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Azotobacter is free living bacteria. It has been reported to fix 20 kg N ha⁻¹ in field of ~~non legume~~*non-legume* crop and also secretes some growth promoting substances. The most feasible and economically viable fertilizer package is one which improves the crop yield with out deterioration soil health. India is the largest producer of okra with 5.78 metric tons annual production from 0.50 million hectare cultivation (average productivity 11.61 t/ha) (National Horticulture Board, 2011). The objective of this study is to evaluate the performance of integrated nutrient management on certain chemical parameters by using okra.

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Comment [WU1]: Give some detail about organic and inorganic biofertilizer in this section.

Materials and Methods

The field experiment with okra, cv. Kashi pragati was conducted from September to December 2016 at the Horticultural Research Farm, Department of Horticulture, at Babasaheb Bhimrao Ambedkar University Lucknow U.P. The design followed was Randomized Block Design with 16 treatments and three replications. The treatments included recommended dose of T1 (Control), T2 Farm yard manure (FYM), T3 (Vermicompost), T4 (Neemcake), T5 (50%RDF+FYM), T6 (50%RDF+Vermicompost), T7 (50%RDF+Neemcake), T8 (75%RDF+FYM), T9 (75%RDF+ Vermicompost), T10 (75%RDF+Neemcake), T11 (50%RDF+Azotobacter), T12 (50%RDF+ Phosphate solubilizing bacteria (PSB), T13 (50%RDF+VAM), T14 (75%RDF+Azotobacter), T15 (75%RDF+PSB) and T16 (75%RDF+ VAM). The land was brought to a fine tilth through ploughing and tillage. Irrigation channels and bunds were maintained properly. The crop was raised with a spacing of 60 cm × 30 cm and plot size of 2.40m X 1.5 m (3.6m²). The seeds were sown directly to the field. Light irrigation was given after sowing. The organic manures were applied as basal dose before sowing, for proper decomposition, full dose of phosphorus and potassium and half dose of nitrogen as per treatment were applied just before the sowing. The remaining half dose of Nitrogen was applied 30 days after sowing. Standard cultural practices recommended for Okra was followed uniformly for all the experimental plots. The quality parameters were recorded in the five randomly selected plants in each plot were tagged to arrive mean values. Fibre content of the pod was estimated as per the procedure given by (Ranganna, 1986). For estimating ascorbic acid content in pods one gram of sample was blended with 3 per cent meta phosphoric acid and then made up to 100 ml and filtered. From the filtrate, 10 ml sample was pipetted into conical flask and titrated with the standard dye to a pink end point (Ranganna, 1986). observations were recorded on bio-chemical parameters i.e. total soluble solids (⁰Brix), ascorbic acid, reducing sugar, ~~non reducing~~*non-reducing* sugar and total sugars. The data on these parameters were subjected to statistical analysis to draw logical conclusions.

Comment [WU2]: Correct it like abstract section

Results and Discussion

The results obtained from the present investigation are presented in Table below

“Effect of Organic, Inorganic and Biofertilizers on chemical aspects of Okra [*Abelmoschus esculentus* (L). Moench]”

Treatments	Total soluble solids (⁰ Brix)	Ascorbic acid	Reducing sugar (%)	Non reducing sugar (%)	Total sugar (%)
T1	6.01	12.93	20.70	8.60	1.48
T2	6.24	13.42	21.48	8.92	1.54
T3	6.50	13.98	22.40	9.31	1.60
T4	7.10	15.27	25.71	10.68	1.75
T5	7.15	15.38	25.86	10.74	1.76
T6	8.41	18.09	29.66	12.32	2.07
T7	7.63	16.41	26.69	11.09	1.88
T8	7.76	16.69	27.58	11.46	1.91
T9	7.84	16.87	27.83	11.56	1.93
T10	7.97	17.14	28.29	11.75	1.96
T11	8.01	17.23	28.43	11.81	1.97
T12	8.16	17.55	28.50	11.84	2.01
T13	8.21	17.66	28.65	11.90	2.02
T14	8.31	17.88	28.75	11.94	2.05

T15	8.32	17.90	28.90	12.01	2.05
T16	7.36	15.83	25.35	10.75	1.81

Comment [WU3]: Again confusing table
In abstract T6 shows better while table shows
T15 is much better why???

Comment [WU4]: Data is totally change in
respect to previous manuscript?

Comment [WU5]: In table T6 shows 7.36 ??

Comment [WU6]: Table shows 15.83?

The perusal data (table below) of result indicated that okra plants fertilized with organic, inorganic and biofertilizers. Among the treatments the maximum biochemical parameters growth in terms of T.S.S is T6 (50%RDF+Vermicompost) performed best (8.41), same as respectively Ascorbic acid (18.09), total sugar (2.07), reducing sugar (29.66), non-reducing sugar (12.32). The minimum values for all above biochemical parameters were found in T1 (control). These results are closely confined with the findings of Obaji (2002); Patil et al. (2003) and Bairwa et al. (2009). The reduction in ascorbic acid content by the application of inorganic fertilizer was reported by (Karitonas et al., 2001). Organic sources of nutrients gave better quality parameters than inorganic sources. These results are supported by (Mahendran and Kumar, 1997). Surekha and Rao (2001) also showed that organic amendment was effective in bringing down population of aphids in okra. Prakash et al. (2002) also showed lower percentages of fruit borer infestation in okra when treated with organic fertilizer. The reduction in ascorbic acid content by the application of inorganic fertilizer was reported by (Karitonas et al. 2001).

CONCLUSION

Thus on the basis of present investigation, it could be concluded that the okra var. Kashi Pragati performed well with respect to growth, yield, quality and net profit by the application of (50%RDF+Vermicompost) for highest yield per plot as well as yield per/ha. Use of organic manures increased DTPA extractable Zn and Fe in soil (Duhan and Singh, 2002) through redistribution of Zn from non-available forms to readily available (water-soluble plus exchangeable) and potentially available forms in soil (Sekhon et al. 2006) on the behalf of all the experiment we may conclude best result was observed in treatment 6 i.e. (50% RBD + Vermicompost) and then in T15 and likewise in Treatment 14 and so on....but the result was not good in the treatment control...In control treatment minimum yield was obtained which is very clear by the data analysed research Table below.

Integrated management of nutrients improved okra growth and brought significant augmentation in yields. This may be attributed to better nutritional profile of okra observed in corresponding situations. Similar observations that the combined use of organic manures, inorganic fertilizer and bio-fertilizers supported better fruit yield in okra, have also been reported by Jadhav et al. (2008) and Islam et al. (2011).

Comment [WU7]: Again this data is not
significance.

This data and table shows ambiguous; and it
seems the data were taken without any
experiment.

Comment [WU8]: Its tough to conclude the
study on the basis of this study.

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