Original Research Article

AN EXPERIMENTAL STUDY TO EVALUATE THE ACTION OF ZINCUM PHOSPHORICUM OF VARIOUS POTENCIES AGAINST BORON INDUCED TOXICITY IN SOLANUM LYCOPERSICUM THROUGH HYDROPHONIC SYSTEM.

ABSTRACT: Agro homoeopathy is a boon now a days, where homoeopathy is acting like a fertilizer, insecticide and add more nutritive value. It is helping the public with organic veggies. This study is regarding boron toxicity in solanum Lycopersicum, where with hydrophonic system boron toxicity is induced and been treated with Zincum Phosphoricum of different potencies. After the study few potencies of Zincum Phosphoricum showed a drastic influence in the total yield of the plant. So, the result showed maximum significance between and within the samples.

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Keywords: Agrohomoeopathy, Boron toxicity, Hydrophonic and Zincum Phosphoricum

INTRODUCTION

Agro-Homoeopathy is a specialized area in field of Homoeopathy which mainly deals with treatment of gardens and agricultural practices [1]. The use of Homoeopathic remedies for plants started since the pioneering works of Kolisko on wheat germination,[2] Agro-homoeopathy is the efficient way of eradicating abiotic stress in crops due to various factors. It is cost-effective and an alternative for chemical fertilizers thus helping to increase the yield and farmer's income [3]. Homoeopathy strengthens the energy and vitality of plants. Even prevents the damage caused by abiotic stress and will promote a dynamic balance within the plant and of plants with soil, water and environment [4].

Boron toxicity

Boron is a plant micronutrient, i.e., it is necessary for normal growth and development in amounts as small as 1 µ/g-1 mg/g. In India, more specifically in Andhra Pradesh,concentrations of Boron in soil and irrigation waters are harmful to boron sensitive plants [5]. When Boron levels in soil in between 10 to 20 mg/kg -1 B levels produces boron toxicity in plants [6]. Other plants which are affected with boron toxicity are like maize, carrot, Alfalfa [7].

Boron (B) toxicity, an important agricultural problem that limits crop productivity in different regions of the world, can occur in B-rich soils or in soils exposed to B-rich irrigation waters, fertilizers, sewage sludge, or fly ash [8]. Boron toxicity can affect tomato (Solanum Lycopersicum), which is one of the most widely grown vegetables worldwide, with more than 3 million hectors under cultivation. The typical symptoms shown by plants exposed to excess of B

are reduced vigor, retarded development, leaf burn (chlorotic and necrotic patches in older leaves), and decreased number, size, and weight of fruits [9].

SOLANUM LYCOPERSICUM

The Solanum Lycopersicum it is an important crop plant cultivated all over the world, and its production and consumption continue to increase. This popular vegetable is known as a major source of important nutrients including lycopene, B-carotene, flavonoids and vitamin C as well as hydroxycinnamic acid derivatives. Since the discovery that lycopene has anti-oxidative, anti-cancer properties, interest in tomatoes has grown rapidly [10].

Zincum Phosphoricum

The Zincum Phosphoricum is the one of the remedies in Homoeopathic Materia Medica. It is considered to be major remedy for sensitivity and marked weakness [12].

Homeopathically Zincum Phosphoricum used in humans for conditions like chorea, spinal headache, weak memory, bleeding gums, constipation, palpitations of heart and anxiety

Symptoms of Zincum Phosphoricum in relation to Agro Homoeopathy

Weak vitality

Sensitivity to external Environment

Enriches the Nutritional status

Alleviate stress especially abiotic stress of different kinds

Hydroponic

The term Hydroponics was derived from the Greek word's hydro' means water and ponos' means labour. It is a method of growing plants using minerals nutrient solutions, without soil [13]. The science of hydroponics began with experiments to determine the elementary composition of plants. These experiments have been dated as early as 1600 A.D. The hanging gardens of Babylon and the floating gardens of the Mexican Aztecs are both examples of early hydroponic gardening. Historians have found Egyptian hieroglyphics depicting the cultivation of plants in water that can be dated as far back as several thousand years. Before Christ [14].

Terrestrial plants may be grown with their roots in the mineral nutrient solution only or in an inert medium, such as perlite, gravel, or mineral wool. Hydroponics is the technique of growing plantsin soil-less condition with their roots immersed in nutrient solution [15]. In India, Hydroponics wasintroduced in year 1946 by an English scientist, W. J. Shalto Duglas and he established a laboratoryin Kalimpong area, West Bengal. He has also written a book on Hydroponics, named as Hydroponics the Bengal System.

Hydroponic benefits.

i. Elimination of soil borne pests, fungi and diseases.

ii. Elimination of troublesome weeds and stray seedlings which eliminates the need for herbicides and reduces labor.

iii. Reduction of health risks and labor costs associated with pest management and soil care.

iv. Reduced turnaround time between planting as no soil preparation is and we can control nutrient values in solution.

IMPORTANCE OF STUDY:

Through this study we can able to solve the following issues which is threatening the mankind

The Effects of Chemical Fertilizers on Soil;

The prolonged use of chemical fertilizers causes the pollution of groundwater sources. Chemical fertilizers that are highly soluble get absorbed by the ground more rapidly than they are absorbed by the plants. Plants only absorb a given level of nutrition and rest of them are remain in soil. That is not only hazardous to groundwater sources but also to the health of soil where these chemicals react with clay to create hard layers of soil known as hardpan.

NEED OF STUDY:

According to the study conducted on Boron Content in Shallow Ground Water of Andhra Pradesh and Telangana States found that high boron concentrations are recorded[16] and plants which are growing in this areas mainly boron sensitive plants like tomato are more prone to boron toxicity and fruits produced by this plants may causes boron toxicity for humans According to WHO (World Health Organization), it is expected that the amount of boron taken is 0.44 µg/day via air, 0.2-0.6 mg/ day via drinking water and 1.2 mg/day via diet[17]. Clinical symptoms Observed from boron toxicity have been reported within the dose range 100 to 55,500 mg depending on age/body weight. Inter-individual variability appears to be high. Clinical effects include irritability, seizures and gastrointestinal disturbances [18]. From the Studies done and observed that boron can have an impact on brain functions and the cognitive performance of humans [19].

The study conducted on alleviation of Boron toxicity in tomato plants with zinc and phosphorus proved that both zinc and phosphorus are effective in alleviate boron toxic symptoms.[20] The Zincum Phosphoricum (Zn_3P_2) is the one of the remedies in Homoeopathic Materia Medica. It is considered to be major remedy for sensitivity and marked weakness [12] thus nano particles in Zincum Phosphoricum containing zinc and phosphorus may alleviate the toxic effects of boron in irrigative water and soil.

AIMS AND OBJECTIVES

- ❖ To assess efficacy of the medicine Zincum Phosphoricum 6c,12c,30c, in Boron induced toxicity in solanum Lycopersicum (tomato plant)
- ❖ To establish the improvement in plant parameters and reduce the toxic effects on the plant.
- ❖ To find out the potency which has significant action to alleviate toxic effects of boron.
- ❖ To evaluate the yielding and resistance capacity of Solanum Lycopersicum to boron toxicity

Scope / accompanying merits of the research

1. To prove the action of ZINCUM PHOSPHORICUM on boron toxicity in plants to enhance yield.
2. To contribute on food safety by replacing chemical fertilizer.
3. To contribute on Agrohomoeopathy.

1.3: REVIEW OF LITERATURE:

Plants are unique when compared to humans and animals, it needs different approach. The science of homoeopathy has great potentials and could give a new direction that requires attention of the researches in alternative agriculture "As plant too are made of cells which could get stressed with high levels of essential nutrients and shows toxic effects". Constructing a Materia Medica for plants is inevitable. Homoeopathic medicines have found recognition in healing human beings. Applied homoeopathic research in agriculture is also finding place.

➢ Tomato Solanum Lycopersicum is the second most important vegetable crop in the world after potato. World production and consumption of tomato has grown quickly over the past 25 years. Current world production is about 170.75 million tons of fresh fruit produced on 5.02 million hectares in over 150 countries. The tomato plant has been bred to improve productivity and fruit quality. Because of its popularity and use in cooking and processing, tomatoes are one of the most profitable vegetable crops.[21]

➢ However, tomato production is also labor- intensive and prone to different toxicity's as it is a boron sensitive plant like maize, carrot, and Medicago sativa, excess boron decreases emergence

in these plants [22] that can reduce both yield and quality of fruit which in turn reduces grower's income. The most appreciable boron exposure to the general population is likely to be through ingestionof food (as boron is an essential element in plants) and, to a lesser extent, water. Mean daily intakesof boron for male and female adults were reported to be 1.28 and 1.0 mg boron/day but consuminghigh levels of boron fruits. Acute-duration oral exposures of humans to high levels of boron (as boric acid) have resulted in little or no observable toxicity, as was seen in accidental poisonings of10–88 g, of which 88% of cases were asymptomatic (Litovitz et al. 1988). However, gastrointestinal, cardiovascular, hepatic, renal, and central nervous system effects, dermatitis, erythema, and death have been observed in children and adults exposed to ≥84 mg boron/kg [23]

- Boron (B) is an essential element for higher plants, while it becomes toxic when present in excessive concentrations. And this boron presents a challenge to agronomists. Management of boron in soil is made difficult by its high mobility, being easily leached under high rainfall conditions, leading to toxicity or deficiencies in plants that grow there, under low or high rainfall

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- Many approaches have been developed to alleviate B toxicity in plants. The alleviative approaches have been briefly outlined as three mechanisms. The first is the decrease in tissue B concentration, including the decrease in soil available B and the restriction on B uptake. The second is the decrease in cellular active B, including the formation of inert complexes and the regulation ofB translocation. The third is the increase in physiological tolerance, including the prevention of oxidative damages, the enhancement of photosynthesis, the improvement of plant water status, andthe screening of B-tolerant genotypes or rootstocks. The alleviative approaches mainly include the application of nutrient elements, plant growth regulators, and plant growth-promoting microbes. [20]

- The study conducted on solanum Lycopersicum to assess parameters of boron toxicity in leaves and it showed significant reduction in foliar biomass, loss of leaf area and marginal necrosis in leaves [19]

Till know few researches has been conducted to alleviate boron toxicity in solanum Lycopersicum with the help of zinc and phosphorus and this research's shown the positive effect in alleviating the toxic levels in the plants and improved the plant parameters compared to control groups.

- The green house experiment conducted on the solanum Lycopersicum in four levels of boron (0,5,10, and 20 mg kg−1) and three levels of zinc (Zn) (0,10, and 20 mg kg−1) was conductedon tomato (Lycopersicon esculentum Mill., cv. 'Lale'). Boron toxicity symptoms occurred at 10 to20 mg kg−1 B levels. These symptoms were partially alleviated in plants grown with applied Zn. Fresh and dry plant weights were strongly depressed by applied B. [9]

- And on another study the effect of supplementary phosphorus on growth and yield of Solanum Lycopersicum plants grown at high boron was investigated and they showed reduced parameters

like reduced dry matter, fruit yield and chlorophyll content however, supplementary phosphorus to nutrient solution containing high boron improved adverse effects of high B on fruit yield and growth in tomato plants. [17]

Some other research's which are conducted on solanum Lycopersicum with homeopathic medicines.

- Homeopathic management of tomato leaf curl virus using psorinum and results shown significant variation was observed in growth parameters, especially in height of plant and fruit weight yield showed 42.6 % greater increase than the control group. [24]
- An experimental study to evaluate the action of camphor mother tincture on photosynthesis impaired leaves of solanum Lycopersicum and results shown there was a significant decrease in the number of pest and their colonies in the set of plants which were sprayed with medicines. Thus camphor mother tincture was found to be highly effective in increasing the chlorophyll content, yield, growth and also as pesticide. [25]
- A book called HOMOEOPATHY TO CONTROL ANTS by Christiane Maute, deals with the common plant disease, pest and damage with information on how to treat them with homoeopathic remedies. It also has useful illustration and brief note are supplied for most of the diseases, which enables even the novice to recognize the ailment at a glance and easily find right remedy. The dosage and treatment method are described in detail. The book is rounded off by short, clear materia medica giving information on each remedy. This information was published in the second edition of the book in the year 2014.[26]
- A book called Homoeopathic Treatment of Plants by Vaikunthanath Das Kaviraj is pioneering new book on homoeopathy for plant disease. This book focus on homoeopathic treatment of plants in case of malnourishment, parasitic and fungal attack, bacterial and viral disease, damage and weed infestation. The 4th revised edition of this book was published on 2015, ISBN; 978-3-941706-47-7. [27]

METHODOLOGY:

Type of study - Experimental Study

Study design- Experimental

Study setting - The study was conducted in MNR Homoeopathic medical college premises with good sunlight and ventilation.

Sample size - Total sample size is 25 plants. Each group contains 5 plants to analyze the parameters.

Selection criteria:

- Inclusion criteria: Healthy plants was chosen while transplanting into hydroponics

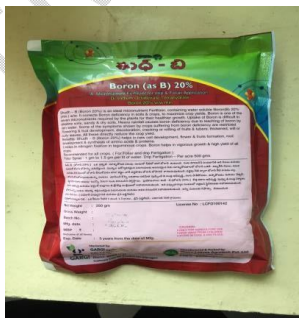
- Exclusion criteria: Unhealthy, diseased and stunted plants.

Medicine used: Zincum Phosphoricum 6CH,12CH,30CH Procured from Sharda Boiron Laboratories Ltd (SBL). It is a Homoeopathic pharmaceutical company's authentic homoeopathicpharmaceutical outlet with Batch Number SH035228, SH035233, SH035268 respectively.

Image 1: Zincum Phosphoricum 6CH,12CH,30CH

Boron: Di sodium octaborate tetra hydrate Boron 20% w/w min was used for inducing boron toxicity.

Image 2: Di sodium octaborate tetra hydrate Boron



Hydroponics water soluble nutrient solution procured from Green Loop Hydroponic Nutrients.

Image 3: Hydroponics water soluble nutrient solution

Method used for medicine application:

Direct administration of medicine into Hydroponic system

Seeds: The Non hybrid Solanum Lycopersicum seeds are collected from a authorized agricultural institution i.e. Professor Jayashankar Telangana State Agricultural University Rajendranagar, Hyderabad Telangana, India -500 030.

Image 4:Tomato seeds

MATERIALS AND NEED

COCONUT COIR: Otherwise known by trade names like ultra-peat, cocopeat and coco Tek. coco coir represents a major step forward in organic soil free growing mediums. It combines the water retention of perlite; however, it is a completely organic medium made from shredded coconut husks.

Image 5: Coco peat

LECA: stands for lightweight expanded clay aggregate is made of expanded clay pellets that holds water by virtue of its porosity and surface area. these mediums are pH neutral and reusable, making them ideal for Hydroponics system.

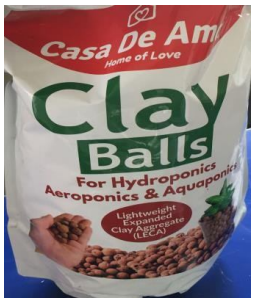


Image 6: clay aggregate

NET POTS: allows water to flow freely past the roots of the plants they contain, facilitating the uptake of nutrients. As the plants grows, the roots extend out easily into the water

TUBS: High-density polyethylene plastic tubs are used for making hydroponic setup which are suitable hydroponic operations.

Image 7: High-density polyethylene plastic tubs

AIR PUMP: submersible water pump was used for oxygenate hydroponics system

DEEP WATER CULTURE: (DWC)

A method of plant production by means of suspending the plant roots in a solution of nutrient rich, oxygenated water, this method uses a rectangular tank less than one foot deep filled with a nutrient-rich solution with plants floating in Styrofoam boards on top[28]

OTHER CONDITIONS REQUIRED:

TEMPERATURE:

Tomatoes need 3 to 4 months of warm, clear, fairly dry weather to produce best. Tomatoes need consistent night temperatures between n 65°F and 85°F to set fruit [29]

SUNLIGHT:

Tomatoes require a minimum of 8 hours of continuous sunlight each day.[30]

HYDROPHONIC SET UP:

Continuous Equal amount of water changed once in a week for each group in the Deep-water culture of hydroponics. Air pump is used for all groups for from the day of transplantation to harvest.

pH:

The ideal pH maintained is 6.0 to 6.5. in hydroponics

TDS:

Total dissolved solvents of hydroponics solution are maintained in between 1500 to 2000 TDS.

METHODS:

Five separate tubs Hydroponics systems will be created where each represents a group and each group contains Five plants.

Group A: - Plain without any addition of extra boron

Group B: - Induced Boron toxicity (10 to 20 ppm) through irrigation in Hydroponics method and addition of Placebo in liquid from [16].

Group C: - Induced Boron toxicity (10 to 20 ppm) through irrigation in Hydroponics method and addition of Zincum phosphoricum-6CH

Group D: - Induced Boron toxicity (10 to 20 ppm) through irrigation in Hydroponics method and addition of Zincum Phosphoricum- 12CH

Group E: -Induced Boron toxicity (10 to 20 ppm) through irrigation in Hydroponics method and addition of Zincum phosphoricum-30CH

Sunlight water and nutrients will be equally supplied for all the groups.

PROCEDURE:

- Procured seeds are sowed in a seed tray on 07/03/2022, 50 seeds are sowed and on day 5th (12/03/2022) the germination started in 36 seeds. On day 14th i.e., 21/03/2022 the height of plant is 6cm and the number of leaves is 4-5 for each plant.
- Trans plantation of healthy plants are done on 17th day (24/03/2022) to hydroponics tubs into 5 groups A, B, C, D, E.
- All the requirements like water and sunlight were provided equally to all groups
- All the essential nutrients for the plants in hydroponics are supplemented once in a week ie 1 ml of stock A and 1 ml of stock B in early stages of plants and in fruiting stage 2 ml of each stock solution for one liter of water GREENLOOP HYDROPHONIC NUTRIENTS ARE USED. and this continued till the harvest time.
- The boron is induced ie Di sodium octaborate tetra hydrate Boron 20% w/w min. 15 mg for one liter of water till the flowering stages of plants once in a 3 weeks. induced to all the groups except group A (control for boron toxicity)
- Then after Zincum Phosphoricum of various potencies i.e., 6ch 12ch 30 CH according to groups is administrated i.e. 10 drops in 10 liters of water into the hydroponics tubs once in a three days. All the groups except group B. (control for zincum phosphoricum)
- No other fertilizers are used in this process
- The TDS (total dissolved solvents) temperature, pH is monitored regularly.
- Plants after vegetative growth started flowering on 35 - 39th days i.e. (11/04/2022-15/04/2022) except Group B which shown toxic effects in all the plants, marginal necrosis and chlorosis with premature drop of leaves with young shoot tip cessation failure to flower with corky lesions along the stems and petioles and plants become wither. in other groups i.e. A, C, D, E the fruit formation started on 48- 53 Days (24/04/2022 - 29/04/2022) from this period up to day 64 (10/05/2022) yield is collected and following parameters of different groups are analyzed.
- Following are the **parameters** used to record and analyze.

1. Height of the plant
2. Weight of the Fruit
3. No. of Fruits
4. Dry weight of plant
5. Total yield of the plant

➢ Individual Parameters with different potencies are analyzed by ANOVA TEST.

OBSERVATION AND RESULTS:

Day 1

Day 6

Day 14

Day 17

Day 34

Day 39

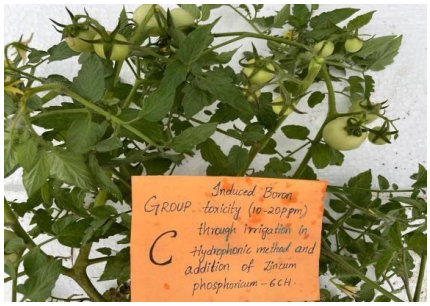
Day 35

Group B with Boron Toxic symptoms

Marginal Chlorosis and necrosis

Group A(plain)

Group B(Boron Toxicity + Placebo)



Group C (Boron Toxicity + 6CH)

Group D (Boron Toxicity + 12CH)

Image 8: Study observations showing toxic symptoms

Name of the Group	Height of the Plant (cm)
A	92.5
B	0
C	114.18
D	142.34
E	96.26

Group E (Boron Toxicity + 30 CH) (Yield)

Table.No-1: Height of the Plant

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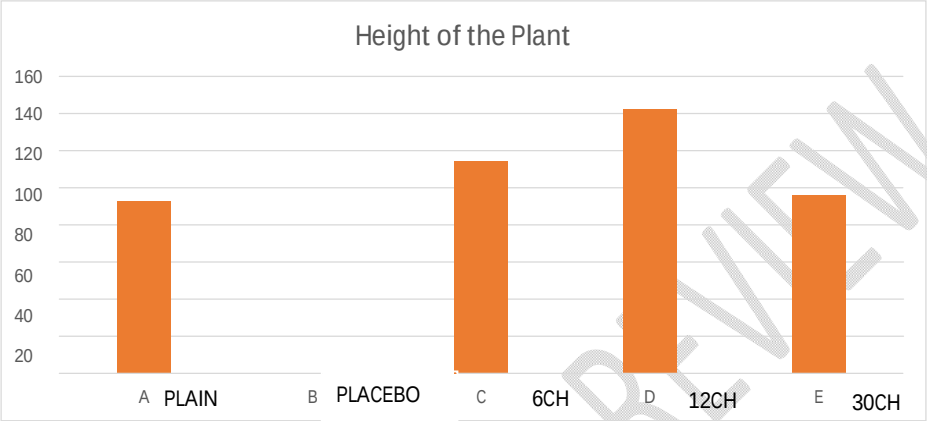
Fig.No-1: Height of the Plant

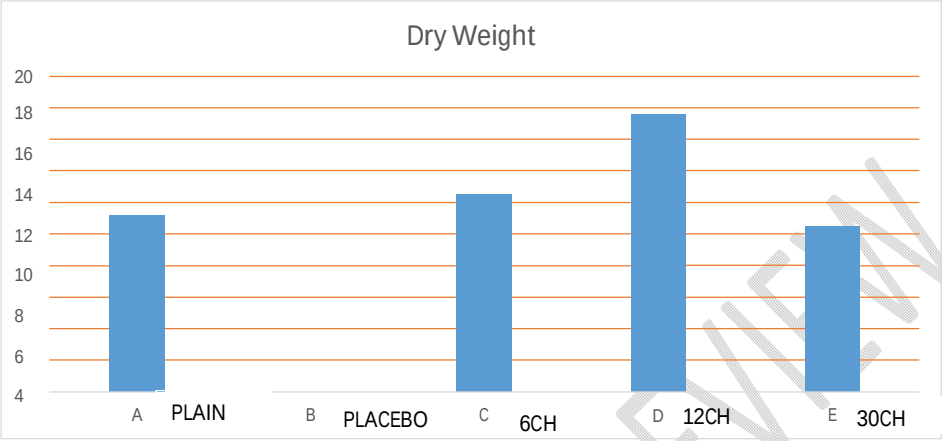


From the graph above, it is understood that there is a significant difference between control i.e., (A &B) group as compared to groups C, D, E and group D i.e., 12 CH showing significant increase in height (142.34cm) as compared to another groups.

Table.No-2: Dry Weight of the Plant

Name of the Group	Dry Weight (gms)
A	11.18
B	0
C	12.54
D	17.6
E	10.44

Fig.No-2: Dry weight of the Plant



From the graph above, it is understood that there is a significant difference between control i.e., (A &B) group as compared to groups C, D, E and group D i.e., 12 CH showing significant increase in dry weight (17.6 gms) as compared to other groups.

Table.No-3: No. of Fruits

Name of the Group	No. of Fruits
A	54
B	0
C	43
D	62
E	47

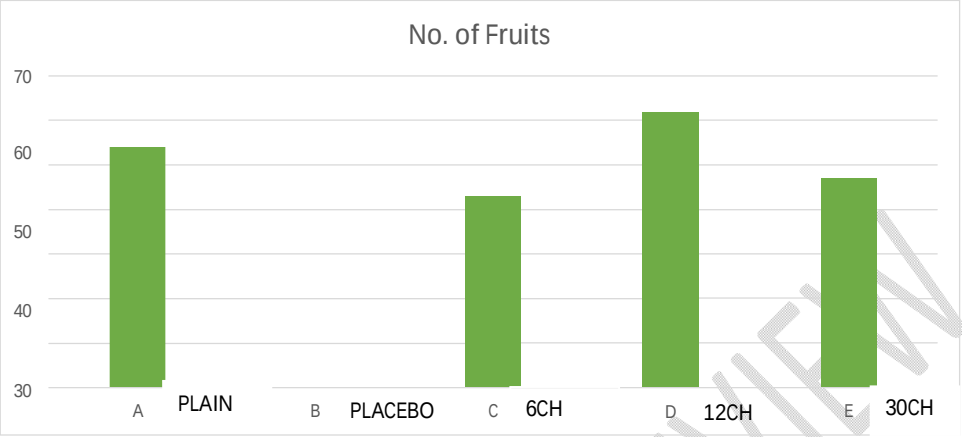


Fig.no-3: No. of Fruits

From the graph above, it is understood that there is a significant difference between control i.e., (A &B) group as compared to groups C, D, E and group D i.e., 12 CH showing significant increase in as number of fruits (62) compared to another groups.

Table.No-4: Weight of largest Fruit

Name of the Group	Weight of the Fruit (in grams)
A	43.2
B	0
C	39.7
D	60.8
E	42.3

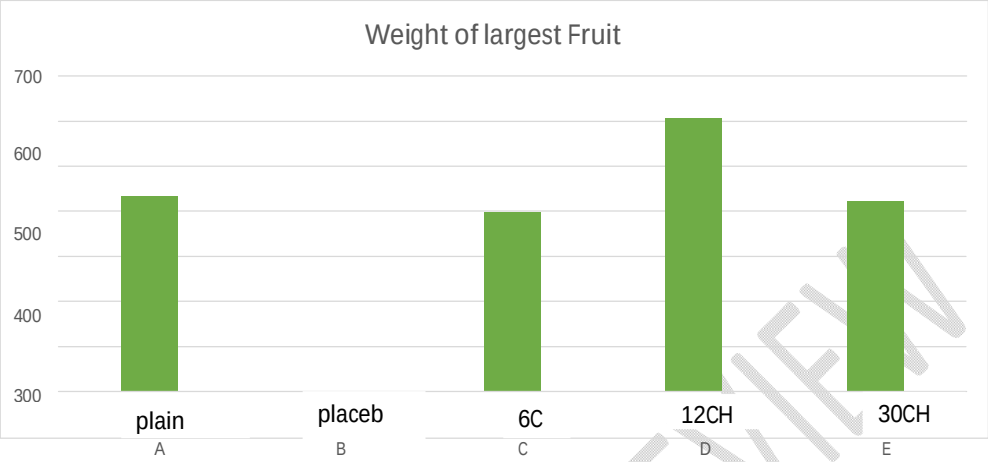
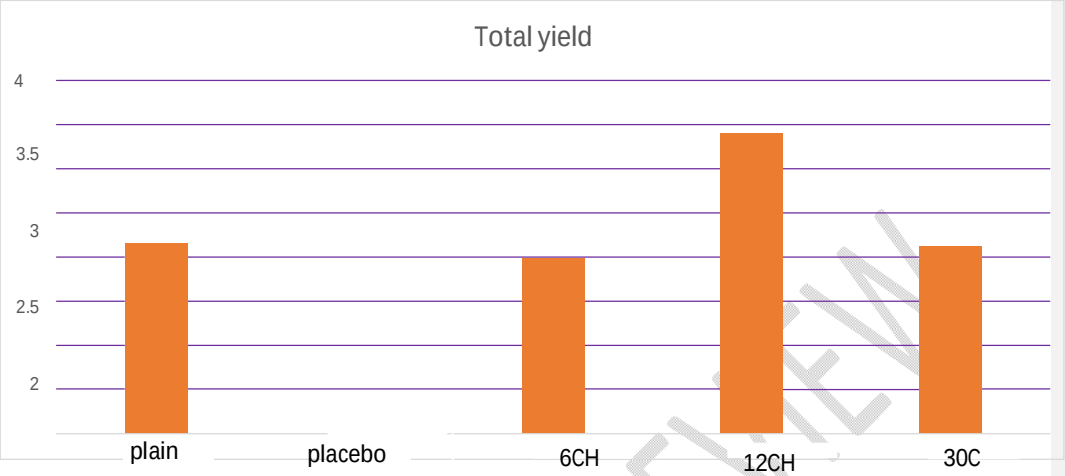


Fig.No-4: Weight of largest Fruit

From the graph above, it is understood that there is a significant difference between control i.e., (A &B) group as compared to groups C, D, E and group D i.e., 12 CH showing significant increase in weight of fruit (60.8 grams) as compared to other groups.

Table.No-5: Total Yield

Name of the Group	Total yield (in kgs)
A	2.16
B	0
C	1.985
D	3.4
E	2.12



A

Fig.no -5: Total Yield

From the graph above, it is understood that there is a significant difference between control i.e., (A &B) group as compared to groups C, D, E and group D i.e. 12 CH showing significant increase in yield (3.4 kgs) as compared to other groups.

Table.No-6: Variation with different potencies

Name ofthe Group	Height ofthe Plant	Dry Weight	No. of Fruits	Weight of theFruit	Total yield
A	92.5	11.18	54	43.2	2.16
B	0	0	0	0	0
C	114.18	12.54	43	39.7	1.985
D	142.34	17.6	62	60.8	3.4
E	96.26	10.44	47	42.3	2.12

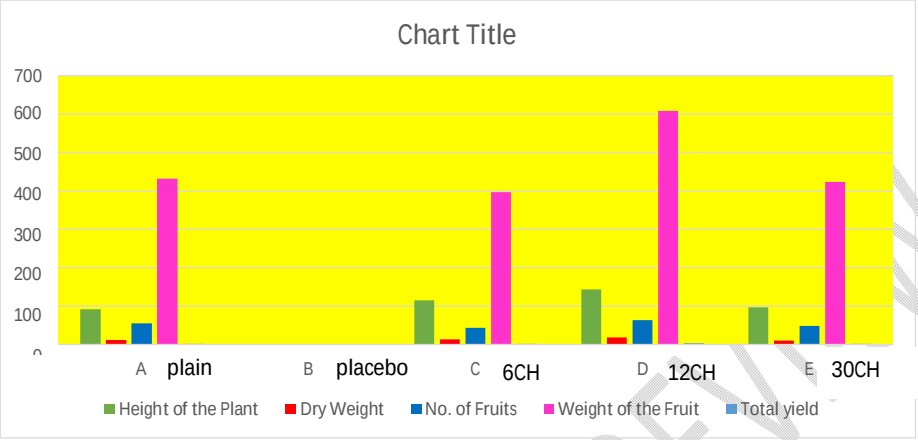


Fig.No-6: Variation with different potencies

STATISTICAL ANALYSIS

Table 7 : Data statistics results

Source of Variation	Sum of Squares (SS)	Degree of freedom (df)	Mean square	F-Ratio
Between samples	SSC = 480725.6	4	120181.4	MSC÷MSE = 11.17
Within Samples	SSE = 215168.378	20	10,758.41	

This table shows that the collected value of F is 11.17 which is more than the table value of 2.87 at 5% level with degree of freedom $v_1 = 4$ and $v_2 = 20$

Hence this analysis report supports research hypothesis of difference in means. So, Solanum Lycopersicum output is having difference between different potencies and study is much significant.

DISCUSSION:

In study boron toxicity is induced and treated homeopathically with different potencies in hydroponics methods.

In regard to height of the plant, zincum phosphoricum 12CH and 6CH acted well than compared tocontrol groups in the largest weight of single fruit in a group the 12 CH showed significant increase in weight as compared to control group and in number of fruits from each group the 12 CH and 6ch showed significant increase in number as compared to control groups,

The group B i.e. induced boron toxicity with placebo, plants died in between the study by showing symptoms marginal necrosis and chlorosis with premature drop of leaves with young shoot tip cessation failure to flower with corky lesions along the stems and petioles and plants become wither.

Total yield including other parameters like height of plant, dry weight, total number of fruits and weight of fruits of Solanum Lycopersicum is having a good result with 12CH when compared with control group.

Therefore, Zincum phosphoricum 12 CH alleviates boron toxicity in solanum lycopersicum and reduces toxic effects caused by boron and influences the growth and yield of plant.

CONCLUSION:

The aim to avoid fertilizers which may affect the health of human being. So, to develop organic farming, homoeopathy is playing a key role in healthy cultivating practices. Concluding the above discussed points, we derive the conclusion stating, Zincum Phosphoricum 12CH had significantly influence the growth and yield thereby contributing to the rise in economic output. Further studies are required on large scale to validate and confirm the current findings. F ratio i.eratio between the sample mean and within the sample mean was very much significant. In addition to the yield, nutritive value can also be analysed to have a detailed overview of the same.

SUMMARY:

Solanum Lycopersicum is one of commonest crops grown in India. Therefore, increasing the yield without harming the soil with chemicals are important. Telangana and Andhra Pradesh soil **is more prone to boron toxicity. Considering the fact that Solanum Lycopersicum requires Zinc** and Phosphorous to fight with boron toxicity. Hence Zinc-phos was selected for the study, “to investigate and compare the efficacy of Zincum phosphoricum in different potencies by inducing boron toxicity and analysing the quantitative yield of Solanum Lycopersicum”. For the

study, 25 plants were taken and divided in 5 groups including control, Zincum Phos 6CH, 12CH and 30Ch was administered directly in hydroponics three days once. No fertilizers or any chemicals were added. Following are the parameters were recorded height of plant, weight of the fruit, number. of Fruits, dry weight of the plant and total yield. Data was then statistically analysed by Anova test. Conclusion derived was Zincum phos-12CH has significantly influenced the growth and yield.

LIMITATIONS OF STUDY:

Due to the limited sample size, the conclusions made through this study are only suggestive and further research as to be done in larger farms for more accurate results of alleviating Boron Toxicity

NOTE:

The study highlights the efficacy of " Homoeopathy" which is an ancient tradition, used in some parts of India. This ancient concept should be carefully evaluated in the light of modern medical science and can be utilized partially if found suitable.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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Comment [a4]: There is lot of formatting errors

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