The Effect of Spraying with Benzyle Adnin and Marine Alga Extract (Algazone) in Improving the Phenotypic Properties of Green Landscap

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Abstract. The experiment was conducted in the fields affiliated to the College of Agriculture - University of Anbar from 1/2/2018 until 30/1/2020 with the aim of studying the response of green landscap to the effect of spraying the benzyl adenine and algae extract through a mixture of herbs for hot and cold areas. The factorial experiment was conducted according to the random Complete block design (RCBD) with three replicates, including Benzyl adenine (BA) at a concentration of (0, 5, 10 and 15) mg liter⁻¹ and algae extract (0, 0.5, 1 and 2) ml liter⁻¹. The results showed a significant increase in the concentration of 15 mg liter⁻¹ in (BA) in increasing the plant density and the number of branches, also reducing the number of shear times reached 44.58 dcm plants⁻², 9.94 branches. Plant⁻¹ and 6.58 shear), as well as an increase in the susceptibility of run over for the three seasons, summer, autumn and winter with a degree of 3.39, 2.97 and 3.09, in respectively. The same concentration recorded a significantly increased in the color and quality (homogeneity) for the green area for the three seasons, grades were (7.75 and 7.66) for the summer season, (6.95 and 6.89) autumn, 7.29 and 7. 37 in the winter, respectively. The spraying of algae extract with the concentration of 2 ml⁻¹ resulted a significant increase in the plant density was 45.16 dcm plants⁻², the number of cuts was 9.50 shear. The same concentration increased the degree and the quality of color (homogeneity) for the flat green to the three seasons (7.70, 7.75) degree of summer (7.00, 6.93) degree of autumn (7.39, 7.41) degree of winter respectively.

1. Introduction

Green landscapes are defined as areas planted for a similar group of green annual or perennial herbaceous plants that follow the Gramnaceade. Known as grass or grass, it grows upright or creeping to cover the surface layer of the soil, forming green mats, characterized by its endurance for continuous shearing, as it is considered one of the requirements for the completion of its coordinating value in gardens and playgrounds to maintain its beauty and regularity of growth. The green area is the beginning of the vegetation gradient - the zero point of the garden - for the rest of the plants in the garden, as it is surrounded by shrubs and flowerbeds, this gives the aesthetic coordination picture as well as it has an important role in reducing pollution and tempering the atmosphere by reducing the sun's heat, increasing humidity and converting the surrounding atmosphere into Fresh atmosphere. It also resists soil erosion by the cohesion of its roots with the soil particles, reduces the spread of dust, in
addition to the effect on giving joy and tranquility in the souls of people, this is reflected in the vitality and activity of man. It is also used as a place to sit and playgrounds for children in public parks. Green areas are divided according to the extent to which they can withstand temperatures, into those of the cold season, which grow best in a temperature range between 10 to 25 m [1]. There are several types such as FestucaArundinacea and PoaPratensis, which are among the weeds that form it is flat and smooth and reproduces with seeds and tolerates drought during the summer. It is a wintery perennial plant, and the flats of the warm season grow in a temperature range ranging from 27 to 35 m.

There are many types of grass, including Cyndon dactylon and Zoysiagrass, where there are more than 200 species in the world, and it is one of the types commonly used in public parks and playgrounds. The use of plant growth regulators is not only the reduction of mowing of green surfaces, but also to increase the density of the grass, improve the phenotypic aesthetics, and resist and overcome inappropriate environmental conditions [2].

Benzyl adenine (BA) is an important growth organization in the regulation of a number of physiological and metabolic processes. It has a role in stimulating the growth of lateral shoots and increasing the vegetative branches and roots [3], inducing cell division and expansion through differentiation and formation of buds and roots, as well as its role in reducing apical dominance and delaying aging and its contribution to building protein, carbohydrates and chloroplasts, and increasing the activity of enzymes responsible for photosynthesis, chlorophyll [4], [5] indicated that cytokine has an effect on delaying leaf aging by increasing antioxidant activity and resistance to stress, especially heat stress, in addition to a positive effect in improving the color, texture and homogeneity of the flat, in a study in the effect of Trinexapac-Ethyl on endogenous cytokine content in Bentgrass,[6] Kentucky bluegrass and bermudagrass led to an increase in elsa content. Endotoxinin, which reflected positively on the color tone, optical efficiency and amount of chlorophyll, which enhanced the surface density and appearance, in addition to reducing the shear processes.

Seaweeds are organic products that have received increasing interest in the development of agricultural production due to their importance in the production and improvement of various plants because they are rich in many macro and micro nutrients in addition to their growth stimulating role because they contain auxins, gibberellins, cytokine, vitamins, amino acids, and organic. Supplementing the fertilizers needed by the plant, marine extracts [7] (SWE) increase the stress tolerance of green surfaces, which leads to delaying aging and improving the quality of the grass by increasing the optical efficiency, enhancing the chlorophyll content and increasing the root mass, and among when spraying marine extracts on three types of summer landscaping seeds increased the color and chlorophyll content. indicated when spraying marine extracts onto bentgrass grass at a concentration of 16 mg .2-1 improved the efficiency and quality of scales and increased resistance to drought [8].

The aim of the study is to preserve the green color throughout the year and to give high-quality appearance characteristics in density, quality and color by increasing the resistance of the green surface to environmental stresses, in addition to reducing the number of cutting of green surface throughout the year.

2. Materials and Method:
The experiment was carried out in the field of the College of Agriculture, University of Anbar at 1/2/2018, to study the effect of spraying Benzyl Adenine (BA) and Seaweed extracts and their interactions on seed mixes as in table (1). The field experiment within a design (RCBD) with 48 experimental units with three replicates for each repeat 16 experimental units sown the seeds of the mixture at a rate of (25) gm in m2, the spraying process was carried out with cytokine at concentrations of (0, 5, 10 and 15) mg/ liter1 per month, After one week followed by another spraying with Marine the marine extract (0, 0.5 , 1 and 2 ) mg/ liter1 in the morning, and the characteristics were studied, cutting the green surface was carried out during
the experiment period when the height of the plant reached 10 cm to 4 cm. Measurements were taken monthly during the months of the summer, autumn and winter seasons.

Figure 1. Varieties and types of seeds used in the mixture
50% Bermuda grass, Cynodon dactylon.
30% Tall Fescue, Festuca Arundinacea.
10% Perennial rye grass, Lolium Perenne.
10% Kentucky blue grass, Poa Pratensis.

Table (1) some physical and chemical properties of the study soil

| Quantity and symbol | Units | Property                        |
|---------------------|-------|---------------------------------|
| 245                 |       | the sand                        |
| 194                 | 1-GM kg| Clay                            |
| 561                 |       | Silt                            |
| Its mixture is clayey|       | texture                         |
| 8.5                 |       | PH                              |
| 3.22                | 1-Decimens M| Electrical conductivity(EC) |
| 1.33                | 3-Megagram  | Bulk density                   |

3. Results and Discussion:
The results of table (2) showed that there were significant differences between the concentration of benzyl adenine, as B3 was significantly higher by giving the highest plant density, reaching 44.58 (100 cm2 plants), compared to the lowest value that was in B0, which amounted to 39.66 (100 cm2 plant), and the results of the table also showed a significant difference between Concentrations of marine extract, as S3 exceeded significantly by giving the highest value of 45.16 plants 100 cm2 compared to the lowest value that was in S0, which amounted to 37.50 plants 100 cm2, and in the overlap between study factors where the treatment B2S3 outperformed in giving it the highest plant density for the green surface, which reached 48.66 plants 100 cm2, compared to the lowest density 34.00 plants reached 100 cm2 recorded by treatment B1S0 at the end of the experiment.

The results shown in the same table that the significant effect achieved by the cytokine (BA) is inversely proportional to the number of shearing times, as treatment B3 significantly outperformed it by giving it the lowest number of shearing times, amounting to 6.58 stories, compared to treatment B0, which recorded the highest number of shears, amounting to 10.41 stories. As for the marine extract factor, it was directly proportional to the number of shearing times, as treatment S3 exceeded morally by giving it the highest cutting times, amounting to 9.50 times compared to the non-addition treatment S0, which gave the fewest shearing times amounting to 7.50 cuts, and the results in the same table show that there are no differences between the study workers. The results shown in the table (2) there were significant differences between cytokine concentrations (BA) as it excelled B3 significantly, by giving the highest value in the number of branches amounted to 9.94 branches. Plant 1 compared to the lowest value was in B0 And that amounted to 6.68 branches. Plant 1 and the results in the same table indicated that there were significant differences between the concentrations of marine extract which outperformed S3 giving the highest value in the number of branches, it reached a branch. Plant 1 compared to the lowest value S0 and that amounted to 6.98 branches of Plant 1 while no significant differences were found for the overlap between the two study workers.
Spraying plant growth regulators has a role in improving vegetative and root growth and improving the plant’s ability to withstand environmental conditions from increasing the nutrient and its transfer to the roots, improving its ability to absorb and transporting nutrients, increasing photosynthesis, increasing the amount of carbohydrates in the plant and expanding cells due to the increase in leaf size and the number of branches. It gives the best quality of the green surface and increases the endurance of running over, especially in sports fields [9].

It is evident in Table (3) an increase in the plant density of the green surface. This increase may be due to the role of cytokine in improving the vegetative and root characteristics, which in turn reduced the negative environmental effects on the plant and increased its ability to resist differences in environmental conditions and thus reduced the likelihood of its death, which enhanced the density.

### Table (2) the effect of spraying with, Benzyl adenine and marine extract and the interaction between them on vegetative characteristics of growth.

| Concentration (Mg l⁻¹) | Average number of branches from the crown region (100cm⁻²) | Number of cut (100cm²) | Average plant density (100cm²) | LSD B |
|------------------------|-----------------------------------------------------------|------------------------|-------------------------------|-------|
| B₀         (0)          | 6.68                                                      | 10.41                  | 39.66                         | B₀ (0) |
| B₁         (5)          | 7.12                                                      | 10.08                  | 40.58                         | B₁ (5) |
| B₂         (10)         | 9.08                                                      | 7.41                   | 43.58                         | B₂ (10)|
| B₃         (15)         | 9.94                                                      | 6.58                   | 44.58                         | B₃ (15)|
| 0.65       | 0.58                                                      | 1.83                   | LSD B                         |       |
| 6.98       | 7.50                                                      | 37.50                  | S₀ (0)                         |       |
| 8.09       | 8.41                                                      | 40.83                  | S₁ (0.5)                       |       |
| 8.46       | 9.08                                                      | 44.91                  | S₂ (1)                         |       |
| 9.29       | 9.50                                                      | 45.16                  | S₃ (2)                         |       |
| 0.65       | 0.58                                                      | 1.83                   | LSD S                         |       |
| 5.17       | 9.33                                                      | 34.66                  | B₃S₀                          |       |
| 6.61       | 10.00                                                     | 37.66                  | B₃S₁                          |       |
| 6.96       | 11.00                                                     | 44.00                  | B₃S₂                          |       |
| 8.00       | 11.33                                                     | 42.33                  | B₃S₃                          |       |
| 5.93       | 8.66                                                      | 34.00                  | B₃S₀                          |       |
| 7.06       | 9.66                                                      | 39.33                  | B₃S₁                          |       |
| 7.16       | 10.66                                                     | 43.00                  | B₃S₂                          |       |
| 8.33       | 11.33                                                     | 46.00                  | B₃S₃                          |       |
| 7.60       | 6.33                                                      | 39.66                  | B₃S₀                          |       |
| 9.03       | 7.66                                                      | 41.66                  | B₃S₁                          |       |
| 9.20       | 7.66                                                      | 44.33                  | B₃S₂                          |       |
| 10.50      | 8.00                                                      | 48.66                  | B₃S₃                          |       |
| 9.25       | 5.66                                                      | 41.66                  | B₃S₀                          |       |
| 9.66       | 6.33                                                      | 44.66                  | B₃S₁                          |       |
| 10.52      | 7.00                                                      | 48.33                  | B₃S₂                          |       |
| 10.33      | 7.33                                                      | 43.66                  | B₃S₃                          |       |
| N.S        | N.S                                                       | 3.67                   | LSD BS                         |       |

Spraying plant growth regulators has a role in improving vegetative and root growth and improving the plant’s ability to withstand environmental conditions from increasing the nutrient and its transfer to the roots, improving its ability to absorb and transporting nutrients, increasing photosynthesis, increasing the amount of carbohydrates in the plant and expanding cells due to the increase in leaf size and the number of branches. It gives the best quality of the green surface and increases the endurance of running over, especially in sports fields [9].
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Table (3) the effect of spraying with benzyl adenine and marine extract and the interaction between them on the variation in the coordination characteristics of the growing seasons 2019-2020

| Winter season | Autumn season | Summer season |
|---------------|---------------|---------------|
| Trample tolerance | The degree of quality | The color degree |
| Trample tolerance | The degree of quality | The color degree |
| Trample tolerance | The degree of quality | The color degree |
| Concentration (Mg⁻¹¹) |

| 2.53 | 6.04 | 6.14 | 2.45 | 5.87 | 5.70 | 2.63 | 6.62 | 6.50 | B₀ (0) |
| 2.71 | 6.66 | 6.62 | 2.57 | 6.20 | 6.04 | 2.81 | 7.00 | 6.91 | B₁ (5) |
| 3.05 | 7.14 | 7.20 | 2.89 | 6.79 | 6.83 | 3.30 | 7.41 | 7.54 | B₂ (10) |
| 3.09 | 7.37 | 7.29 | 2.97 | 6.89 | 6.95 | 3.39 | 7.66 | 7.75 | B₃ (15) |
| 0.18 | 0.56 | 0.58 | 0.15 | 0.46 | 0.43 | 0.16 | 0.36 | 0.32 | LSD B |
| 2.53 | 6.33 | 6.08 | 2.38 | 5.64 | 5.45 | 2.67 | 6.50 | 6.58 | S₀ (0) |
| 2.73 | 6.43 | 6.62 | 2.55 | 6.31 | 6.60 | 2.88 | 6.95 | 7.04 | S₁ (0.5) |
| 2.96 | 7.04 | 7.16 | 2.92 | 6.87 | 6.87 | 3.18 | 7.50 | 7.37 | S₂ (1) |
| 3.16 | 7.41 | 7.39 | 3.03 | 6.93 | 7.00 | 3.40 | 7.75 | 7.70 | S₃ (2) |
| 0.18 | 0.56 | 0.58 | 0.15 | 0.46 | 0.43 | 0.16 | 0.36 | 0.32 | LSD S |
| 2.10 | 5.16 | 5.08 | 2.06 | 4.50 | 4.33 | 2.16 | 6.00 | 5.66 | B₀S₀ |
| 2.20 | 5.16 | 6.00 | 2.10 | 5.83 | 5.33 | 2.30 | 6.33 | 6.16 | B₀S₁ |
| 2.80 | 6.91 | 6.50 | 2.76 | 6.66 | 6.66 | 2.86 | 7.00 | 6.83 | B₀S₂ |
| 3.03 | 6.91 | 7.00 | 2.86 | 6.50 | 6.65 | 3.20 | 7.16 | 7.33 | B₀S₃ |
| 2.26 | 6.25 | 5.66 | 2.13 | 5.00 | 4.66 | 2.30 | 6.16 | 6.00 | B₁S₀ |
| 2.50 | 6.16 | 6.50 | 2.30 | 5.83 | 5.83 | 2.56 | 6.66 | 7.00 | B₁S₁ |
| 2.83 | 6.58 | 7.08 | 2.86 | 6.83 | 6.66 | 3.03 | 7.33 | 7.16 | B₁S₂ |
| 3.26 | 7.66 | 7.25 | 3.00 | 7.16 | 7.00 | 3.36 | 7.83 | 7.50 | B₁S₃ |
| 2.80 | 6.66 | 6.83 | 2.56 | 6.50 | 6.16 | 2.93 | 6.83 | 7.16 | B₂S₀ |
| 3.10 | 6.91 | 6.75 | 2.83 | 6.75 | 6.83 | 3.30 | 7.00 | 7.33 | B₂S₁ |
| 3.13 | 7.25 | 7.41 | 3.00 | 6.83 | 7.00 | 3.43 | 7.66 | 7.50 | B₂S₂ |
| 3.20 | 7.75 | 7.83 | 3.16 | 7.08 | 7.33 | 3.56 | 8.16 | 8.16 | B₂S₃ |
| 2.96 | 7.25 | 6.75 | 2.76 | 6.58 | 6.66 | 3.30 | 7.00 | 7.50 | B₃S₀ |
| 3.13 | 7.50 | 7.25 | 2.96 | 6.83 | 6.83 | 3.36 | 7.83 | 7.66 | B₃S₁ |
| 3.10 | 7.41 | 7.66 | 3.06 | 7.16 | 7.16 | 3.40 | 8.00 | 8.00 | B₃S₂ |
| 3.16 | 7.33 | 7.50 | 3.10 | 7.00 | 7.16 | 3.50 | 7.83 | 7.83 | B₃S₃ |
| 0.37 | N.S | N.S | 0.29 | N.S | N.S | 0.32 | N.S | N.S | LSD S |

Green landscape flat as we note in the same table for the effect of reverse in the number of times the shear increase levels of spray cytokine less than the number of cuts where he recorded the transaction C3 Less number of cuts compared to the no-add treatment C0Which gave the highest number of cuts, the reason may be due to the role of cytokine in inhibiting the apical dominance and increasing the lateral branches and thus the transfer and distribution of the nutrient horizontally to the vegetative branches instead
of vertical growth). [9] also agreed with his studies and others that the spray cytokine may cause the reduction of the height of the grass and an increase in the number of branches, and pointed out that the study conducted on Ray grass when spraying cytokine had a role important in stimulating the area of the crown and increase the forest side and has a role in the growth of compensation for parts of the missing or dead [10] and increase the number of roots that cause increased transfer of material food to the Securities compensation measure lost in the area of the crown after the process of storytelling. Explain. The crown has a fundamental role in compensatory growth especially after exposure of the green surface to the shearing and grazing processes [11] and it also has a role in increasing the density and homogeneity of the green surface. As for the marine extract, it may be due to its positive role in vegetative growth by providing the plant with the necessary nutrients in addition to containing many important growth organizations in increasing and improving vegetative growth, which leads to an increase in lateral branches, which is positively reflected on the plant density [12] as mentioned.

When spraying the plant with marine extract during the warm season, the plant gave the plant the ability to delay dormancy and increase the nutrient in the plant branches and thus increase the number of branches. As for the role of the marine extract in increasing the number of shears, it may be due to its containment of auxins that lead to an increase in plant height, and the role may be attributed to the marine extract provides the plant with the elements, the most important of which is nitrogen, which is involved in building amino acid Tryptophan, which is the basis for the manufacture of auxin IAA. The important thing is to increase the elongation of cells and increase the ductility of the cell wall, which leads to an increase in the leaf area and an increase in the density of the plant length [13]. The visual characteristics are the most important preferred indications that determine the general condition of the surface, and the color is the most important, as the loss of green may indicate the presence of problems in the green surface, the ability of plants to absorb light rays and their effectiveness in vital processes, which affects the color of the green surface and is resistant to environmental conditions [14].

The results of the study are shown in Table (3) that cytokine (BA) and marine extract and the interaction between them affect the green color of the surface during the summer, autumn, and winter seasons. The increase in the color of the plant may be attributed to the increase in the elongation of the leaf cells and the increase in the cell density, which leads to the improvement of photosynthesis and the increase of chlorophyll, and the increased concentration of chlorophyll may be related to the increase in the efficiency of the plant to capture light, these results are in agreement with his studies [15], to increase cytokine increases chlorophyll and by the following increases color as when rising temperatures cause a decrease in the degree of color and plant density when spraying cytokine gave the best quality and homogeneity of the plant and this goes back to the cytokine role in increasing the content of plant chlorophyll and the number of branches and plant density. In a study conducted when using spray sea during the summer to improve notes in green color dramatically when increasing spray levels compared to the treatment of non-spray, which gave the same direction to seasonal annual increasing from improved color and this may be due to the role of her in stimulating plant hormones and increase the chlorophyll content of leaves and thus reduce the acceleration of the color degradation occurring in plants when aging occurs, which led to an increase in chlorophyll and improvement of the color degree [16], the marine extract has a role in plant resistance and improving its ability to withstand stress and thus reduce the loss of plant and improve the quality of Green landscape, as the spray extract Marine Alga extract influence on the increase in bear run over as shown in the table (3) and resistance to cold and back to its role in increasing the flexibility of cells and increase recycle mischief, which gives the best quality of the flat, to increase its resistance to run over because of increasing the forest side of the flat and lack of The percentage of fibers in its tissue, which coats it a spongy state that reduces frustration and
increases resistance to trampling. The increase in trampling resistance may stimulate the growth of roots and increase the efficiency of the photosynthesis process, which leads to an increase in the vegetative growth of the plant and increase the resistance of the grass to stress and aging thus increasing the plant strength and its tolerance to trampling [17].

4. Conclusions
The effect of spraying with a cytokine regulator is positive in increasing and improving the vegetative and visual characteristics of the green surface through the number of branches-improving color and homogeneity - smoothness of the surface, increasing the ability to run over and reducing the number of times of cutting - 2. The use of salicylic is recommended to improve plant density, increase leaf width and improve Color degree, uniformity, and increased traceability. The use of a combination of cytokine and salicylic had a significant effect in improving the vegetative and phenotypic characteristics as it improved plant growth.

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