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Study the Effect of Tea Black Waste and Disper Vital Compound on The Chemical Qualities, and Growth yield of Zea mays L.

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Abstract: The object of this study is knowing the effect of tea black waste and Disper vital compound on the Chemical qualities, the growth and the yield For (of) Zea mays L. In the spring of 2022 , an agricultural experiment was conducted in Kerbala , Alhindia city . Three replications , two factors , and a randomized complete block design (RCBD) were used to build up the factorial experiment. The first factor was Disper vital compound spraying (control , 1.56 2.87 gm L^1), the second factor was black tea mixed with soil (control , 20 , 30 , 40 gm L ') . The medicines were administered in two dosages , and after monitoring all growth indicators , the plants were harvested when fully mature . The results refer to the impact of the black tea wastes when mixed with soil of higher significance in increase the NH , N , Na , mg , Ca , Cl and ph of soil from 27.73 mg.kg , 29.23 , 2.78 , 4.87 , 5.91 mm.L^1 7.99 in control to 29.23 mg kg 3.89 , 3.92 , 5.95 , 6.87 mm L. and 7.36 in treatment (40gm / kg) respectively , as well the black tea wastes of higher significance in increase Zinc , protean , oil percentage and grain yield and Weight of 1000 in treatment (40gm / kg) , As for spraying with Disper vital compound It has a significant effect in increasing the proportion of both Zinc , protean , oil grain yield and Weight of 1000 in treatment (2.87 gm L) .

***Keywords*:** *Zea may L., Disper vital, Black tea waste, zinc , protean.*

1. Introduction

The world's nations are now remarkably concerned with protecting the environment from pollution, a growth of trash, and residuals. This could have an impact on the environment's natural equilibrium and, as a result, the usefulness of natural resources like soil, water, and air. Changing the environment around the plant may have a positive economic impact by adding various leftovers and waste products from homes and businesses as soil conditioners, which reduces water use and increases yield both quantitatively and qualita [1]. Use of organic fertilizers and municipal wastes improves the chemical properties of degraded soils in a variety of ways that help plants grow there. [2]. Many studies have demonstrated how important soil organic matter is as a source of macro and micronutrients for plants, as well as how their byproducts of decomposition affect the readiness of elements and the ability of soil particles to bind. [3]. One of the most significant recent breakthroughs in many professions and countries is the rising use of medicinal plants. There are numerous of these undiscovered chemicals. The germination, development, and nourishment of various plant species [4], The main a flavins found in black tea are theaflavin, 3-gallate aflavin, 3-gallate aflavin, and 3-gallate aflavin. The orange-red aflavins component gives black tea its astringent flavor and copper color. Tea polyphenols' antioxidant properties are widely kno [5].

Foliar Application: A nutrient deficiency in these places can be swiftly corrected by supplying nutrients directly by foliar feeding as the leaf is the foundation of photosynthesis and the bulk of other crucial processes. Nols are a well-known brand. [6]. A more uniform distribution of nutrients on the vegetative system can be achieved quickly by adding nutrients to the soil and reducing soil loss by protecting it from washing, volatilization, sedimentation, or riveting. [7]. Disper vital

compound is regarded as one of the essential stimuli for crops because it contains elements (carbohydrates, boron, and calcium), and this element and its constituents support amino acids, amino acids, and carbohydrates of the crop by passing stresses in general and heat stress in particular to give the highest yield of the crop. It also enhances growth and yield by speeding up pollination and then fertilization in the ovaries by lowering temperature. [8]. One of the most significant and important grain crops which are utilized in human and animal nutrition as well as various industrial uses. [9], This crop suffers from many problems that affect its growth and production, including weak field emergence due to the depth of seed cultivation, especially when traditional cultivation without the use of modern machinery, which leads to a difference in the duration of seedling emergence. Low productivity and yield are some of this crop's other issues, and they are caused by a lack of interest in soil care activities, particularly fertilization.Fertilization plays a role in determining the best cradle for germination, seed emergence, and subsequent growth of seedlings [8].

2. Methodology

- *Location of a Trial and Implementation*:

In the spring of 2022, an agricultural experiment was conducted in Kerbala . Three replications, two factors, and a randomized complete block design (RCBD) were used the factorial experiment. the first factor was Disper vital compound (control , 1.56 , 2.87 gm L^{-1}) The second factor was black tea mixed with soil (control , 20 , 30, 40 gm L^{-1}). The medicines have been administered in two dosages, and after monitoring all growth indicators, the plants have been harvested when fully mature .

- *Soil Preparation*

Blended soil: soil samples were collected from the city karbala and have been packed them in plastic pots with a 30 cm diameter and a 45 cm height and 10 kilogram of soil each pot, [10] Certain characteristics and the hydrometer approach described the soil chemistry. [11] Chemical analyses of tea waste were carried out according to the methods presented [12].

- Fertilization

In two batches, 150 kg $P.ha^{-1}$ of urea fertilizer (N 46%) and 50 kg $P.ha^{-1}$ of superphosphate (46% P) fertilizer were added. At the branching and flowering stage.

- ***Chemical Qualities***

- ***Percentage and Yield of Oil***

Using a soxhelet apparatus in a thimble, 50 g of fin powder was extracted for 24 hours with 150 ml of (70%) hexan in a 500 ml round-volume flask. The extract evaporated using spinning evaporation apparatus at (45 C^{o}). [13].

Oil yield Mg h^{-1}= Percentage of oil × seed yield Mg h^{-1}

- ***Protein Percentage***

The following equation illustrates the ability of the protein ratio. [14]:

Protein ratio (%) = total nitrogen ratio × 25.6

- ***Zinc Percentage***

To determine the amount of zinc in seeds, 2.0 g of pulverized seeds were digested in a solution of sulfuric and chloric acids before its measured with an adsorbent metric spectrophotometer. Atomic [14].

- ***Statistical Analysis***

Statistics were applied to the data. Utilizing the statistical application Genstat, determine the least significant difference for the Design of Random Complete Sectors (RCBD) factor experiment. D.S.L. Test the difference between Averages at the level of 0.05 probability.

3. Results

Indicate the Table (1) Chemical characteristics of some waste black tea leaves the ratio where (N , P, K and PH) 12 , 1.45 , 8.65 and 5.98 respectively.

Table 1. Some of black Tea leave Wastes Chemical properties.

Property	Value
N	12 $g.kg^{-1}$
P	1.45 $g.kg^{-1}$
K	8.65 $g.kg^{-1}$
PH	5.98

Table (2) indicate the influence of various black tea waste concentrations on various soil chemical and physical features, with a focusin on the impact of the more significant tea wastes on the increase in NH_4N of soil from 27.73 $mg.kg^{-1}$ in control to increase 28.34 $mg.kg^{-1}$, 28.98 $mg.kg^{-1}$ and of 29.23 $mg.kg^{-1}$. while Na significance in increasing of soil 2.78 $mm.L^{-1}$in control to increase 2.98 $mm.L^{-1}$, 3.11 $mm.L^{-1}$and of 3.89 $mm.L^{-1}$`. while Mg significance in increase of soil 2.98 mm.L-in control to increase 2.99 $mm.L^{-1}$, 3.45 $mm.L^{-1}$ and of 3.92 $mm.L^{-1}$.

While Ca $mm.L^{-1}$ significance in increase of soil from 4.87 $mm.L^{-1}$ in control to increase 4.98 $mm.L^{-1}$, 5.11 $mm.L^{-1}$and of 5.95 $mm.L^{-1}$. while Cl significance in increase of soil from 5.91 $mm.L^{-1}mm.L^{-1}$ in control to increase 5.99 $mm.L^{-1}$, 6.34 $mm.L^{-1}$ and of 6.87 $mm.L^{-1}$. Because to the impact of the tea wastes of higher

significance in decrease the pH of soil from 7.99 in control to 7.80 on the 30 , a decline of 7.65 , 7.36.

Table 2. Effect of Black Tea waste on Some of Soil Properties.

	NH_4N	Na	Mg	Ca	Cl	PH
Control	27.73 $mg.kg^{-1}$	2.78 $mm.L^{-1}$	2.98 $mm.L^{-1}$	4.87 $mm.L^{-1}$	5.91 $mm.L^{-1}$	7.99
20 gm\kg	28.34 $mg.kg^{-1}$	2.98 $mm.L^{-1}$	2.99 $mm.L^{-1}$	4.98 $mm.L^{-1}$	5.99 $mm.L^{-1}$	7.80
30 gm\kg	28.98 $mg.kg^{-1}$	3.11 $mm.L^{-1}$	3.45 $mm.L^{-1}$	5.11 $mm.L^{-1}$	6.34 $mm.L^{-1}$	7.65
40 gm\kg	29.23 $mg.kg^{-1}$	3.89 $mm.L^{-1}$	3.92 $mm.L^{-1}$	5.95 $mm.L^{-1}$	6.87 $mm.L^{-1}$	7.36
LSD 0.05	0.101	0.110	0.134	1.44	0.142	0.151

The Disper vital (2.87gm.L^{-1} coefficients showed significant variation, as seen in table (3), was noted as having the highest protean value percentage ever (15.57%) , more advanced than the recorded control 11.15% . Results from the same table have showed that there were observable changes in the way of black tea waste treatments which were handled the four concentration 40 gm\kg was favored by providing the highest value in the protean percentage 15.19%. The value for the control therapy was the lowest 11.24%, But so far, there was an increase. (13.21% and 15.13). Treatments using Disper vital in interaction with black tea waste point to a 2.87 therapy from Disper vital with the four concentration (40 gm\kg) Compared to the control treatment, which had the greatest protean value of 16.83%, 9.55% was a low value that was observed.

Table 3. Effect of black tea waste and Disper vital compound on protean (%) percentage and their interactions.

Disper vital gm L^{-1}	**Black tea waste (gm\kg)**				
Control	**Control**	**20**	**30**	**40**	**Mean**
	9.55	10.54	11.76	12.76	11.15
1.56	10.49	13.73	14.87	15.98	13.76
2.87	13.68	15.38	16.39	16.83	15.57
LSD 0.05 for interaction		1.67			
Mean	11.24	13.21	15.13	15.19	
LSD 0.05 for black tea waste gm\kg		0.59			LSD 0.05 for Disper vital gm L^{-1}

The Disper vital 2.87gm.L^{-1} coefficients showed significant variation, as seen in table (4), was noted as having the highest oil value percentage total ever recorded. treatment that was documented 52.91 Mg h^{-1} , more advanced than the recorded control (43.55 Mg h^{-1}). Results from the same table show that there were observable changes in the way black tea waste treatments were handled the four concentration (40 gm\kg) was preferred by providing the highest value in the oil percentage. (49.73 Mg h^{-1}). The value for the control therapy was the lowest (45.32 Mg h^{-1}), But so far, there was an increase 47.59 Mg h^{-1} and 48.68 Mg h^{-1}). Treatments using Disper vital in interaction with black tea waste point to a 2.87 Mg h^{-1} therapy from Disper vital with the four concentration (40 gm\kg) Compared to the control treatment which recorded 54.39 Mg h^{-1} highest value, while low value in interaction which was recorded 40.45 Mg h^{-1}

Table 4. Effect of black tea waste and Disper vital compound on percentage of oil in seeds (%)and their interactions.

Disper vital gm L^{-1}	**Black tea waste (gm\kg)**				
Control	Control	20	30	40	Mean
	40.45	43.56	44.34	45.87	43.55
1.56	44.87	46.38	47.95	48.92	47.03
2.87	50.65	52.83	53.76	54.39	52.91
LSD 0.05 for interaction		1.87			
Mean	45.32	47.59	48.68	49.73	
LSD (0.05) for black tea waste gm\kg		0.48			LSD 0.05 for Disper vital gm L^{-1}

According to table (5), there were considerable variations in the Disper vital coefficients,2.87 (gm.L^{-1}) was the highest value percentage of Zinc ever recorded. treatment which was recorded (38.42%), more advanced than the recorded control (32.90%). Results from the same table show that there were observable changes in the way black tea waste treatments were handled the four concentration (40 gm\kg) was preferred by providing the highest value in the percentage of Zinc (37.13%). The value for the control therapy was the lowest (33.84%), But so far, there was an increase (35.12% and 35.68). Treatments using Disper vital in interaction with black tea waste point to a 2.87 therapy from Disper vital with the four concentration (40 gm\kg) Compared to the control treatment which recorded 40.39% highest value protean, while low value which was recorded 31.38%.

Table 5. Effect of black tea waste and Disper vital compound on percentage of zinc (%) and their interactions.

Disper vital gm L^{-1}	**Black tea waste (gm\kg)**				
Control	Control	20	30	40	Mean
	31.38	32.76	33.28	34.19	32.90
1.56	33.17	34.76	35.28	36.82	35.00
2.87	36.98	37.83	38.47	40.39	38.42
LSD 0.05 for interaction		1.98			
Mean	33.84	35.12	35.68	37.13	
LSD 0.05 for black tea waste gm\kg		0.65			LSD 0.05 for Disper vital gm L^{-1}

According to table (6), there were considerable variations in the Disper vital coefficients,2.87 (gm.L^{-1}) was the highest value percentage of grain yield ever recorded. treatment which was recorded 11.69gm more advanced than the recorded control (9.7gm). Results from the same table show that there were observable changes in the way black tea waste treatments were handled the four concentration (40 gm\kg) was preferred by providing the highest value in the percentage of grain yield (11.51gm) . The value for the control therapy was the lowest (9.77 gm) But so far, there was an increase (10.28 gm) and 10.67 gm). Treatments using Disper vital in interaction with black tea waste point to a 2.87 gm.L^{-1} therapy from Disper vital with the four concentration (40 gm\kg) Compared to the control treatment which recorded 40.39 gm highest value protean, while low value which was recorded 31.38 gm.

Table 6. Effect of black tea waste and Disper vital compound in for grain yield and their interactions.

Disper vital gm L^{-1}	**Black tea waste (gm\kg)**				
Control	Control	20	30	40	Mean
	8.98	9.18	9.99	10.65	9.7
1.56	9.34	9.89	10.13	11.76	10.28
2.87	10.98	11.77	11.88	12.11	11.69
LSD 0.05 for interaction		1.87			
Mean	9.77	10.28	10.67	11.51	
LSD 0.05 for black tea waste gm\kg		0.45			LSD 0.05 for Disper vital gm L^{-1}

According to table (7), there were considerable variations in the Disper vital coefficients,2.87 (gm.L^{-1}) was the highest value percentage of 1000 (gm) tablets ever recorded. treatment which was recorded 336.22gm more advanced than the recorded control (239.08gm). Results from the same table show that there were observable changes in the way black tea waste treatments were handled the four concentration (40 gm\kg) was preferred by providing the highest value in the percentage of 1000 (gm) tablets (275.17gm) . The value for the control therapy was the lowest (239.58gm) But so far, there was an increase (253.12gm and 262.83gm). Treatments using Disper vital in interaction with black tea waste point to a 2.87 gm.L^{-1} therapy from Disper vital with the four concentration (40 gm\kg) Compared to the control treatment which recorded 290.98gm highest value protean, while low value which was recorded 222.65gm.

Table 7. Effect of black tea waste and Disper vital compound in Weight of 1000 (gm) tablets and their interactions.

Disper vital gm L^{-1}	**Black tea waste (gm\kg)**				
Control	Control	20	30	40	Mean
	222.65	232.45	245.34	255.87	239.08
1.56	242.34	257.62	265.27	278.65	260.97
2.87	253.76	269.28	277.87	290.98	336.22
LSD 0.05 for interaction		1.98			
Mean	239.58	253.12	262.83	275.17	
LSD 0.05 for black tea waste gm\kg		0.65			LSD 0.05 for Disper vital gm L^{-1}

3. Discussion

Seeing the results of our most recent research The results emphasize the importance of the interaction between Disper vital and tea black waste even more, Table (2) shows the effect of different concentration black tea waste on some of the chemical characteristics of soil in Show a significant difference in the chemical elements present in the soil may be due to the role of solid tea waste in increasing soil porosity and thus the speed of washing salts from the soil and this is consistent with [2] who pointed out that municipal solid waste containing tea waste contribute in leaching salts quickly from the soil , refers to the impact of the tea wastes of higher significance in reducing the pH of soil from 7.99 in control to 7.80 on the 30 , a decline of 7.65 , 7.36. Because of the organic function played by tea wastes in the composition of some acidic compounds brought on by the simple decomposition of tea and the presence of sufficient moisture, the pH of soil may have been somewhat lowered and this is what referred to by [15]. While table (3,4,5,6,7) also indicates that there are differences of high significance between treatments in the protean , oil, Zinc percentage , grain yield and Weight of 1000 compared the control , due to the organic matter's contribution to the soil's ability to hold more total nitrogen, potassium, and phosphorus, which has an impact on plant growth and this is consistent with [16]. Or because black tea contributes, when mixed with soil, to increasing soil fertility and aerating it, and that with increasing humidity, a series of chemical changes, enzymatic decomposition and oxidation occur, especially enzyme activity polyhenol oxidase. [17] This, in turn, contributes to increasing the nutrients in the soil by increasing the chemical elements, especially zinc and protein, and the productivity of the crop and oil.

As well as what was indicated by[18] of an increase in dry weight Maize plants were elevated by increasing levels of tea residue addition. This is due to the lower bulk density soil as well as the degree of its interaction, which had a positive role in increasing the availability of nutrients and weight gain The root system of the plant,

which was positively reflected in the dry weight of the vegetative system of the plant, and this confirmed a relationship Highly significant negative correlation between soil bulk density and root dry weight. Adding tea waste as an improver to some soil properties, especially sandy and gypsum soils to improve them and also increase the growth of plants growing in such soils, which is positively reflected in their productivity and needs to be added for at least two weeks to obtain positive results for the soil characteristics treated with this type of soil waste [3].

To spray Disper vital at a concentration of 2.87 mg / K. L A led to an increase in the percentage protean , Zinc and oil yield And he might come back The reason for this is that the Disper vital compound contains carbohydrates, amino acids, boron and calcium. As these components led to an increase in fertilization and formation of grains, and thus increased the accumulation and formation of proteins in the grains Cereals, this is due to the important role that amino acids play in increasing the activity and physiological effectiveness of the crop, which It is considered one of the important components in the formation of protein, and thus leads to the activation of the protein building process This will lead to plant height, leaf area, and crop diameter, as it works to transfer amine aggregates to Cells that need protein synthesis [19,20]. The reason for this may be due to the role of the compound Disper vital surface and what it contains Carbohydrates, amino acids, boron and calcium, as this compound affects the physiological activities of growth The plant, directly or indirectly, also works in stimulating vital processes, through participation Amino acids in building proteins and making carbohydrates By building chlorophyll and increasing the content in the leaves and stimulating the process of photosynthesis [21,22].

And spraying with a Disper vital compound to provide essential elements continuously during the growth period And the crop uptake of these nutrients from the leaves and roots, [23] which directly affected each of the components Essential for protein, enzymes, hormones and vitamins, thus increasing the rate of production and plant efficiency in representation Nutrients from the soil or sprayed on the vegetative system, [24] so there is a balance and homogeneity for these elements in a site Building carbohydrates And proteinaceous) especially in the leaves as it contributes This is in increasing and improving the biological metabolism processes, which leads to an increase in the characteristics of vegetative growth, yield and its components and qualitative characteristics [25].

Conclusion

1.The black tea waste when with soil act to the decrease Ph. Black tea waste in soil act to the increase oil yield , protein, Zinc, percentage for grain yield and Weight of 1000 , interaction between Disper vital and tea black waste given highlight the value.

2. It appears that the concentrations of the Disper vital compound increased to the highest concentrations used in the study, 287.1 g^{-1} liter

It gave positive results for all the studied traits, which gives an indication of the potential response of the crop yellow corn

References

1. Al-Nuaimi, Watheb Shukri and Bassam Al-Din Al-Khatib (2008). The effect of adding industrial paper waste and powder Champagne Demersem L. in improving some soil physical properties, growth and yield of Ceratophlamd okra The Iraqi Agricultural Sciences Journal. 13-1 (1): 39.
2. Albaladejo J., M. Stocking, E. Diaz and V. Castillo.(1994). Land rehabilitation by urban refuse amendments in a semi-arid environment: effect on soil chemical properties. Soil Technology, 7:249-260.
3. Al-Bayati A. H. Al-Anizy I. A. F. (2017) The study of tea waste addition's effect on some soil properties and wheat plant growth . Anbar Journal of Agricultural Sciences. (15).
4. Hussein, Wafa Ali. (2002). Effect of garlic extract, licorice root and urea on the characteristics of Vegetative and floral growth, yield and qualitative qualities of the cucumber plant. L sativus Cucumis. Master Thesis, College of Agriculture, University of Baghdad. Iraq.
5. Chan, E. W., Soh, E. Y., Tie, P. P. and Y. P., Law (2011). Antioxidant and antibacterial properties of green, black, and herbal teas of Camellia sinensis. Pharmacognosy Res., 3, 266.
6. Hamad, Mohamed Shehab and Farouk Faraj Juma. (2020). Effect of foliar fertilization on mineral content The ratio of the local orange brawl nodes okbeck sinensis Citrus . Journal of Agricultural Sciences Iraqiya (13).
7. Hassan, Hisham Mahmoud. (1988) Soil physics. Ministry of Higher Education and Scientific Research, University of Mosul. College of Agriculture and Forestry, Iraq. 68 -6.
8. Almaslamani , A.H. (2022) The effect of planting depths and spraying with Disper vital compound In Field steablshmeant, growth and yield of (Zea mays L.) Master of Agricultural Sciences in Filed Crops.
9. Orhun, G. E. 2013. Maize for Life. Int. J. Food Sci; and Nut. Eng. 3(2):13_16.
10. AL-Ibrahemi , N. AL.Musawi,A.(2018). Effect of Some Ecological Factors In The Chemical Contect and Activity of Some Antioxidant Enzyme of Wheat (Tritticum aestivum L.). Science kerbala Journal . 16 (2).
11. Day, P. R., (1965). Particle fractionation and particle size analysis. In C. A. Black et al.(ed). Methods of soil analysis, part I. Agro. 9:545- 567.

12. Page,A., R.H. Miller and M.C. Keeney, (1982). Methods of soil analysis. Part 1and 2 physical and chemical & microbiological properties Agron. Madison, Wisconsin, USDA.
13. AL-Ibrahemi .N ; AL-Laith.Z.N; AL-Yassiry ,A.and AL-Masaoodi N.H. (2022). Phytochemical study of Volatile Oil for the Ocimum basillicum L. and Mentha spicata By Gas Chromatography Technique. IOP.Conference series: Earth and Environmental Science.(1755-1315) Vo.2031.
14. Haynes , R. J. 1980. A comparison of two modified Kjeldhal digestion techniques for multi elements plant analysis with conventional wet and dry ashing methods . Soil Sci . , and Plant Analysis . 11 (5) : 459-467.
15. Abdulghani, E. T., (2012). Effect of black tea wastes on some of soil properties and Barley (Hordium vugar L.) growth and yield. J. Tikrit Univ. of Agri. Sci. 12(3):29-37.
16. Ozdemir N., T. Yakupoglu, O. Dengiz. (2009). The effects of bio-solid and tea waste application into different levels of eroded soil on N, P and K concentrations. Environ. Monit. Assess, 156:109-118.
17. Chen,A.O.,Tsaz,Y. S.and Chiu.W.T(1992)of Flavor in food and beverage .Elsevier Seince.Pub.B.V.Amesteram.P411.
18. Abd al-Rasoul, Ibtisam Abd al-Zahra, Saleh Mahdi al-Atab, and Wafaa Abd al-Amir Ahmed, (2013). The effect of water salinity. Irrigation and tea residues on some sandy soil properties and growth of maize plant 658-648: (2) 5. Agricultural Sciences, Diyala Journal. Zea mays L.
19. Zhag, X., L. F. Li shen.D. Meng and J. Sheng. (2013). Amelioratson of chilling stress by arginine in tomato fruit: Changes in endogenous arginine Catabolism postharvest biology and Technology, 76, Complete, PP. 106- 111.
20. Al-Said, M. A. and A.M. Kamal.2008. Effect of folair Spray with Folic Acid and Some amino acids on Flowering yild and quality of Sweet pepper. J. Agric. Sci. Mansoura Univ.,33(10):7403-7412.
21. Akram Hasson Abdul Amir Al-Muslimani1 , Razaq Lifta Attiya and Raghad S. Shamsah. (2022) effect plantig depth on field emergence and seedling characteristics of maize crop. Int. J. Agricult. Stat. Sci. Vol. 18, S. 1, pp. 2287-2292.
22. Mohamed, A.M. 2006. Effect of some Bio-chemical Ferilization Regimes on yield of Maize. M.Sc. Thesis, Fac. of Agric., Zagazig, univ., Egypt, PP:70-177.
23. Dubey, A.K., Singh, D., Rajput, p.s., kumar, y., Verma, A.K., and chandraker. S.K. (2017). Effect of Npk on plant growth, Yield and quality of Capsicum (Capsicum annum L.) Cu Swarna under shade Net Condition. Int. J. Curr. Microbiol. App. SCi, 6(3), 1085-1091.
24. Akram Hasson Abdul Amir Al-Muslimani1.*, Razaq Lifta Attiya2 and Raghad S. Shamsah . (2022) The phesiological of agriculture depths and spraying with the disper vital compound in the yield and its components to the yellow corn. Int. J. Agricult. Stat. Sci. Vol. 18, S.1, pp. 1975-1981.
25. Rai, U.K. (2002). Role of amino acids in plant.responses to stresses. Biol.Plantaruma 45:481-487.
26. Myint, A., T. yama Kawa, Y. Kajihara and T. Zenmoy. (2010). Application of different organić and mineral fertilizers on the growth Yield and nutrient accumulation of rice in a japanese ordinary paddy field. Sci. Word. J.5(2):47-54.