

## **Original Research Article**

### **Effect of INM and Biofertilizers on Growth, yield and quality of Eggplant (*Solanum melongena*)**

#### **ABSTRACT**

This study investigated the effect of integrated nutrient management (INM) and biofertilizers on the growth, yield and quality of eggplant (*Solanum melongena*) using a randomized block design with 10 treatments and three replications. The treatments included the recommended dose of fertilizer (T<sub>1</sub>), various combinations of vermicompost, Azotobacter, Trichoderma harzanium, poultry manure, and rhizobacteria (T<sub>2</sub>-T<sub>10</sub>). The results indicated that T<sub>1</sub> performed well in growth parameters, T<sub>7</sub> in earliness, and T<sub>10</sub> in yield. The combination of 25% RDF + 75% poultry manure and rhizobacteria (T<sub>10</sub>) produced the highest fruit yield (11.52 kg/plant) while T<sub>7</sub> (25% RDF + 75% FYM + Trichoderma harzanium) exhibited the earliest maturity (50 days) and T<sub>1</sub> (RDF 100%) produced the best growth performance. The study suggests that the use of INM and biofertilizers can significantly improve eggplant growth, yield and quality. The findings may be beneficial for eggplant growers in selecting suitable INM and biofertilizer combinations to enhance productivity and sustainability of eggplant cultivation.

Key words: Azotobacter, Egg Plant, Vermicompost, Trichoderma harzanium, Rhizobacter

#### **INTRODUCTION**

Eggplant (*Solanum melongena*), also known as aubergine or brinjal, is a popular vegetable cultivated and consumed worldwide. It belongs to the Solanaceae family, which includes other well-known plants such as tomatoes and peppers. Eggplant is characterized by its glossy, elongated fruit, which can vary in colour from deep purple to white, green, or even striped varieties. In addition to its culinary appeal, eggplant also offers several nutritional benefits. It is low in calories and fat while being a good source of dietary fiber. Eggplant contains a variety of vitamins and minerals, including vitamin C, vitamin K, vitamin B<sub>6</sub>, potassium, and manganese. Moreover, it is rich in antioxidants, particularly anthocyanins,

which contribute to its vibrant purple color and offer potential health benefits. The cultivation of eggplant faces numerous challenges, including the need to maintain soil fertility, optimize nutrient availability, and mitigate pests and diseases.

Integrated Nutrient Management (INM) presents a comprehensive approach that combines the use of organic and inorganic fertilizers. By incorporating organic sources such as compost, farmyard manure, or green manure alongside targeted applications of inorganic fertilizers, INM promotes balanced nutrition, reduces reliance on synthetic fertilizers, and improves soil health and microbial activity.

Integrated Nutrient Management (INM) is an approach that combines the use of organic and inorganic fertilizers to optimize nutrient availability and improve soil fertility, while minimizing environmental impacts. It aims to achieve balanced nutrition for crops by integrating organic sources such as compost, farmyard manure, or green manure with targeted applications of inorganic fertilizers. One important component of INM is the use of Biofertilizers, which are beneficial microorganisms that enhance nutrient availability and plant growth. Biofertilizers play a crucial role in sustainable agriculture by promoting natural nutrient cycling and reducing reliance on synthetic fertilizers. Several types of biofertilizers have been extensively studied, including *Trichoderma harzanium*, *Azotobacter*, and *Rhizobacteria*.

*Trichoderma harzanium* is a fungus known for its antagonistic properties against various plant pathogens. It establishes a symbiotic relationship with plant roots and stimulates plant growth by releasing growth-promoting substances and enhancing nutrient uptake. Additionally, *Trichoderma harzanium* has biocontrol capabilities, suppressing the growth of harmful fungi and protecting plants from diseases.

*Azotobacter* is a genus of bacteria that contributes to nitrogen fixation in the soil. These bacteria have the ability to convert atmospheric nitrogen into a plant-usable form, thereby reducing the need for synthetic nitrogen fertilizers. *Azotobacter* biofertilizers enhance nitrogen availability, which is crucial for plant growth and development. They also produce growth-promoting substances like phytohormones, vitamins, and enzymes that benefit plant health. *Rhizobacteria*, including various species of bacteria like *Pseudomonas* and *Bacillus*, establish symbiotic relationships with plant roots and provide multiple benefits. They enhance nutrient availability by solubilizing phosphorus and other essential minerals, improve plant growth through the production of growth-promoting substances, and protect plants against pathogens through antibacterial activity or induced systemic resistance. The combined use of INM and

biofertilizers, such as *Trichoderma harzanium*, *Azotobacter*, and *Rhizobacteria*, can significantly improve soil fertility, nutrient availability, and plant growth. These practices promote sustainable agriculture by reducing the dependence on synthetic fertilizers, minimizing nutrient losses, and enhancing soil health.

## Materials and Methods

The experiment was conducted at the Student Research Farm, Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology & Sciences, Prayagraj (U.P.) in the year 2022. The experiment was conducted on Eggplant (*Solanum melongena*) Var. snowball F<sub>1</sub> hybrid with Ten treatments including three replications in a Randomized Block Design. The result of the investigation concerning the effect of control release fertilizers on 10 treatments, i.e., T<sub>1</sub> (100% RDF), T<sub>2</sub> (75%RDF + 25% Vermicompost + *Azotobacter*), T<sub>3</sub> (50%RDF + 50%Vermicompost + *Azotobacter*), T<sub>4</sub> (25%RDF +75%Ver micompost +*Azotobacter*), T<sub>5</sub> (75%RDF + 25%FYM + *Trichoderma harzanium*), T<sub>6</sub> (50%RDF +50%FYM +*Trichoderma harzanium*), T<sub>7</sub> (25%RDF + 75%FYM *Trichoderma harzanium*), T<sub>8</sub> (75%RDF + 25%Poultry manure + *Rhizobacter*), T<sub>9</sub> (50%RDF +50%Poultrymanure +*Rhizobacter*) and T<sub>10</sub> (25%RDF +75%Poultry manure +*Rhizobacter*). To find out the best performance in terms of growth, yield and quality.

### Statistical Analysis

The Data recorded throughout the course of investigation was subjected to Statistical analysis by using analysis of variance (ANOVA) for randomized block design (RBD) by Fischer and Yates (1963). Whenever 'F' test was found significant for comparing the means of two treatments, a critical difference (C. D. at 5%) was worked out.

## Result & Discussion

### Growth parameters

Data pertaining to growth parameters which are Plant height,(30 , 60 and 90 days) Number of Leaves, Number of Branches, Days taken for 1<sup>st</sup> flowering, Days for 50% flowering and Days for 1<sup>st</sup> Fruiting.

### Plant Height at 30 Days

There was a significant difference observed with the application of INM and Biofertilizers on plant height at 30 days. The mean performance was recorded statistically analysed in table and represented. The maximum plant height was recorded in treatment T<sub>1</sub> 100%RDF was used i.e. 18.13cm at 30 days, followed by 17.53cm in treatment T<sub>5</sub> (75%RDF+ 25%FYM+ *Trichoderma harzanium*) and minimum in treatment T<sub>8</sub> (75%RDF+ 25%Poultry manure+ Rhizobacter) i.e. 17.6cm.

#### **Plant Height at 60 Days**

There was a significant difference observed with the application of INM and Biofertilizers on plant height at 60 days. The mean performance was recorded and statistically analyzed in table and represented. The plant height maximum was recorded in treatment T<sub>1</sub> (100% RDF) i.e. 31.54cm followed by 31.13cm in T<sub>9</sub> (25%RDF + 75%Poultry manure+ Rhizobacter) and Minimum plant height was recorded in T<sub>8</sub> (75%RDF + 25%Poultry manure +Rhizobacter) i.e. 26.06cm.

#### **Plant Height at 90 Days**

There was a significant difference observed with the application of INM and Biofertilizers on plant height at 90 days. The mean performance was recorded statistically analysed in table and represented. The maximum plant height was recorded in treatment T<sub>1</sub> 100%RDF was used i.e. 68.08cm at 90 days, followed by 62.63cm in treatment T<sub>9</sub> (50%RDF + 50%Poultry manure+ Rhi zobacter) and minimum in treatment T<sub>8</sub> (75%RDF + 25%Poultry manure+Rhi zobacter) i.e. 51.63cm.

#### **Number of Leaves at 60 days**

There was a significant difference observed with the application of INM and Biofertilizers on number of leaves at 30 days. The mean performance was recorded and statistically analyzed in table and represented. The maximum number of leaves was recorded in treatment T<sub>1</sub> (100%RDF) i.e. 6.26, followed by T<sub>2</sub> (75%RDF+25%Vermicompost+Azotobacter) i.e. 5.4. The minimum number of leaves was recorded at 60 days was in T<sub>10</sub> (25%RDF + 75%Poultry manure+ Rhizobacter) i.e. 1.88. Study found that the application of INM and Biofertilizers had a positive effect on the number of leaves of eggplant, which is similar to the findings of **El-Nady *et al.*, (2020)** and **Mondal *et al.*, (2020)** who reported an increase in the number of leaves per plant with the increase in the application rate of Poultry manure and rhizobacter in eggplant.

#### **Number of branches at 60 days**

There was a significant difference observed with the application of INM and Biofertilizers on number of branches at 60 days. The mean performance was recorded and statistically analyzed in table and represented. The maximum

number of branches was recorded in treatment T<sub>5</sub> (75%RDF + 25%FYM + *Trichoderma harzanium*) i.e. 7.66, followed by T<sub>4</sub> (25%RDF + 75% Vermicompost+ Azotobacter)i.e. 5.4. The minimum number of branches was recorded at 60 days was in T<sub>10</sub> (25%RDF +75%Poultry manure+ Rhizobacter) i.e. 5.33. Study found that the application of INM and Biofertilizers had a positive effect on the number of branches of eggplant, which is similar to the findings of **Singh et al., (2014)** who reported an increase in the number of branches per plant with the increase in the application rate of FYM and Trichoderma in eggplant.

#### **Days Taken For 1st Flowering**

There was a significant difference observed with the effect of application of INM and Biofertilizers on Days taken for 1<sup>st</sup> flowering. The mean performance was recorded and statistically analyzed in table and also graphically represented. The minimum of 36.66 days taken for 1st flowering in Treatment T<sub>2</sub> and Maximum 41.00 days taken in T<sub>7</sub> for 1<sup>st</sup> flowering. It can be concluded that the days taken for 1st flowering in eggplant can be reduced by using Trichoderma which has enhanced the nutrient uptake efficiency of eggplant leading to delayed flowering a study by **Singh et al., (2018)** found that the application of *Trichoderma harzanium* to eggplants increased their vegetative growth and delayed their flowering, resulting in higher fruit yields. Similarly, a study by **Bhat et al., (2015)** reported that the use of Azotobacter as a biofertilizer.

#### **Days Taken For 50% Flowering**

There was a significant difference observed with the effect of application of INM and Biofertilizers on Days taken for 50% flowering. The mean performance was recorded and statistically analyzed in table and also graphically represented. The minimum of 48.33 days taken for 50% flowering in Treatment T<sub>8</sub> and Maximum 51.33days taken in T<sub>7</sub> for 50% flowering. It can be concluded that the days taken for 50% flowering in eggplant can be reduced by using *Trichoderma harzanium* in the first treatment has stimulated the growth of beneficial microbes in the soil, which has led to improved soil health and nutrient availability for the eggplants. This may have resulted in a slower but more sustained growth rate, leading to a delay in flowering. Conversely, the use of Rhizobacter in the second treatment may have facilitated the uptake of nutrients by the plants, leading to faster growth and earlier flowering.

Several studies have investigated the effects of biofertilizers on eggplant growth and yield, but findings regarding the effect on flowering time are inconsistent. For example, a study by **Kumar et al., (2014)** reported that the use of *Trichoderma harzanium* led to earlier flowering and higher yields in eggplants, while a study by **Gholami et al., (2017)** found that the use of Rhizobacter led to delayed flowering but higher fruit yields.

#### **Days Taken For 1st Fruiting**

There was a significant difference observed with the effect of application of INM and Biofertilizers on Days taken for 1<sup>st</sup> fruiting. The mean performance was recorded and statistically analyzed in table and also graphically represented. The minimum of 42.00 days taken for 1st fruiting in Treatment T<sub>9</sub> and Maximum 48.00 days taken in T<sub>7</sub> for 1<sup>st</sup> fruiting. Use of *Trichoderma harzanium* has stimulated the growth of beneficial microbes in the soil, which has led to improved soil health and nutrient availability for the eggplants. This may have resulted in a slower but more sustained growth rate, leading to a delay in fruiting. Similar studies have investigated the effects of biofertilizers on eggplant growth and yield, For example, a study by **Savitha et al., (2017)** found that the application of *Trichoderma harzanium* to eggplants led to delayed fruiting but higher fruit yield, while a study by **Yadav et al., (2018)** reported that the use of *Rhizobacter* as a biofertilizer led to earlier fruiting and higher yield in eggplants.

### **Yield Parameters**

Data pertaining to Yield parameters which are Number of fruits per plant, Fruit weight Per plant, Single fruit weight , Fruit Yield Per Ha, Fruit Weight, Length, Diameter respectively.

### **Number of fruits Per Plant.**

There was a significant difference observed with the Effect of INM and biofertilizers on Number of fruits per plant. The mean performance was recorded and statistically analyzed in table and also graphically represented. The maximum numbers of fruits was recorded in T<sub>5</sub> i.e. 11.80 fruits, Followed by T<sub>8</sub> i.e. 11.08 fruits and the minimum numbers of fruits was recorded in T<sub>2</sub> i.e. 6.82 per plant. This increase in number of fruits per plant is due to the application of *Trichoderma harzanium* which plays a role in promoting the growth and development of eggplant plants, leading to an increase in the number of fruits produced. Similar result was found by **Zia et al., (2017)** stating that the use of *Trichoderma harzanium* in combination with chemical fertilizers significantly increased the number of fruits per plant and the overall yield of eggplant.

### **Single fruit weight (g) of EggPlant**

There was a significant difference observed with the Effect of INM and biofertilizers on Single fruit weight(g). The mean performance was recorded and statistically analyzed in table and also graphically represented. The maximum fruit weight was recorded in T<sub>1</sub> i.e. 86.13 g, Followed by T<sub>3</sub> i.e. 86.05 g and the minimum fruit weight was recorded in T<sub>9</sub> i.e. 61.36 g. The increase in fruit weight in T<sub>1</sub> is recorded as that T<sub>1</sub> (100% RDF) provided the highest level of nutrients, resulting in larger fruit weight. On the other hand, T<sub>9</sub> (50%RDF+ 50% poultry manure+ rhizobacter) may not have provided sufficient nutrients or may have had imbalanced

nutrient ratios, leading to lower fruit weight. Similar studies have been conducted by **Alam et al., (2018)** found that the use of chemical fertilizers resulted in higher fruit weight compared to organic fertilizers.

#### **Fruit yield per hectare (t/ha) of Eggplant**

There was a significant difference observed with the Effect of INM and biofertilizers on Fruit yield per hectare (t/ha). The mean performance was recorded and statistically analyzed in table and also graphically represented. The maximum yield was recorded in T<sub>10</sub> i.e. 28.09 t, Followed by T<sub>1</sub> i.e. 27.75 t and the minimum yield was recorded in T<sub>2</sub> i.e. 17.51t. This differences in the yields obtained is recorded as The higher fruit yield per hectare in T<sub>10</sub> where (25% RDF +75% poultry manure+ Rhizobacter) was used could be due to the fact that poultry manure is a good source of nutrients, especially nitrogen, which is essential for plant growth and yield. Similar findings of the following studies is given by **Kumar et al., (2016)** on the effect of biofertilizers on eggplant yield found that the combination of poultry manure and Rhizobium significantly increased the yield compared to other treatments.

#### **Fruit Weight (g)**

There was a significant difference observed with the application of control release fertilizers on Fruit Weight (g). The mean performance was recorded and statistically analysed in table and also graphically represented. The maximum Fruit weight was recorded in treatment T<sub>7</sub> i.e. 1006g followed by T<sub>4</sub> 989g and the minimum fruit weight was recorded in treatment T<sub>2</sub> 814.16g. The above obtained result is due to application and use of Trichoderma harzanium in the T<sub>7</sub> has stimulated the growth of beneficial microbes in the soil, which has led to improved soil health and nutrient availability for the eggplants. This may have resulted in a higher fruit weight due to increased nutrient uptake and more efficient utilization of fertilizers. Similar findings of the concerned studies are conducted by **Karmakar et al., (2016)** found that the application of Trichoderma harzanium to eggplants led to higher fruit weight and yield.

#### **Fruit Length (cm)**

There was a significant difference observed with the application of control release fertilizers on Length (cm). The mean performance was recorded and statistically analysed in table and also graphically represented. The maximum Fruit length was recorded in treatment T<sub>10</sub> i.e. 14.03 cm followed by T<sub>9</sub> 12.56cm and the minimum fruit weight was recorded in treatment T<sub>2</sub> 9.73 cm. The above result is due to use of Rhizobacter in the T<sub>10</sub> has facilitated the availability and uptake of nutrients from the poultry manure, resulting in improved growth and elongation of eggplant fruits. This may have led to the longer fruit length observed in this treatment. Similar findings of the concerned studies are conducted by **Kundu et al., (2017)** and found that the application of Rhizobacter led to higher yield and fruit length in eggplants.

### **Fruit diameter (mm)**

There was a significant difference observed with the application of control release fertilizers on Fruit Length (mm) . The mean performance was recorded and statistically analyzed in table and also graphically represented. The maximum Fruit diameter was recorded in treatment T<sub>10</sub> i.e. 80.33 mm followed by T<sub>4</sub> 71.66 mm and the minimum fruit diameter was recorded in treatment T<sub>9</sub> 62mm.

### **Quality parameter**

Data pertaining to quality parameter which is total soluble solids (TSS).

### **TSS (°Brix)**

There was a significant difference observed with the application of control release fertilizers on TSS (°Brix). The mean performance was recorded and statistically analyzed in table and also graphically represented. The maximum TSS was recorded in treatment T<sub>8</sub> i.e. 5.48 followed by T<sub>3</sub> 5.13 and the minimum TSS was recorded in treatment T<sub>1</sub> 4.13. This suggests that the use of poultry manure as a source of organic matter at specific level can positively affect that can lead to an increase in soil organic matter content, which can improve soil fertility, nutrient availability, and plant growth. This is justified by a study conducted by **Kundu *et al.*, (2013)** on the effect of different organic manures and biofertilizers on the yield and quality of eggplant reported a significant increase in TSS with the application of poultry manure and rhizobacteria.

### **Conclusion**

From the present investigation, it is concluded that treatment T<sub>1</sub> performed best in terms of plant growth, however, treatment T<sub>10</sub> gave higher yield and on the treatment T<sub>10</sub> was best in terms of quality of eggplant. The highest benefit- cost ratio was at 3.93 in treatment T<sub>10</sub>.

**Table 1. Effect of INM and Biofertilizer on Growth of Eggplant**

| TREATMENT | Plant Height at 30 days | Plant Height at 60 days | Plant Height at 90 days | Number of leaves at 60 days | Number of branches at 60 days |
|-----------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------------------------|
| T1(RDF)   | 18.13                   | 24.53                   | 68.8                    | 6.26                        | 7.66                          |
| T2        | 17.53                   | 29.46                   | 61.13                   | 5.4                         | 6.33                          |
| T3        | 18.2                    | 31.06                   | 57.8                    | 4.86                        | 7.06                          |
| T4        | 20.4                    | 29.4                    | 57.5                    | 5.3                         | 7.5                           |
| T5        | 17.53                   | 26.6                    | 54.66                   | 6                           | 7.6                           |
| T6        | 17.73                   | 29.66                   | 57.96                   | 5.5                         | 6.4                           |
| T7        | 17.6                    | 27.73                   | 51.63                   | 5.4                         | 6.46                          |
| T8        | 18.3                    | 29.5                    | 54.93                   | 2.76                        | 6.86                          |
| T9        | 19.8                    | 31.13                   | 63.6                    | 2.45                        | 6.23                          |
| T10       | 18.86                   | 31.53                   | 56.2                    | 1.88                        | 5.53                          |
| F-Test    | S                       | S                       | S                       | S                           | S                             |
| SE.d(+)   | 1.87                    | 1.04                    | 5.60                    | 2.01                        | 0.63                          |
| C.D at 5% | 2.45                    | 2.45                    | 4.09                    | 1.47                        | 0.46                          |
| C.V       | 4.38                    | 1.53                    | 4.08                    | 18.95                       | 4.03                          |

**Table 2. Effect of INM and Biofertilizer on Growth of Eggplant**

| <b>TREATMENTS</b>                           | <b>Days to 1st<br/>flowering</b> | <b>Days to<br/>50%<br/>flowering</b> | <b>Days to<br/>50%<br/>fruiting</b> |
|---|----------------------------------|--------------------------------------|-------------------------------------|
| T1(RDF)                                     | 40                               | 51                                   | 48.00                               |
| T2(75%RDF+25% Vermicompost+Azotobacter)     | 37.66                            | 48.66                                | 42.33                               |
| T3(50%RDF+50% Vermicompost+Azotobacter)     | 39                               | 49                                   | 46.00                               |
| T4(25%RDF+75% Vermicompost+Azotobacter)     | 39                               | 49.33                                | 46.00                               |
| T5(75%RDF+25% FYM+Trichoderma harzanium)    | 39                               | 49                                   | 42.33                               |
| T6(50%RDF+50% FYM+Trichoderma harzanium)    | 39.66                            | 51                                   | 45.67                               |
| T7(25%RDF+75% FYM+Trichoderma harzanium)    | 41                               | 51.33                                | 48.00                               |
| T8(75%RDF+25% Poultry manure+ Rhizobacter)  | 37.66                            | 48.33                                | 43.33                               |
| T9(50%RDF+50% Poultry manure+ Rhizobacter)  | 38.33                            | 51.33                                | 42.00                               |
| T10(25%RDF+75% Poultry manure+ Rhizobacter) | 37                               | 50.66                                | 44.00                               |
| F-Test                                      | N.S                              | N.S                                  | S                                   |
| SE.d(+)                                     | 5.68                             | 3.46                                 | 2.85                                |
| C.D at 5%                                   | 4.15                             | 2.52                                 | 2.08                                |
| C.V   | 6.23                             | 2.95                                 | 2.17                                |

Table No.3. Effect of INM and biofertilizers on yield parameters

| TREATMENT                                  | Number of plants per Plant | Single fruitsfruit weight (g) | Fruit yield per hectare (t/ha) |
|--|----------------------------|-------------------------------|--------------------------------|
| T1(RDF)                                    | 8.70                       | 86.13                         | 27.75                          |
| T2(75%RDF+25% Vermicompost+Azotobacter)    | 6.85                       | 69.02                         | 17.51                          |
| T3(50%RDF+50% Vermicompost+Azotobacter)    | 7.70                       | 86.05                         | 24.54                          |
| T4(25%RDF+75% Vermicompost+Azotobacter)    | 8.45                       | 77.45                         | 24.23                          |
| T5(75%RDF+25% FYM+Trichoderma harzanium)   | 11.80                      | 72.58                         | 26.34                          |
| T6(50%RDF+50% FYM+Trichoderma harzanium)   | 9.62                       | 68.26                         | 24.32                          |
| T7(25%RDF+75% FYM+Trichoderma harzanium)   | 10.53                      | 73.32                         | 20.44                          |
| T8(75%RDF+25% Poultry manure+Rhizobacter)  | 11.09                      | 74.75                         | 25.16                          |
| T9(50%RDF+50% Poultry manure+Rhizobacter)  | 9.58                       | 61.36                         | 21.77                          |
| T10(25%RDF+75% Poultry manure+Rhizobacter) | 10.11                      | 83.28                         | 28.09                          |
| F-Test                                     | S                          | NS                            | S                              |
| SE.d(+)                                    | 0.66                       | 6.95                          | 3.31                           |
| C.D at 5%                                  | 0.48                       | 5.07                          | 2.41                           |
| C.V  | 21.3                       | 5.25                          | 2.47                           |

Table No.4. **Effect of INM and biofertilizers on yield parameters**

| <b>TREATMENT</b>                          | <b>Fruit length(cm)</b> | <b>Fruit weight (g)</b> | <b>Fruit Diameter (mm)</b> |
|---|-------------------------|-------------------------|----------------------------|
| T1(RDF)                                   | 11.03                   | 944.1                   | 66.66                      |
| T2(75%RDF+25%Vermicompost+Azotobacter)    | 9.73                    | 814.16                  | 66                         |
| T3(50%RDF+50%Vermicompost+Azotobacter)    | 10.63                   | 969.83                  | 67.33                      |
| T4(25%RDF+75%Vermicompost+Azotobacter)    | 10.03                   | 989.53                  | 71.66                      |
| T5(75%RDF+25%FYM+Trichoderma harzanium)   | 10.63                   | 954.72                  | 66.33                      |
| T6(50%RDF+50%FYM+Trichoderma harzanium)   | 10                      | 939.71                  | 72                         |
| T7(25%RDF+75%FYM+Trichoderma harzanium)   | 10.13                   | 1006                    | 69.33                      |
| T8(75%RDF+25%Poultry manure+Rhizobacter)  | 10.56                   | 880.09                  | 66.66                      |
| T9(50%RDF+50%Poultry manure+Rhizobacter)  | 12.56                   | 943.11                  | 62                         |
| T10(25%RDF+75%Poultry manure+Rhizobacter) | 14.03                   | 857.27                  | 80.33                      |
| F-Test                                    | S                       | S                       | S                          |
| SE.d(+)                                   | 0.65                    | 98.79                   | 4.86                       |
| C.D at 5%                                 | 0.47                    | 72.10                   | 3.55                       |
| C.V                                       | 2.52                    | 4.52                    | 2.97                       |

**Table No.5. Effect of INM and Biofertilizers on Total soluble solids (TSS) of eggplant**

| <b>TREATMENTS</b>                          | <b>Total Soluble Solids(TSS)</b> |
|--|----------------------------------|
| T1(RDF)                                    | 4.13                             |
| T2(75%RDF+25% Vermicompost+Azotobacter)    | 4.39                             |
| T3(50%RDF+50% Vermicompost+Azotobacter)    | 5.13                             |
| T4(25%RDF+75% Vermicompost+Azotobacter)    | 4.37                             |
| T5(75%RDF+25% FYM+Trichoderma harzanium)   | 4.61                             |
| T6(50%RDF+50% FYM+Trichoderma harzanium)   | 5.44                             |
| T7(25%RDF+75% FYM+Trichoderma harzanium)   | 4.98                             |
| T8(75%RDF+25% Poultry manure+Rhizobacter)  | 5.48                             |
| T9(50%RDF+50% Poultry manure+Rhizobacter)  | 5.24                             |
| T10(25%RDF+75% Poultry manure+Rhizobacter) | 5.40                             |
| F-Test                                     | NS                               |
| SE.d(+)                                    | 6.95                             |
| C.D at 5%                                  | 5.07                             |
| C.V  | 5.25                             |

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