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Study of agricultural traits relative to yield and salt stress in primary lines of tritipyrum (AABBEbEb) comparison with bread wheat by GGE biplot method

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ABSTRACT

New cereal Tritipyrum is a synthetic hexaploid wheat (AABBEbEb; 2n=6x=42) that is a cross between Thinopyrum bessarabicum (EbEb; 2n=2x=14), with high potential resistance to salinity and durum wheat (AABB; 2n=4x=28). In this study, the yield and some agricultural traits of 14 primary Tritipyrum lines with 15 bread wheat cultivars were studied in Complete Randomized Block design with 3 replication in 2007 and 2008 (2 years). In the first year Stem Length (Cm), Spike Length (Cm), Plant Height (Cm), Awn Length (Cm), Spike Width (Cm), Tillers Number, Spikes Number, Number of Spikelet per spike, Number of Kernel per Spike, 1000-Kernel Weight (gr) and the Yield (Kg.H-1) were measured or were counted and the data analyzed using analysis of variance and GGE biplot method. In the first year, 5 superior lines of Tritipyrum with best traits among Tritipyrum selected for evaluation morphological traits in second year. In the second year the selected lines with (Ka/Cr)f6 line were analyzed by analysis of variance and GGE biplot method for Days to Germination, Days to Tilling, Tiller Number, Days to Shoot Emergence , Stem Length (Cm), Number of Leaves per main stem, Days to Heading Time, Internodes Distance (Cm), Flag Leaf Width (Cm), Flag Leaf Length (Cm), Spike Number, Spike Length (Cm), Spike Diameter (Cm), Awn Length (Cm) and Yield (Kg.H-1). Results showed that there were no significant differences between Tritipyrum lines except for (Ka/b×Cr/b)F3 which had a lower yield, maximum Awn Length, Days to Heading time and minimum Spike Diameter, Internodes Distance, Stem Length. And so The Spike Length, Spike Diameter, Number of Spikelet per spike and Internodes Distance had a high correlation with Yield trait and proposed as suitable traits for selection of hybrid.

Key words: Primary Tritipyrum Lines, *Thinopyrum besarabicum*, Agricultural traits, Salt stress, GGE biplot.

INTRODUCTION

Over thousands of years, the wild relatives of crop plants have been identified as vulnerable to stress and live life like cold, drought, salinity, waterlogging and have a variety of pests and diseases. Countless crosses between different species occurred Crop species arise from modern humans thousands of years, to Agriculture and to choose among them. As they were domesticated wild plants, their ability to produce more and larger grains increased the genetic heritage of their ancestors lost their strength. Breeding methods and cultivars producing high yield crops has also reduced the genetic vigor. Genetically modified crops based small number of genetic vulnerability to changes in environmental conditions will be digits [14]. hexaploid primary Tritipyrum (AABBEbEb; 2n = 6x = 42), third man-

made cereal after (Tritordeum) and triticale (Triticale). Of the artificial hybrids between durum wheat (AABB; 2n = 4x = 28) as rootstock, and coastal salt grass (*Thinopyrum bessarabicum*) as a basis for paternal (EbEb; 2n=2x=14) and after double their lead to sterile progeny F1 (ABEb; 2n = 3x = 21) [12]. Tritipyrum in 350 mM salt survives but its grown is low on 250 mM salt concentration that is equivalent to half of the salt sea water [3]. Although primary Tritipyrum lines have a homozygous genotype and normal meiosis but those have very small percentage of infertile seeds, brittle axis of spike and delays [17]. *Triticum aestivum* L., (2n = 4x = 28; AABBDD) grows in a wide range of weather conditions around the world, in fact, this kind of adaptable crops are cereals [13] and generally have a limited germplasm and other biological and environmental factors are capable of great vulnerability [11and 6]. Also bread wheat with salt threshold 6ds/m is relatively tolerant to salinity, but its yield in salinity condition is very limited [3]. Since more than fifteen agricultural and breeding experiments on Tritipyrum compare with some wheat and triticale lines was performed [8and10]. Tritipyrum have good ability for hybridization with Wheat, this result to more information about the relationship between polymorphic traits [2] and it use to transfer of Tritipyrum germplasm to wheat and increase the genetic pool [16]. Although selection based on yield is an overall objective for plant breeders, but other traits such as salt tolerance, disease and species adaptability are important in the selection of species. Yield is influenced by several factors and the choice of the components can play an important role in the selection of genotypes tested in the early generations. Because genotypes are complex biological systems, so choose the best option based on various attributes is an adjective. Understand of the relationship between the characters is important to improving choice [21]. Several statistical methods exist for selecting genotypes based on different characteristics to improving of generations. A nice method can mentioned, is GGE biplot, [19]. GGE biplot have a high ability to explain the relationship between genotypes and traits and is a plot that simultaneously displays the effects of entries and the testers [5]. Plant breeders with this method can consider image of the relationship between genotype and the characters portrayed. Based on the biplot graphic chart can select appropriate genotypes. In present research different genotypes of Tritipyrum and wheat were compared based on morphological characteristics and analyzed by ANOVA and GGE biplot. According to importance of the biological stress of drought and salinity in Iran and high tolerance of Tritipyrum genotypes to salinity and drought stress, evident importance of this research more and more. Studies of relationship between agronomic traits are the best tools for plant breeders to select appropriated genotypes.

MATERIALS AND METHODS

Fourteen Primary Line Tritipyrum with fifteen wheat cultivars (Table 1) in two cropping seasons in a randomized complete block design, with three replicates and two rows and the distance of 20 cm from each other and 20 seeds per row distance of 5 cm was performed in the field Faculty of Agriculture, Shahid Bahonar University of Kerman. In order to obtain pure lines in the top row, Select 9 plants based on stem length, panicle length, plant height, awn length, spike width, tiller number, panicle, number of spikelets per spike, number of seeds per spike, grain weight and yield, was carried out. Normality test was performed using SAS software. After the normality test data, Using analysis of variance and GGE biplot method Genotypes were selected. In the second year, similar to the first method and experimental design, and genotypes were tested. Finally, the results of the tests required by inference. In addition to the attributes of the first year, days to germination, days to tilling, days to stem emergence, number of leaves on the main stem, days to heading, distance, length, flag leaf width, flag leaf length, panicle length and panicle diameter, measured and evaluated in the second year. After data collection, correlation and analysis of variance of the data was performed using SAS software. And GGE biplot software for interpreting the data and drawing diagrams Biplat correlation was used.

$$\mathbf{Y_{ij} - \mu - \beta_j = \lambda_1 \xi_{i1} \eta_{j1} + \lambda_2 \xi_{i2} \eta_{j2} + \varepsilon_{ij}}$$

The Yij average i genotypes in j of the traits and μ is average Total. βj average traits of j and λ_1 and λ_2 eigenvalues are the first and second components. ξi_1 and ξi_2 eigenvectors genotypic and $\eta j_1$and ηj_2 The first and second components are vectors of attributes. εij the remaining genotypes i in adjective j. Using Biplat relationship between the characteristics of different soybean genotypes were evaluated. And the proposal Biplat method, useful for the selection of genotypes in breeding programs, especially in the early generations of selection [20].

Table 1 - Genotype of wheat and Tritipyrum used in this study

Genotypes	abbreviation
Sefidkhosheh	****
Roshan	****
Omid	****
Octa	****
Niknejad	****
Baft	****
Morvarid	****
M757	****
Kavir	****
Alvand	****
Catlicum	****
Dhaploid	****
Falat	****
Crifla	****
Chamran	****
Stewart / Th.bessarabicum × Creso / Th.bessarabicum F4	(St/b × Cr/b) F4
Stewart / Th.bessarabicum × Creso / Th.bessarabicum	(St/b×Cr/b)
Karim /Th.bessarabicum × creso F3/ Th.bessarabicum	(Ka/b×Cr/b)_F3
Stewart / Th.bessarabicum	(St/b)
Stewart / Th.bessarabicum	(Cr/b)
Creso / Th.bessarabicum	(Ma/b)
Macoum / Th.bessarabicum	(Ka/b)
Karim / Th.bessarabicum	(Ka/b)
Karim / Th.bessarabicum × Creso / Th.bessarabicum F5	(Ka/b×Cr/b)F5
Karim / Th.bessarabicum × Creso / Th.bessarabicum	(Ka/b×Cr/b)
Karim / Th.bessarabicum × Creso / Th.bessarabicum F2	(Ka/b×Cr/b)F2
Neodure/ Th.bessarabicum	(Ne/b)
Chinse spring/ Th.bessarabicum	(Cs/b)
Aziziah/ Th.bessarabicum	(Az/b)
Langdon/ Th.bessarabicum	(La(4a.4d) /b)

RESULTS AND DISCUSSION

Analysis of variance and mean comparison for the first year of genotypes showed significant differences in all traits except tiller between genotypes within a spike is. Average results for all traits in the range of 5% significant comparisons were between genotypes (Table 2). Almost all cultivars had higher performance than Tritipyrum lines. Tritipyrum lines and yield of wheat lines could not compete with. To facilitate selection, also notes the correlation between traits was calculated (Table 3). Also have been reported a significant positive correlation between grain yield, grain number and grain weight [15and1]. The high correlation between traits due to the increased number of spikes per plant, number of tillers tiller panicle is up to nature. But they do not seem to have much impact on performance. Perhaps one reason for this lack of relationship between reduced fertility and extra tillers plant waste energy and produce more straw. Seems to increase the number of spikes in a desert climate, and tilling traits are not suitable for increased performance. Plant a grain crop, corrected to limit tilling can be used to reduce waste water in drought conditions. Overall, in terms of access to water, adequate food, and good conditions can only be expected to increase the number of tillers plant performance increase, otherwise reduce performance and increase end-effector can be a great role in increasing production [18]. Since it is valid examining individual traits alone, it GGE biplot multivariate method for comparing the genotypes and traits coupled to the evaluation results (Fig. 1). In Fig. 1, the first and second components, respectively, 45% and 19% of the total variance was explained. The time scale for the data and the lack of acceptance of a scale measuring traits, data scale 1 or using the standard deviation, were standardized. In this diagram, the angle between the vectors of each character traits displayed or otherwise cosine vector angle characteristics or traits of the genotypes indicated. Based on this study, a correlation between grain weight, yield, plant height, stem height there (Fig. 1). The bi-plot analysis of approximately 90 ° angle between the traits of panicle and tiller number and panicle length were reported. These results were in agreement with the results of the correlation table (Table 3), (Fig. 1). Increased number of tillers and panicles of environmental conditions can increase food intake by tillers and reduced reproductive tillers and the hollow of the spike [9]. Awn awn length impact on performance because the last part of the process of photosynthesis in the plant stops. Can therefore play an important role in grain filling, especially in dry conditions and is Tension. In a study to evaluate the effect on wheat flag leaf and awn removal on grain yield was done removes the flag leaf of 1.7 percent decrease in yield, While the removal of awn and 1.9 respectively and awn as an important source for the production of assimilates for grain filling were reported [5]. Awn of the grain filling and grain yield under rainfed conditions is more important than the character takes effect. They are traits that vector performance is 90 degrees and no correlation with performance independent of performance. Furthermore, the relationship between the traits, the relationship between genotypes in this study and reported so that the angle vector genotypes yield is less, it is higher (Fig. 1). In this study, genotypes Krifla, sefid khushe, Omid, Okta, M 575, showed a very high correlation with yield. Genotypes Alvand, Chamran, Roshan and (Cs/b) Were followed by and vector length and angle with respect to the first group,

the difference was more significant yield. Yield correlated with the number of spikelets per panicle, awn length and the traits within a spike of smaller scale and number of seeds per panicle showed a positive correlation.

Table 2 - Comparison of traits in wheat genotypes and Tritipyrum lines in first year

Genotypes	Stem length	Spike length	Plant height	Awn length	Spike width	Tiller	Number of ears per plant	Number of spikelets per spike	Number of seeds per spike	Thousand grain weight	Yield
Alvand	5.80	9.50	6.40	7.90	9.90	1.30	8.40	1.40	4.40	3.40	2.0
(Az/b)	4.80	8.70	5.60	9.40	7.70	1,20	6.0	9.10	2.90	3.40	1.80
Baft	4.90	8.30	5.30	5.20	8.90	1.20	7.30	1.20	3.90	3.80	1.10
Kaltikom	5.90	0.30	6.10	7.70	9.50	2.20	1.80	1.10	4.50	3.70	1.90
7.70Chamran	5.10	8.90	5.70	6.0	9.50	1.80	9.20	1.70	5.10	3.20	2.90
(Cr/ b)	4.60	9.30	5.90	1.80	6.80	3.50	2.10	9.50	2.80	3.20	1.20
Krifla	7.0	1.20	8.40	8.60	1.0	1.90	1.70	2.70	4.10	4.30	2.20
(Cs/ b)	7.0	7.20	7.20	3.40	1.0	1.70	9.70	2.40	5.10	3.90	1.30
Doubled haploid	5.50	9.20	6.70	6.60	9.30	2.30	1.40	1.80	3.80	3.80	1.80
Falat	6.90	1.60	7.60	6.30	7.30	2.0	1.20	1.50	3.40	3.80	1.80
(Ka/ b)	4.80	9.0	5.80	2.80	8.50	1.90	7.10	1.90	3.30	3.80	1.60
(Ka/ b ×Cr/ b)	4.0	0.40	5.20	2.60	9.30	1.90	1.0	1.0	3.80	3.30	1.90
(Ka/ b ×Cr/b)F2	4.80	1.0	5.80	2.80	7.80	1.50	1.50	1.30	2.50	3.70	1.30
(Ka/ b ×Cr/b)F3	4.90	9.60	6.60	1.50	6.40	1.80	8.10	7.0	2.50	3.90	1.20
(Ka/ b ×Cr/b)F5	4.90	9.80	5.70	1.70	8.80	2.50	1.40	8.90	3.40	3.60	1.70
Kavir	5.50	8.70	6.20	6.80	7.70	1.80	8.0	10.70	3.30	4.60	1.50
(La(4A.4D)/b)	4.20	9.20	5.40	3.80	7.20	1.70	1.30	8.30	2.80	2.0	1.80
M575	5.60	1.50	6.20	5.30	7.30	1.60	1.40	1.60	2.30	5.80	2.70
(Ma/ b)	5.20	9.40	6.70	1.50	7.90	2.60	1.30	1.70	3.60	3.0	1.30
MORVARID	6.20	8.80	7.90	9.40	9.40	1.90	8.90	1.30	4.10	4.80	2.20
(Ne/ b)	4.30	9.40	5.60	2.90	5.90	7.70	3.20	9.0	2.20	3.80	9.30
Niknejad	5.70	9.30	5.10	5.50	7.50	1.70	1.0	1.10	4.90	3.70	1.20
Akta	7.70	1.10	8.70	6.10	9.90	2.80	1.90	2.30	3.80	4.80	2.0
Omid	6.80	1.40	7.20	5.90	9.30	2.50	8.50	1.30	4.10	4.90	2.90
Roshan	6.30	1.0	7.30	1.60	7.30	1.90	7.30	1.60	3.40	3.70	1.70
White khushe	6.0	0.60	7.50	1.30	9.40	2.0	1.80	1.20	4.50	4.20	2.80
(St/ b)	5.40	1.0	6.40	1.90	6.50	1.0	8.50	9.50	3.20	3.50	1.60
(St/ b × Cr/b)F4	5.80	1.20	6.0	1.10	6.80	3.30	1.70	9.40	3.70	3.40	1.20
(St/ b ×Cr/ b)	4.30	8.30	5.70	2.80	9.30	2.80	9.20	1.50	3.40	2.10	1.50
Significance range 5%	2.9	3.73	2.5	3.63	3.4	1.94	6.73	5.47	1.25	8.79	3.6

Table 3 - Correlation between the characters in the first year

	SL	SPKL	HGT	AWNL	WIDSPK	TIL	EAR	SSPK	NSED	WGTS	YLD
SL	1.00										
SPKL	0.73**	1.00									
HGT	0.98**	0.81**	1.00								
AWNL	0.44*	0.35^{ns}	0.45*	1.00							
WIDSPK	0.71**	0.58**	0.70**	0.59**	1.00						
TIL	0.44*	0.60**	0.49**	0.10^{ns}	0.30^{ns}	1.00					
EAR	-0.14^{ns}	0.10^{ns}	-0.15	-0.37*	-0.39*	0.10^{ns}	1.00				
SSPK	0.80**	0.54**	0.76**	0.54**	0.79**	0.20^{ns}	-0.29^{ns}	1.00			
NSED	0.44*	0.30^{ns}	0.44*	0.66**	0.72**	0.24^{ns}	-0.37*	0.55**	1.00		
WGTS	0.48**	0.44*	0.50**	0.56**	0.62**	0.35^{ns}	-0.16^{ns}	0.42*	0.70**	1.00	
YLD	0.36*	0.13^{ns}	0.37*	0.71**	0.48**	0.01^{ns}	-0.50*	0.33^{ns}	0.61**	0.67**	1.00

*ns, * and ** not significance of 5% and 1% significance level respectively.*

These traits can be attributed to the following criteria for selection of genotypes with higher performance traits are the first group (Fig. 1). Since wheat cultivars adapted to the growing conditions of crops and more than Tritipyrum lines are, therefore, more of the yield of wheat lines intersect Tritipyrum was a reasonable expectation. But because the major objective of this trial was to evaluate and compare the lines Tritipyrum a new grain, mostly wheat genotypes played a role in this experiment and selection of wheat genotypes for the next generation (second year) was skipped and the intersection numbers Tritipyrum were selected.

Results showed that online (Cr / b) positively correlated with the highest number of tiller and panicle number of vectors. These results are in complete agreement with the mean comparison table (Table 2) (Fig. 1). Also genotypes (Ne / b) and (Az / b) with an angle of approximately 180 degrees (cosine of angle equal to -1) represents the yield that low performance was studied and it was in full agreement with the results of the mean comparison table. Combining multiple analytical methods can indicate Biplat such as analysis of variance, correlation analysis and comparison of these methods mean that the investigation also graphics were used to facilitate the understanding of the relationships between traits and genotypes.

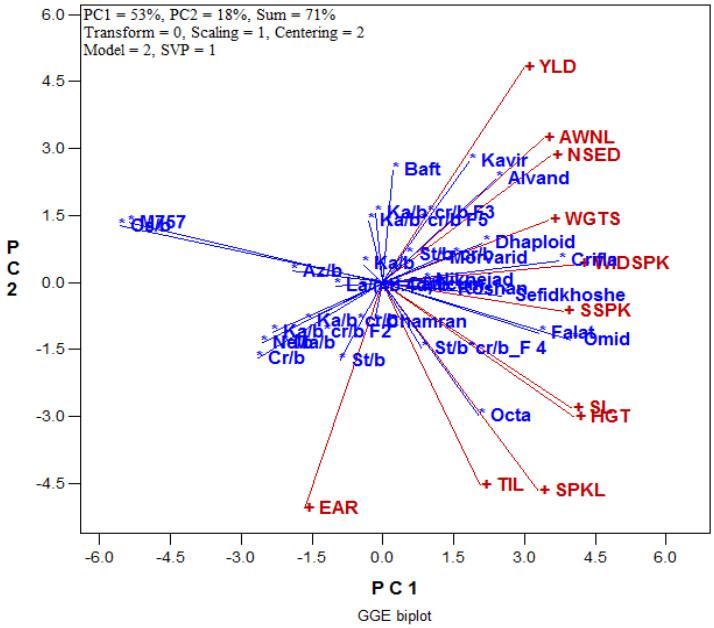

Fig 1. Biplot diagram wheat genotypes, Tritipyrum and attributes in first year

In general, using analysis of variance and comparisons of means and methods Biplat Chamran cultivar, Krifla and White lhushe performance at the highest levels between genotypes and lines (Ne/b), (Az/b) and (Ka/b × Cr/b) F3, respectively, had the lowest yield. Lines (St / b), (Cr/b), (Ka/b × Cr/b) F5, (Ma /b) and (Ka/b × Cr/b) F2, respectively, the highest yield among lines Tritipyrum allocated (table 2) and tested for additional investigation in the second year. In the second year than the first year more characters were taking notes, but also some of the characters were different than the first year. One goal of the work involved in all aspects of plant traits and selects it. And therefore was trying to use the maximum characters for selection. Analysis of variance showed a significant difference between the measured yield, days to tillering, tiller number, days to stem emergence, shoot length, days to heading, internode distance, diameter, spiking and awn length exist. Mean comparisons (Table 4) showed no significant difference between the lines in the second year the yield was Tritipyrum except online (Ka/b × Cr/b) F3 function was less compared to other lines.

The results with the results of the genotypes with high Biplat chart in order to put a positive first component axis line (Ka/b × Cr/b) F3 is placed on the left side of the axis of the first component of the agreement. Line (Ka/b × Cr/b) F3 Most awn length, days to heading and days to shoot, and the minimum diameter of the spike, the minimum interval length and minimum length showed the highest proportion (Table 4). Panicle length, panicle width, number of spikelets per panicle and internode length showed a high correlation with yield traits for selection of hybrid crosses (Table 5). Yield traits in the second spike diameter, internode distance and trait spikes showed a significant positive correlation (Table 5). The results with the results of the mean comparisons (Table 4) and Biplat diagram (Fig.2) were in complete agreement. Perfectly negatively correlated with yield traits, germination time, leaf wide, length of the awn and tilling time was reported. Line (Ka/b × Cr/b) F3, which had the lowest yield, awn highest and lowest average diameter of the spike that expresses the conclusion that most of the food consumed in the spike and therefore has spent longer awn spikes can't be spiked to fill. Due to the low degree of freedom, significant correlations between traits (Table 5) was found at higher levels, some of the traits were significantly correlated with each other were not acceptable. Therefore, the graph of the relationship between traits and genotypes Biplat well be traced to the interpretation of the results was used. In general, using the results Biplat lines (Ma/b and Ka/b×Cr/b)f6 the number of spikelets per panicle traits, internode length, stem length, leaf length, flag lines of excellence and is recommended to modify the characteristics of the lines used in hybrid crosses. Line (Ka/b × Cr/b) F3 trait days to heading, days to emergence, stem length and days to awn emergence showed a high correlation between tillering. Seems to be related to the characteristics and traits for breeding lines with characteristics of late is better to use this line in hybrid crosses (Fig. 2).

Table 4 - Comparison lines in the second evaluation

Genotype	Awn length	spike diameter	Spike length	No. of spikelet in spike	Flag leaf length	Flag leaf wide	Internode distance	Heading time	No. of leaf	Stem length	shoot emergence time	Tiller No.	time Tillering	Germination time	yield
(Cr/b)	4.0	9.0	8.0	1.0	12.0	7.0	14.0	136.0	3.0	58	109	10	100	70	1170
(St/b)	3.0	8.0	9.0	1.0	13.0	6.0	16.0	141.0	2.0	55	109	11	101	69	1230
(Ka/b×Cr/b)f6	6.0	7.0	8.0	1.0	14.0	8.0	18.0	136.0	2.0	63	111	15	101	71	1160
(Ma/b)	4.0	9.0	9.0	1.0	13.0	8.0	18.0	145.0	3.0	57	112	13	104	72	1240
(Ka/Cr)f6	5.0	7.0	9.0	1.0	13.0	6.0	17.0	150.0	3.0	61	118	11	102	71	1180
(Ka/b×Cr/b)f3	1.0	1.0	8.0	9.0	12.0	8.0	8.0	160.0	7.2	54	136	8	105	71	980
دامنه معنی‌داری (%5)	1.6	3.6	2.1	4.2	3.2	1.1	1.4	2.23	5.1	1.6	5.19	8.4	9.3	1.3	6.170

Table 5 - Traits correlation in Tritipyrum genotypes in the secondary year

	GER؟	TIL	NOFTIL	SHOOT	SL	NOFL	SPEK	NOFNOD	DISNOD	WIDFL	FL	SSPK	SPKL	SPKDIM	AWNL	YLD
GERM	1															
TIL	0.73*	1.00														
NOFTIL	0.53ns	0.47ns	1.00													
SHOOT	0.32ns	0.31ns	-0.10ns	1.00												
SL	0.33ns	-0.16ns	0.42ns	0.47ns	1.00											
NOFL	0.30ns	0.11ns	-0.24ns	-0.49ns	-0.49ns	1.00										
SPEK	0.21ns	0.57ns	-0.19ns	0.84**	-0.05ns	-0.36ns	1.00									
NOFNOD	0.11ns	-0.36ns	0.62ns	-0.33ns	0.67*	-0.17ns	-0.72*	1.00								
DISNOD	0.55ns	0.69*	0.82**	0.41ns	0.43ns	-0.52ns	0.40ns	0.21ns	1.00							
WIDFL	0.78**	0.58ns	0.66*	-0.33ns	0.01ns	0.55ns	-0.30ns	0.32ns	0.37ns	1.00						
FL	0.54ns	0.46ns	0.97**	0.14ns	0.59ns	-0.42ns	-0.02ns	0.60ns	0.90**	0.52ns	1.00					
SSPK	0.55ns	0.84**	0.81**	0.00ns	-0.05ns	-0.11ns	0.22ns	0.05ns	0.84**	0.64*	0.75*	1.00				
SPKL	0.57ns	0.75*	0.19ns	0.86**	0.23ns	-0.33ns	0.90**	-0.43ns	0.68*	0.05ns	0.35ns	0.46ns	1.00			
SPKDIM	0.37ns	0.18ns	-0.33ns	-0.31ns	-0.47ns	0.98**	-0.18ns	-0.30ns	-0.50ns	0.49ns	-0.46ns	-0.13ns	-0.17ns	1.00		
AWNL	0.29ns	-0.06ns	0.52ns	0.51ns	0.97**	-0.66*	0.06ns	0.63*	0.59ns	-0.03ns	0.70*	0.10ns	0.33ns	-0.64*	1.00	
YLD	0.84**	0.40ns	0.13ns	0.07ns	0.14ns	0.71**	-0.07ns	0.06ns	0.01ns	0.72*	0.09ns	0.12ns	0.20ns	0.76**	-0.02ns	1.00

*ns, * and ** not significance of 5% and 1% significance level respectively.*

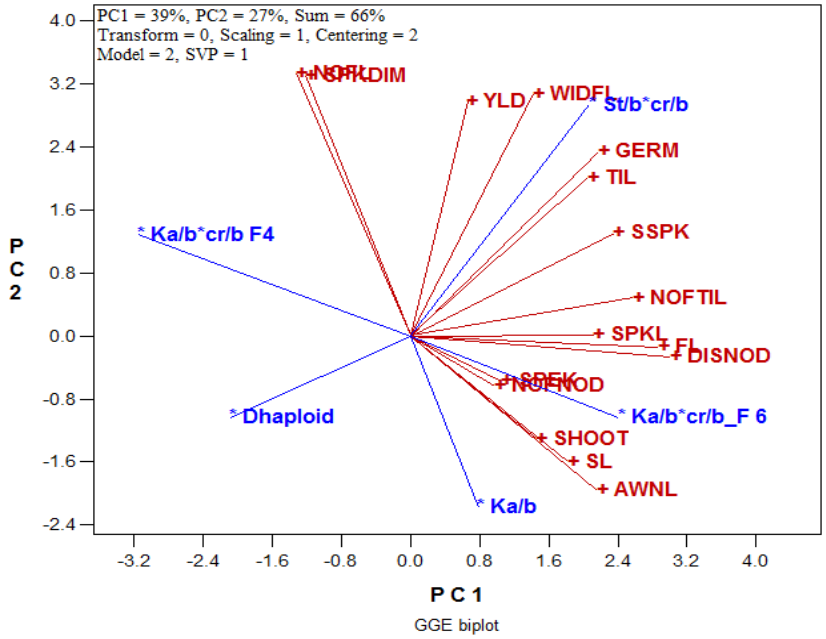

Fig 2. Biplat plot lines and characters Tritipyrum.second year

In general, using the first two components in the GGE biplot technique in 73% of the total variance was explained. And 27% by other components that are not visible in the two-dimensional plane is justified. Vectors of length Biplat center had more ability than the interpretation of the vectors of length less Biplat have. Components using principal component analysis in the model remain better understanding of the relationship between genotypes and traits to offer all of the components or the original data most utilities have been removed from the model because of noise (Noise) or the lack of structural data and utilities that remain in the model, with minimal noise or data with structural. Noise data are some of the contributions that have no specific trend data are not justified [7]. Another benefit of using PCA is to reduce the data dimensions and the internal consistency of data is high, the data associated with the first two components showed by graph and a tangible link between distinct data structures [4]. Biplat general method, a new line with Tritipyrum lines were selected in the first year of analysis, which showed no significant difference between the 5 lines. Each of the lines in the second year of the study showed its superiority in terms of some attributes. And used for hybrid crosses or eliminating weaknesses and strengthening its a good genotypes are recommended.

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