits. Out

(9) and (14) there is an increase in the outcome due to the multiplicity of interconnected components, most of their components.

The outcome is less complex than its inheritance and less affected by environmental deviations (12) The aim of this is to select the best traits in the later early generations and more effectively to continue the good variety in future breeding programs and determine the component (5)

The main effect on the seed yield, by which it is possible to estimate the relative importance and the direction of influence in improving this characteristic, and thus it is possible to determine the component that has a direct and significant impact on the crop. Several measures are used (6)

For stability and they reached to develop a variety of coarse wheat with high stability of grain yield during seasons.

Agriculture. (13) obtained a genetic composition of coarse wheat with a high yield.

And superior stability. (4) obtained genotypes from coarse wheat which are 4-Syrian and

3 / Aristan has high stability for important economic characteristics across seed rates of 120, 140 and 160 kg / ha per

d) using Eberhart 2 analysis of the Mosul and Afar sites by estimating the regression parameters (8) (15) used the linear regression coefficient and the square of the mean deviation from

Regression of genotypes and the results showed significant differences for genotypes, locations, and years.

The regression coefficient values are between 4.0 - 73.1 for eleven genotypes and the deviation from the regression is from 9.69 - 7.2896.

(3) obtained promising genotypes through their use of ten parameters to measure the stability of

Genotypes of grain yield in coarse wheat where the 9-Albit genotype significantly exceeded three parameters.

b) for stability $i =$ regression coefficient, $\alpha_i =$ genotype to the environmental effects, $i =$ Stability analysis, (10) explained. deviation from the linear response(

He gave an indication of the presence of four high-yielding genotypes and three high-yielding genotypes.

References

1. Abdal-shammari, Aziz Mahdi (2005). The genetic changes and their relationship to plant breeding DoI:10.13140/RG.2.14486.2166. 2*Ahmed A.Ahmed and Arshad T.Al-nuaimi(2011) Estimation of Genetic Parameters Tand Stability Analysis for Durum Wheat Entries (Triticum durum Desf.) Al-Rafidain Science Journal VOL 22 number 1,37-48.
2. Akcura, M.; Kaya, Y.; Taner, S.; Ayranci, R. (2006). Parametric stability analyses for grain yield of durum wheat. Plant Soil Environ., 52 (6), 254–261.
3. Al- Mousavi, Saddam Hussein Abbas Khidr (2005). Estimation of some genetic parameters in coarse wheat (Triticum). Desf durum. (Master Thesis, University of Mosul, College of Agriculture and Forestry, P.O.
4. Altaweel.M.S.(2013) Estimation of genotypic and phenotypic variations of barley genotypes Mesopotamia J of Agric.Vol.(41) No. (2)2013.
5. Bahlouli, F.; Bouzerzour, H.; Benmahammed, A.; Hassous, K.L. (2005). Selection for high yielding and risk efficient durum wheat (Triticum durum Desf.) cultivars under semiarid conditions. J. Agron., 4 (4), 360 – 365
6. Das, P.K. (1972). Studies on selection for yield in wheat. An application of genotypic and phenotypic

- correlation, path coefficient analysis and discriminant functions. journal. Agricultural. Science. Camp. 79:447-453.
7. Eberhart, S. A.; Russell, W. A. (1966). Stability parameters for comparing varieties. *Crop Science*, 6, 36 – 40.
 8. Gupta, R.R., Z. Ahmed and R. K. Dixit. (1979). Path coefficient analysis in macaroni. *Wheat Indian journal. Agricultural. science.* 49:238-243. 10*Hamam, K.A.; Khaled, Abdel-Sabour G.A. (2009). Stability of wheat genotypes under different environments and their evaluation under sowing dates and nitrogen fertilizer levels. *Australian J. Basic and Applied Scie.*, 3(1), 206-217.
 9. Kasim, M.A, and Alsalih A.A. and Ibrahim. M.A. (1982). Genetic, directorate of Dar Alkutub for printing and publishing.
 10. Najeeb, S.; A.G. Rather; G.A. Parray ; F.A. Sheikh and S.M. Razvi. (2009). studies on genetic variability, genotypic correlation and path coefficient analysis in maize under high altitude temperate ecology of Kashmir. *Maize Genetics Cooperation Newsletter* 83:1-8.
 11. Okuyama, L. A.; Federizzi, L. C.; Neto, J. F. B. (2005). Grain yield stability of wheat genotypes under irrigated and non-irrigated conditions. *Brazilian Archives of Biology and Technology*, 48 (5), 697 – 704.
 12. Singh, H. B; Sharma, J.K. and C.P. Awasthi (1997). Genetic evaluation of some economic traits in broad bean (*Vicia faba* L.) *Indian Journal of Horticulture*, 54(2):62-73.
 13. Ulker, M.; Sonmez, F.; Ciftci, V.; Yilmaz, N. and Apak, R. (2006). Adaptation and stability analysis in the selected lines of tir wheat. *Pak. J. Bot.*, 38(4), 1177-1183.
 14. Abbas, M. M. and W. S. Hussain (2020) Bio stimulants of Pepper and Eggplant by using plants aqueous extract. *Plant Cell Biotechnology and Molecular Biology* 21(65&66):78-82.