Effect of different concentrations of pyridoxine aqueous sprays solutions on leaf biochemical components, herb yield and essential oil of Peppermint (*Mentha piperita L.*)

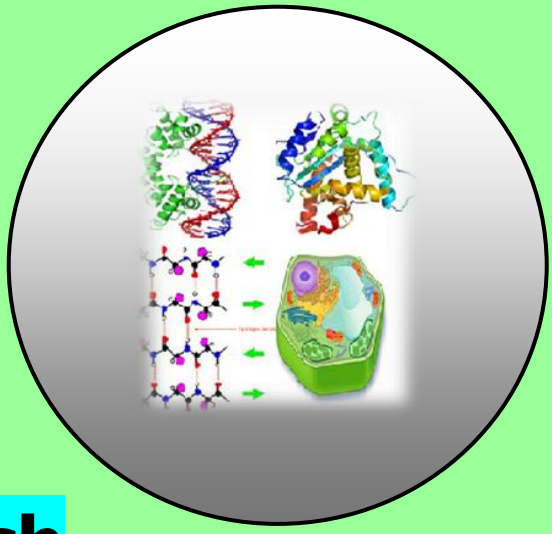
By

Mohammad Abdur Rahman, Anoop Kumar and Zafar Abbas

ISSN 2319-3077 Online/Electronic
ISSN 0970-4973 Print

Journal Impact Factor: 4.275
Global Impact factor of Journal: 0.876
Scientific Journals Impact Factor: 3.285
InfoBase Impact Factor: 3.66
Index Copernicus International Value
IC Value of Journal 47.86 Poland, Europe

J. Biol. Chem. Research
Volume 33 (1) 2016 Pages No. 574-577



Journal of Biological and Chemical Research

An International Peer Reviewed / Referred Journal of Life Sciences and Chemistry

Indexed, Abstracted and Cited in various International and National Scientific Databases

Published by Society for Advancement of Sciences®

J. Biol. Chem. Research. Vol. 33, No. 1: 574-577, 2016
(An International Peer Reviewed / Refereed Journal of Life Sciences and Chemistry)
Ms 33/2/23/2016

ISSN 0970-4973 (Print)
ISSN 2319-3077 (Online/Electronic)


Prof. Z. Abbas M. A. Rahman
http:// www.jbcr.co.in
http:// www.sasjournals.com
http:// www.jbcr.in
jbiolchemres@gmail.com

RESEARCH PAPER

Received: 01/05/2016 Revised: 03/06/2016 Accepted: 05/06/2016

Effect of Different Concentrations of Pyridoxine Aqueous Sprays Solutions on Leaf Biochemical Components, Herb Yield and Essential Oil of Peppermint (*Mentha piperita L.*)

Mohammad Abdur Rahman, Anoop Kumar and *Zafar Abbas

Faculty of Science, OPJS University, Churu, Rajasthan, India
***Department of Botany, G.F. P.G. College, MJP Rohilkhand University, Shahjahanpur, U.P., India**

ABSTRACT

A field experiment was conducted during late Rabi season (Jan-May 2012) on Peppermint (Mentha piperita L.) to study the effect of different concentrations of pyridoxine aqueous sprays solutions (0.01, 0.02, 0.03, 0.04 and 0.05%) applied 40 days after sowing on leaf biochemical components (total free amino acids, leaf chlorophyll and caretenoid content), herb yield (t/ha) and essential oil (%) of Peppermint. It was observed that 0.03% pyridoxine aqueous sprays solution was best for total free amino acids, leaf chlorophyll and caretenoid of peppermint (Mentha piperita L.). Moreover, the herb yield and essential oil (%) was also noted that maximum with the same 0.03% pyridoxine aqueous sprays solution.
Keywords: Pyridoxine, Leaf Biochemical Components, Herbs Yield and Essential Oil Content.

INTRODUCTION

Peppermint (*Mentha piperita L.*) is a higly hardly aromatic herbs. This species has strong odour and a more aromatic taste. It is rich in essential oil. It is administered in serous nervous disorders in headaches, collies nervous vomiting and tymparitis hiccups flatulence and periodine discharges with nervous symptoms. As a flavoring agent peppermint is used in wide range of pharmaceuticals, confectionary, alcoholic drinks, dental creams and mouth washes

(Bhattacharjee, 2000, Chopra et al., 1956, Kapoor, 1990). A reported by Khan and Ansari (1984), Khan and Zaidi (1985) a plant would response toexogenous supply of the vitamins only if its endogenous vitamin levels were low. Thus, the present author attempted to study the effect of different concentrations of aqueous pysioxine solutions supplied at appropriate stage on leaf biochemical contents, herb yield and essential oil content in peppermint (*Mentha piperita L.*).

MATERIAL AND METHODS

This field experiment was performed during late rabi season of 2012 in a sandy loan soil at G.F. College, Shahjahanpur experimental field. The experiment was designed to study the effect of different levels of aqueous pyridoxine concentrations (0.0, 0.01, 0.02, 0.03, 0.04, 0.05 %) supplied at 40 days to sowing on folage of peppermint (*Mentha piperita L.*) on leaf biochemical contents (free aminoacids, chlorophyll and caretenoids content) at 50, 70 and 90 days to sowing and herb yield (t/he) and essential oil content (%) at harvest in 4 sqnbed.

Table 1. Effect of different concentrations of pyridoxine ……leaf biochemical components in peppermint (*Mentha piperita L.*)

Mean of three replicates

Pyridoxine	Concentration (%)	Pre amino acid (mg / 1 w mg)	Chlorophyll (mg / gm)	Caretenoid (mg / gm)
50 days	0.00	0.20	0.51	0.14
	0.01	0.32	0.54	0.16
	0.02	0.32	0.56	0.16
	0.03	0.40	0.60	0.18
	0.04	0.38	0.55	0.16
	0.05	0.38	0.55	0.14
70 Days	0.00	0.40	0.62	0.50
	0.01	0.56	0.80	0.55
	0.02	0.58	0.90	0.58
	0.03	0.65	1.20	0.60
	0.04	0.55	1.05	0.50
	0.05	0.50	0.90	0.50
90 Days	0.00	0.35	1.10	0.55
	0.01	0.45	1.80	0.58
	0.02	0.50	1.85	0.60
	0.03	0.55	1.98	0.65
	0.04	0.50	1.30	0.60
	0.05	0.50	1.20	0.60

The sowing was done on 5 January, 2012. A uniform dose of 50kg N, 60kg each of Pad k was given uniformly to each bed. FYM @ 20q/ha was uniformly applied during field preparation. The crop was irrigating fastinglly. The harvesting was done on 10 May, 2012. The weeding was done when sequenced. 1 % aqueous Bavistin Solution treatment was given to stolens before sowing for two days.

Table 2. Effect of different Eneupalins of pyridoxine….on herb yield (t/ha) and essential oil content (%) at harvest.
Mean of three replicates

Pyridoxine content (%)	Herb Yield (t/ha)	Essential oil content (%)
0.00	12.55	0.39
0.01	14.60	0.42
0.02	16.20	0.42
0.03	18.40	0.52
0.04	16.20	0.45
0.05	14.40	0.40
C. Dat 5 %	0.82*	0.01*

***Significant**

RESULTS AND DISCUSSION

Many physiological research has been deliberately directed towards the improvement of agriculture to suit special conditions or for special purposes to obtain optimum productivity table 1 clearly indicates that 0.03 % aqueous pyridoxine application proved best for all biochemical components having maximum impact on peppermint crop. The beneficial effects of pyridoxine has also been reported by Khan and Ansari (1994) and Khan and Zaidi (1985) Kodandaramaiah and Gopal Rao (1985) suggested that B vitamins participation plant growth and development indirectly by enhancing the endogenous levels of various growth factors such has cytokinins and gibberellins. The significantly highest herbs yield (46.61 % more than control) is therefore highly justified (table 2). Similarly essential oil content was also recorded maximum by this (0.03 % pyridoxine solution) which was 33.3 % more than the control.

ACKNOWLEDGMENTS

Authors are thankful to Principal G.F. College, Shahjahanpur for providing necessary research facilities.

REFERENCES

S.K., Bhattacharjee (2000). Hand book of Medicinal Plant (Pointer Publishers Jaipur, India pp 220-222).

R.N., Chopra, Nayar, S.L. and Chopra, J. (1956). Glossary of Indian Medicinal Plant. CSIR, New, pp 165.

F.A., Khan and Ansari, S.A. (1984). Enhancement of Lateral roots differentiation in Urd (Black Green) by Pyridoxin application, *J. India Bot. Soc,* 63 (Suppl) 102.

N.A., Khan and Zaidi, A.K. (1985). On optimizing growth and yield of most and by pre sowing seed treatment with pyridoxine, *J. India Bot Soc.,* 64 (Suppl): 91.

J., Kodandaramaia and Gopal Rao (1985). Influence of B vitamin on stomatal index frequency and diurnal rhythms in stomatal opening in *Cyamopsis tetragonoloba* (L) Tab, *J. Bot. Res.* 5: 68-73.

L.D., Kapoor (1990). Hand book of Ayurvedic Medicinal Plant CRC Press Inc. Boea Raton, Florida, pp 227.

Corresponding author: Dr. Mohammad Abdur Rahman, Faculty of Science, OPJS University, Churu, Rajasthan, India
Email: zafarabbas1255@yahoo.com