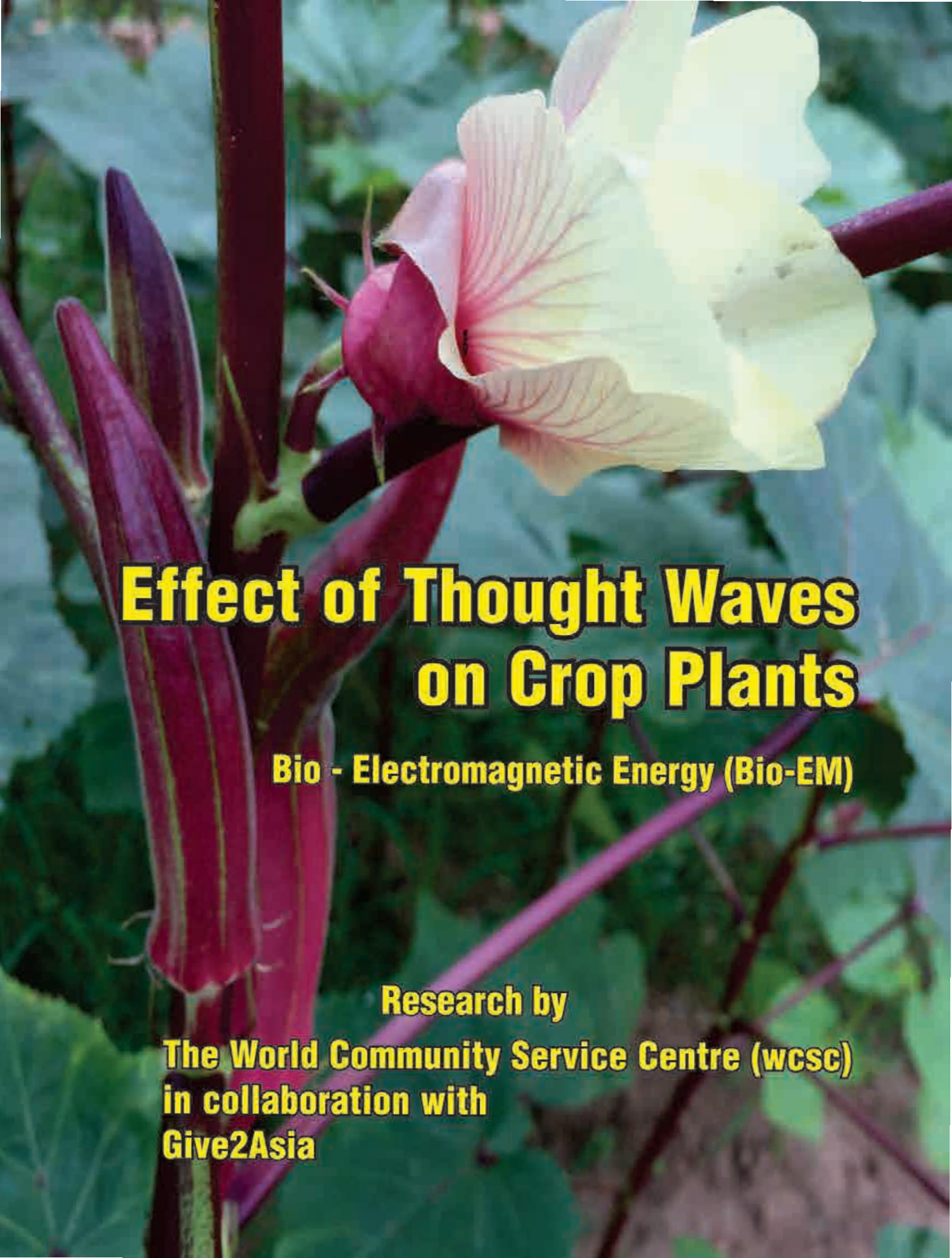

Effect of Thought Waves on Crop Plants

Bio - Electromagnetic Energy (Bio-EM)

Research by

The World Community Service Centre (wcsc)

in collaboration with

Give2Asia

FOUNDER'S MESSAGE

Yogiraj Vethathiri Maharishi (1911-2006)

Founder President of "The World Community Service Centre"

"For Truth - Seekers, blessing is a wonderful technique for harmonizing thoughts. At the time of blessing, the vibrating wave permeates the cells, the very core of one's being, and it spreads out enveloping all the individuals in the vicinity, whether related to the thoughts or not".

PRESIDENT'S MESSAGE

Arulnidhi. SKM. Maeilanandhan, President, WCSC, Padmashri Awardee became an ardent follower of Shri Vethathiri Maharishi, Founder of The World Community Service Centre (WCSC) a nonprofit organization to spread Manavalakalai Yoga with its aim as individual peace, spreading to peace in the family, nation and ultimately the whole World.

Shri SKM. Maeilanandhan, Executive Chairman of SKM Group of Companies, is an eminent entrepreneur, and a social and consumer activist. Swamiji ordained shri. SKM. Maeilanandhan, as the President of WCSC in the year 1997.

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- **President's message** 02
- **Directorates of WCSC - Research & Development.** 04
- **Profiles of R&D faculty.** 05
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- **Collaborative Research by The World Community Service Centre *and* Tamil Nadu Agricultural University, Coimbatore.** 28

Publications:

i. **Effect of Thought Transaction on 'Okra' Yield.** 46-53
S Letchoumanane[1], [2], Vijay K Gupta [3,4]*

ii. **Effect of Bio EM and Panchagavya on Growth, Yield and Quality of Bhendi (*Abelmoschus esculentus* L. Moench) Hybrid CO4** 54-64
K. Shoba Thingalmaniyan[1], S. Letchoumanane[2], K.Surendran3, G. Rajendran[4], T. Arumugam[5] and M. Kannan[6]*

iii. **Inducement of Behaviour changes in Tomato by Thought Transaction** 65-69
G. Rajendren, A. Shanthi, K. Senthamizh, P. Kalaiarasan and J. Jayakumar.

iii. **Video about Effect of Bio-EM (Effect of thought waves) vide links:**
Tamil: https://youtu.be/-vr9htWBt4w
English: https://youtu.be/F1RuITWyCLo

DIRECTORATES OF WCSC - RESEARCH & DEVELOPMENT

Dr N.A. Perumal,
Director, General, VISION for Wisdom

Dr. V.M. Rajasekaran,
Director- Siddha

Dr M.V. Rabindranath,
Director Research & Development, (Medical Service)

Dr S Shanthi
Director- Siddha

Dr S Letchoumanane
Director, Research & Development
(Philosophy)

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Trustee, VMKYKKRF, Aliyar

Arulnidhi R Pachaiappan
Director, Treasurer

Arulnidhi S Selvaraj
Director Finance

Dr Indira Gupta, USA
Trustee,VMKYKKRF, Aliyar

PROFILES OF R&D FACULTY

Dr. N.A. PERUMAL, B.V.Sc., MA., Ph.D (Yoga).,
Director General

A Veterinarian by profession. Served Aavin a various capacities, and retired as managing Director.

Member of Research Activity team on Frozen semen Technology, from its inception. His passion, flair and accomplishments in research o Genetics in the fetched new variety of off spring for enhancement of Milk production.

Completed his Research on Yoga and has been conferred with Doctorate in 2017.

Ordained by Vethathiri Maharishi as Director of VISION from its inception.

Dr. S. LETCHOUMANANE, M.Sc.(Ag.), Ph.D
Director - Research & Development

Is an Agricultural Scientist and also a Naturalist. A Post-Graduate; Doctorate in Agricultural Entomology from TNAU, Coimbatore. Worked on plant protection and published 156 research and popular articles in various journals during his 42 years of service in teaching and research.

He is one of the earlier disciples of Yogiraj Vethathiri Maharishi, got initiated in the year 1967.

Presently is the senior most SKY Professor of WCSC, with five decades of service.

A key personnel in establishing SKY Yoga centers in Asia and other parts of the world.

Currently, working on an ambitious project of "Plant - sensitization through Blessings", a unique methodology of Simplified Kundalini Yoga through which the "Cause and Effect" system will be established.

Dr. K. VIJAY K GUPTA, USA.

Vijay is a professor emeritus at the University of Colorado, Boulder. USA. He pioneered new approaches through Inter disciplinary collaboration to understand the water cycle on multiple space and time scales. He served on the editorial boards of prominent international journals, and has lectured all over the world. Vijay is a fellow of the American Geophysical Union (AGU). He receivedthe2008 AGU Robert E. Horton medal for outstanding contributions to the geophysical aspects of hydrology". Vijay studied and practiced Simplified Kundalini Yoga (SKY) with Tatvagyani Vethathiri starting in 1976. He is currently investigating the deep and unified science that SKY philosophy offers.

PROFILES OF R&D FACULTY

Arulnidhi. INDIRA GUPTA,
USA

Indira's fascination for cultural assimilation and integration of East and West, to bring out the best in human potential, is timeless. Motivated by research on mind and meditation, she co-founded the International Institute for Simplified Kundalini Yoga (SKY), a non-profit 501(c)(3) organization, and serves as its President. Her background in psychiatry and counseling inspired her to teach the SKY system through retreats and workshops worldwide for four decades. She is dedicated to bring personal to planetary wellness through individual personality transformation for conscious co-evolution. Currently, she lives in Boulder, Colorado and collaborates with her husband Vijay Gupta on research projects involving the origin of consciousness based in pure space or Brahman. See https://cires.colorado.edu/emeritus/vijay-gupta under current research.

Dr. M.V. RABINDRANATH,
Consultant Physician

Basically a clinician, practicing for the past 52 yrs at Coimbatore; came to Yogiraj Vethathiri Maharishi in 1982. He took up research in the SKY system to validate it for wider acceptance by the society. He had taken initiative to conduct SKY Doctors conference annually, SKY DOCON; conducts monthly residential health camps and annual summer camps for adolescents. He is involving in Village Service Program and also working on models for life - force particle, astral & causal bodies and the genetic centre.

Dr. V.M. RAJASEKARAN, B.S.M.S., Ph.D. (Yoga).,
Director, Res & Devpt., Siddha Clinic, Aliyar.

A residential Siddha Doctor at Aliyar campus. actively involved in AYUSH Project.

As follower of Simplified Kundalini Yoga of Yogiraj Vethathiri Maharishi for 14 years, he is taking great interest to explore Ancient medicine system, with specific focus on Siddha field of Medicine and therapy. Presently he is involved in the research on "Effect of Simplified Physical Exercises and Kaya kalpa Yoga for the management of type 2 Diabetes mellitus.

PROFILES OF R&D FACULTY

Dr. S. SHANTHI B.S.M.S., Ph.D. (Yoga).,
Director, Res & Devpt, Siddha Clinic, Aliyar.

She is a practitioner of SKY system for 14 years. A part from her Siddha degree, she had completed MD in Acupressure and Acupuncture. She is involved in the research on Psycho Physiological effect of Vethathiri Maharishi's Kayakalpa Yoga on PCOS (Poly Cystic Ovarian Syndrome).

Arulnidhi. R.PACHAYAPPAN
Director Treaurer

He is involving in the financial supervision of the RAC to allow the committee to provide good governance. He is looking after the preparation of budgets, planning for the committee's financial supervision and control on all financial matters pertaining to the Committee and for maintenance of accounts and Audit.

Arulnidhi. S. SELVARAJ,
Vice President, WCSC, Director Finance.

An entrepreneur and philanthropist, he is taking great interest in the development of financial resources for all research projects suggesting application of the philosophy of Yogiraj Vethathiri Maharishi.

PROFILES OF R&D FACULTY

Dr. M. KANNAN M.Sc. (Hort)., Ph.D. (Hort).,
Dean, Adhiparasakthi Horticultural College,
Kalavai, Vellore Dt.

Dr. M. Kannan is one of the disciples of Yogiraj Vethathiri Maharishi. He had involved in the research project on the "influence of thought waves on Okra crop". He is one of the scientists associated with the release of more than one dozen horticultural crop varieties and a few technologies from TamilNadu Agricultural University. He is the recipient of 10 awards and is a member of various professional and academic societies like Indian society of Ornamental Horticulture, Horticultural Society of India, and Indian Society of Root Crops etc.

Dr K.SHOBA THINGALMANIYAN M.Sc. (Ag)., Ph.D.
Assistant Professor (Hort), TNAU, Coimbatore.

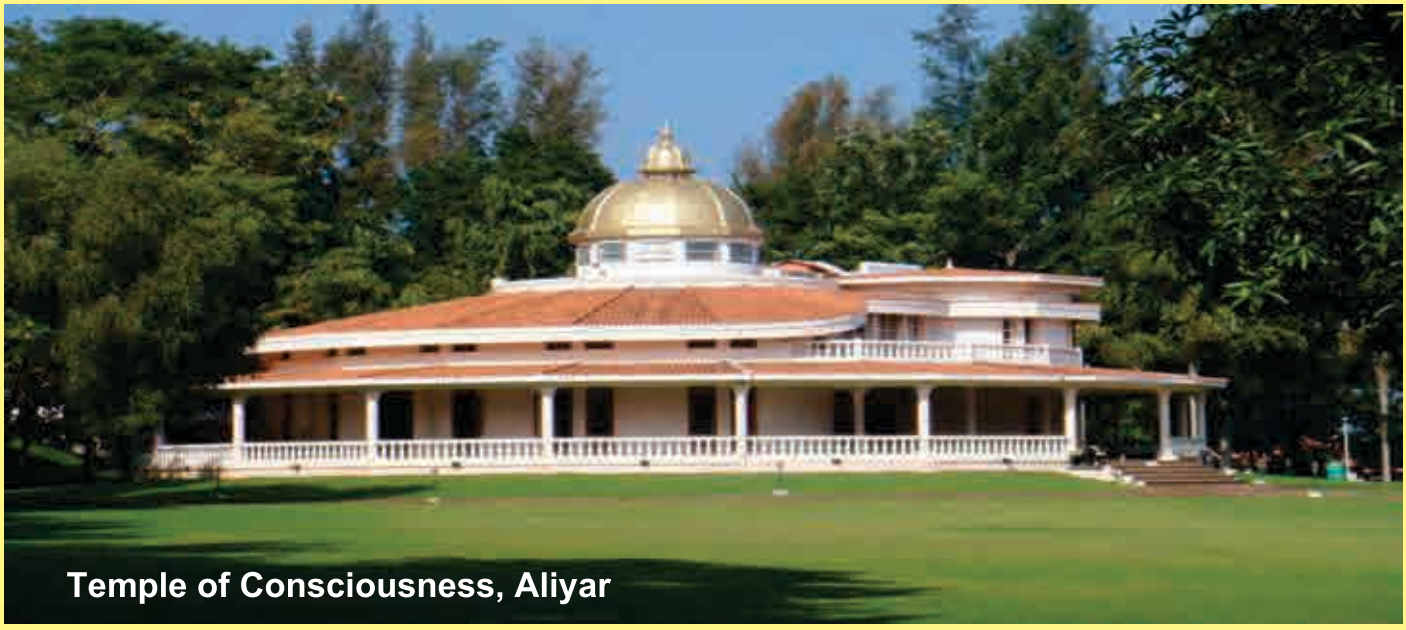
she is the Principal Investigator for WCSC - Give2Asia Project " Bio - prospecting the Scientific Principles on the use of Bio - Electro Magnetic energy as a new paradigm in improving soil health and productivity and drought resistance in Bhendi". She evinced keen interest in the project. She is having many awards for her talents, published 8 scientific articles, 7 books, practical manuals for students and 21 popular articles.

Arulnidhi. R. SURENDIRAN M.Sc. (Ag).,

Arulnithi Surendiran R, MSc., (Ag), one of the earlier disciples of Yogiraj Vethathiri Maharishi practicing SKY system of Yoga for more than 35 years. As an agricultural scientist, he is having wider knowledge in soil science and related researches through radio isotopes. With wider knowledge in Agricultural Statistics, he associated in the research project on the "Influence of thought waves on Okra crop", conducted at Tamil Nadu Agricultural University, Coimbatore.

Arulnidhi. PALANISAMY

A true follower of Yogiraj Vethathiri Maharishi and is having an experience of 28 years in SKY System. He assisted in conducting experiments on "Influence of thought waves on Okra crop", at Tamil Nadu Agricultural University, Coimbatore. He had written 12 books about Bagavath Geethai, Bible, Ramayanam, Thirukural and on subjects based on mind.


Temple of Consciousness, Aliyar

The World Community Service Centre,

HQ : 26, IInd Seaward Street, Valmiki Nagar, Thiruvanmiyur,
Chennai - 600 041.

* * *

Directorate of Research and Development

Temple of Consciousness, Arivuthirukovil, Aliyar

(A wing of WCSC)

Project Leader	**Dr. S. Letchoumanane** M.Sc.(Ag)., Ph.D., **Temple of Consciousness, Aliyar.**
Funded by	Give2Asia
Grant amount	**US $ 31,500/-**
Project with extension period	**April 2018**

EXPERIMENTS AT TEMPLE OF CONSCIOUSNESS ALIYAR.

Project Title:

"Bio prospecting the scientific principles on the use of Bio - Electromagnetic Energy as new paradigm in improving soil health, crop production and drought resistance"

Crop : Bhendi (Okra) *Abelmoschus esculentus L.*

Methods: Randomized Replicated Design.

N° of Expts conducted : 2

	Expt 1	Expt 2
N° of Replications :	**3**	**7**
N° of Treatments :	**6**	**3**

Results :

Experiment 1

STATISTICAL ANALYSIS OF YIELD OF OKRA
TOTAL YIELD IN kg FROM EIGHT HARVESTS

	R_1	R_2	R_3	R_4	MEAN	PERCENTAGE
T1	14488	14230	13173	12570	13615.25	87.89
T2	16434	152881	73061	49861	6003.5	120.84
T3	15434	18895	14246	15411	15996.5	120.74
T4	16948	16200	14365	15935	15862	118.89
T5	12470	11440	12284	12633	12206.75	68.45
T6	6662	8305	6895	7123	7246.25	

SED 808.09

CD (.05) = 1722.4193

Experiment 2

STATISTICAL ANALYSIS OF YIELD OF OKRA TOTAL YIELD IN kg FROM EIGHT HARVESTS

	R_1	R_2	R_3	R_4	R_5	R_6	R_7	MEAN	PERCENTAGE
T_1	10070	9897	11447	13253	12744	14024	12380	11973.57	114.41
T_2	10705	10993	10879	11739	2710	11786	13980	10398.86	86.24
T_3	5675	5893	5697	5982	4989	5017	5838	5581.429	

SED **1198.76**

CD **(.05) = 2611.9047**

Results and Discussions:

From the results of both the experiments, it is found that plants (okra) respond well to thought transaction in Theta frequency. The mean yield capacity of the crop had increased by more than 121% than untreated control in the 1st experiment. Panchagavya, being a natural product, was found to enhance the mean yield by 68.45%. There was no significant difference in yield between the combinations of Panchagavya with thought transaction (Table 1). Similar growth stimulant and biological efficiency enhancement effects of Panchagavya were observed in tomato (*Lycopersicon esculentum Mill)* by Gore et.al (2001). Foliar application of Panchagavya 3% along with application of organic manures was found to give increased qualities in rice (*Oryza sativa L.)* crop as recorded by Yadav et.al. (2005).

Increased yield response in both the experiments support our hypothesis that, induction of Bio Electromagnetic (Bio EM) energy via thought transaction influences the metabolic functions of the plant through growth and yield hormones.

Natural enemies against pests and diseases multiply normally in the crop environment; and the same condition prevailed also in the experimental field. Because of that, the pest population was under check and kept below the economic threshold, without the need of using any chemical fertilizer or pesticides.

Conclusion:

Plants respond well to thought transaction in low mental frequency. The growth and the mean yield increased to 121%. Panchagavya, being a natural product, was found to enhance the growth and mean yield by 68%. There was no significant difference in mean yield between thought transaction alone and in combination with Panchagavya.

Natural enemies against pests and diseases multiplied naturally in the crop environment there by the pests multiplication was checked without using any chemical fertilizer or pesticides.

The above two findings are very significant in their potential impact to enhance food production safely free from pesticides residues, mitigating environmental pollution and eliminating health hazards due to current practices of chemical agriculture.

N.B: 1 The results of the above experiments were published in the journal Ancient Science, Anc Sci, Volume 1, Issue 2, November 2014, titled as Effect of Thought transaction on "Okra" Yield with authorship S Letchoumanane and Vijay Gupta.

N.B: 2 Photos related to the Experiments conducted at Temple of Consciousness, Aliyar are given in the ensuing pages.

Photos on the Field Experiments conducted at Temple of Consciousness, Aliyar.

Field boards with Experimental details

Green manure crops raised before start of the experimental crop okra (Bhendi)
Well grown crop of sunhemp, *Crotalaria juncea.* (on the left)
A luxurious crop of daincha, *Sesbania aculeata* with rich root nodules of Rhizobium bacteria, fixing atmospheric nitrogen. (on the right)

Well germinated stage of the crop to start the treatments

Field view of fast growing Bhendi crop

Arulnithi. SKM. Maeilanandhan, President WCSC., (3rd from left) with A/N. M.K. Dhamodaran, Vice President, WCSC, A/N. Dr S Letchoumanane, Director, Res & Devpt, Project Leader Give2Asia (1st & 2nd from left) and A/N. P Muruganandham Director, VSP. (4th from left); visiting the experimental field.

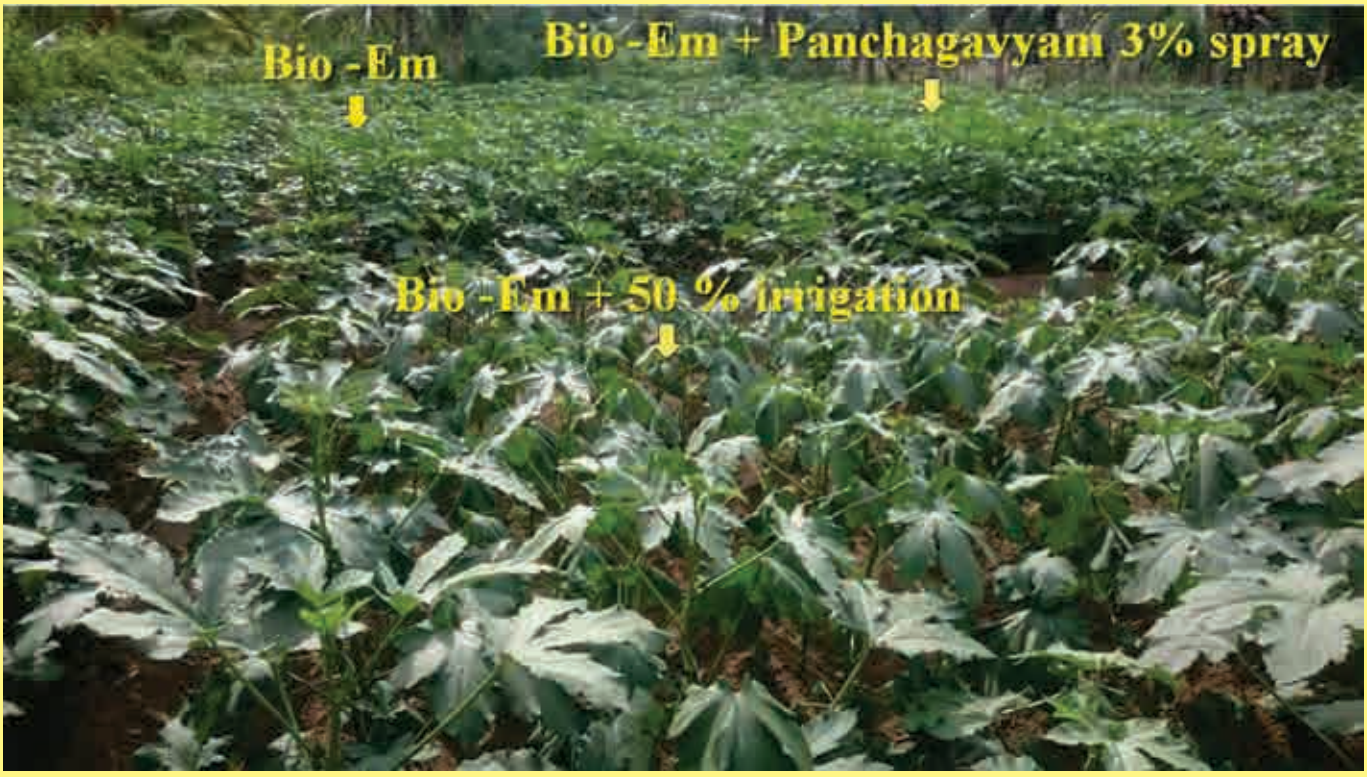
Dr S Letchoumanane passing "thought waves" as "Bio - Em" wishing a good crop and yield on selected plots. of Bhendi.

Periodical visits by the Project leader on crop growth performances

Visit by women participants attending Simplified Kundalini Yoga program at Temple of consciousness, Aliyar, to see the influence of thought waves (Bio - Em) on the growth of bhendi crop.

Fast vegetative growth phase of Bhendi with differential growth heights with different treatments.

Another field view. Growth variations with different treatments



Bio - Em treated plot with 50% irrigation having comparatively less growth and wilted condition.

Plot with 50% irrigation without Bio - Em presenting less growth and more wilted stand.

Plot with 50% irrigation + of Bio - Em is having comparatively better growth than the plot with 50% irrigation without Bio - Em as seen above.

Scientists from Tamil Nadu Agricultural University (TNAU) Coimbatore inspecting the experiment. From left to right - Dr A Beaulah, Assoc Prof Hort., Dr N Shoba, Prof Hort., Dr S Mariappan, Dean Hort., and Dr S Letchoumanane Project Leader with his Asst R Boopathy.

Trustees of Temple of Consciousness Jaffna, Sri Lanka, practicing to pass Bio - Em on to plants - Bhendi at Aliyar campus.

Harvest of Experiment
Differences between Bio - Em Treatment and control not only on growth but also on yield are well established

Dr N Shoba Prof. Hort., (left) Dr S Mariappan Dean, Hort (centre) from TNAU with Dr S Letchoumanane, Project Leader (right) inspecting the experiment at Aliyar.

Dr K Shoba Thingalmaniyan, Asst College of Horticulture and Coordinator of the WCSC-Give2Asia Project at TNAU Coimbatore visiting the experimental crop at Temple of Consciousness Aliyar.

Dr N Shoba Prof. Hort., (left) Dr S Mariappan Dean, Hort (centre) from TNAU with Dr S Letchoumanane, Project Leader (right) inspecting the experiment at Aliyar.

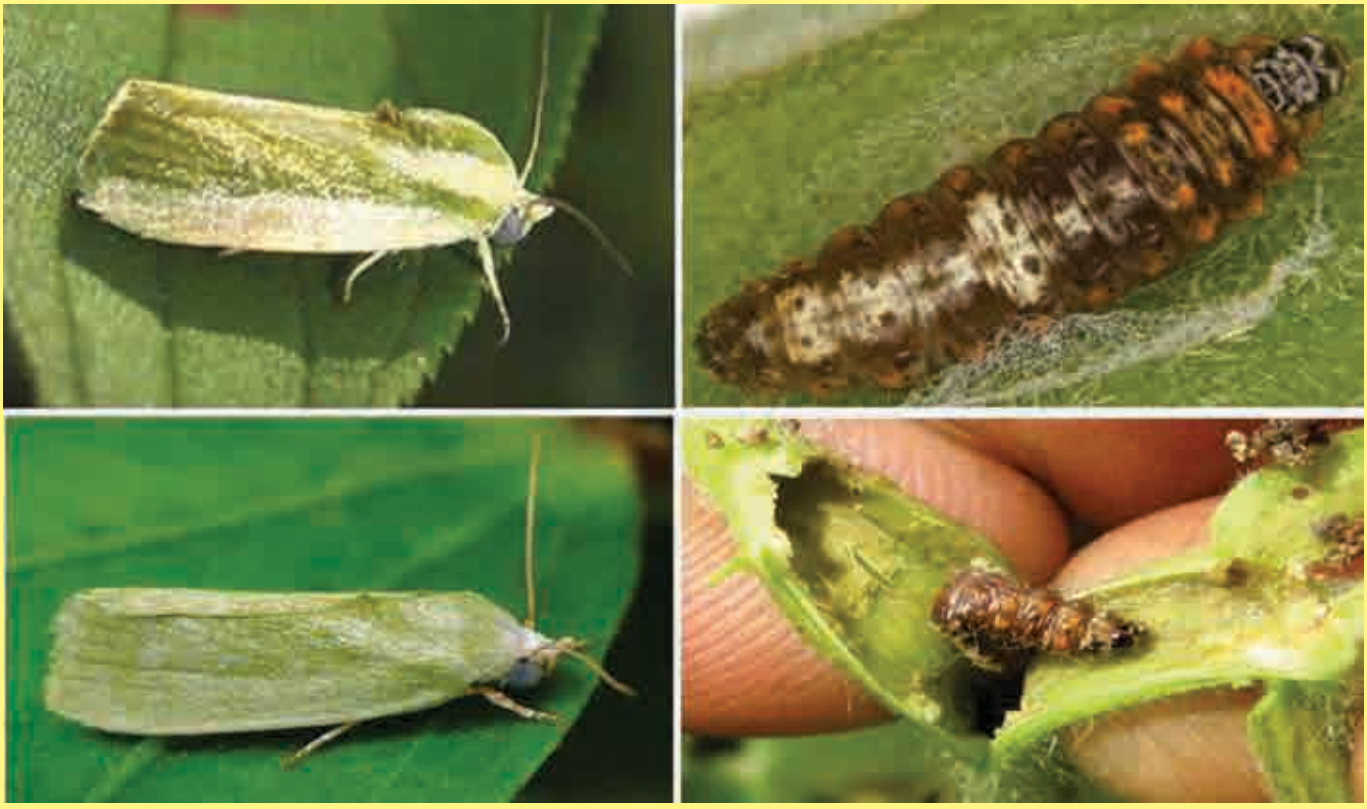
**A well grown up crop of Bhendi at harvest.
Temple of Consciousness, Aliyar**

Fresh, tasty, nutrient rich and totally chemical free bhendi fruit.

Encountered Pest Incidences on bhendi at Aliyar

Damage by shoot and leaf fly - *Melanagromyza obtusa* (Pic 1). Shoot fly maggot mining petiole, (Pic 2) causing drying of leaf.

Pictures 1 to 4: Various stages of leaf roller - *Sylepta derogata* damaging bhendi
Pictures 5 to 7: Nymphs and adult of leaf hopper - *Amrasca biguttula biguttula*



Shoot and fruit borer - Earias spp. Adults and larval stages

Blister beetle - *Mylabris pustulata* damaging bhendi flowers

Red cotton bug - *Dysdercus cingulatus* sap sucking pest on bhendi

NB : Incidences of pests were very minimal (below threshold level)

Natural occurrences of beneficial insects - "Guardian" of bhendi crops, prevailed in the experimental environment.

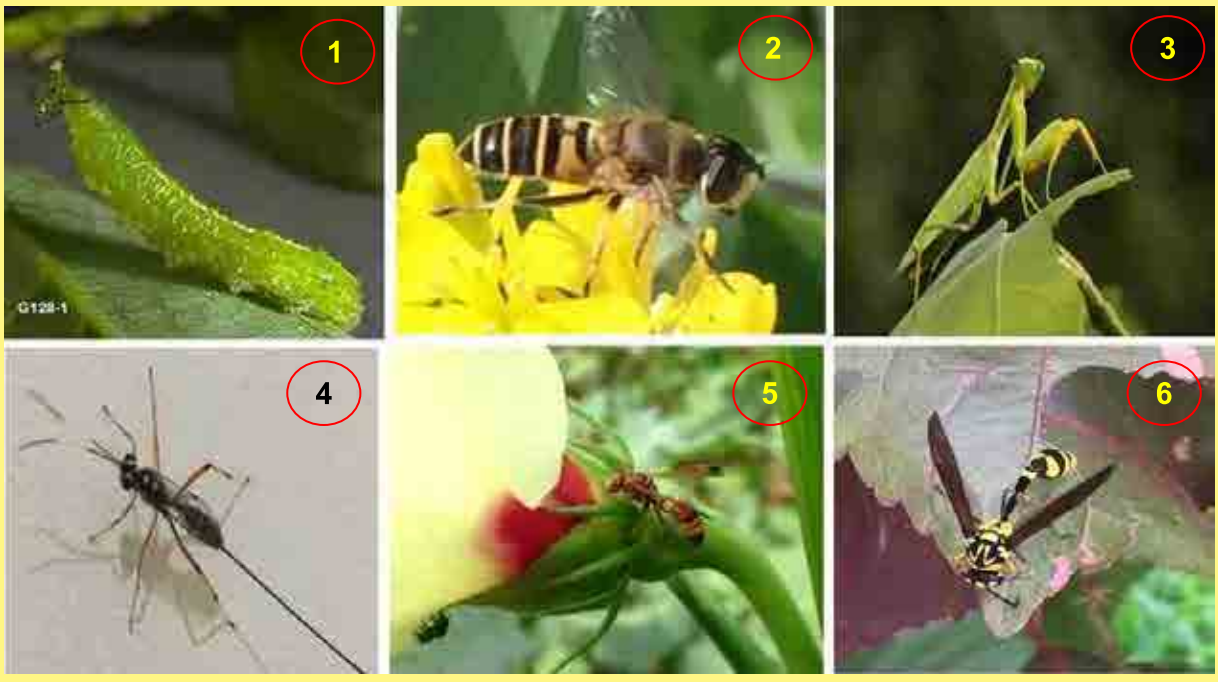
Different species of Coccinellid bettles / lady bird beetles with young ones (grubs) feeders of aphids / plant lice.

Trap crop cow pea - *Vigna unguiculata* grown around bhendi crop.

Lady bird beetles multiply fast in cow pea , migrate to bhendi field , check multiplication and damage to bhendi crop by aphids. (Inset photo)

Beneficial insects - “Guardian” of bhendi crops prevailing in the experimental environment

Dragon flies of different kinds predating on flying stages of jassids, aphids etc., keep the field free of such pests.



Images: 1 & 2 syrphid larva & adult feeders of aphids; 3 praying mantid; 4 parasitoid wasp, 5 & 6 predatory wasps. Protectors against pests.

A Collaborative Research

Temple of Consciousness, Aliyar.

Tamil Nadu Agri University, Coimbatore.

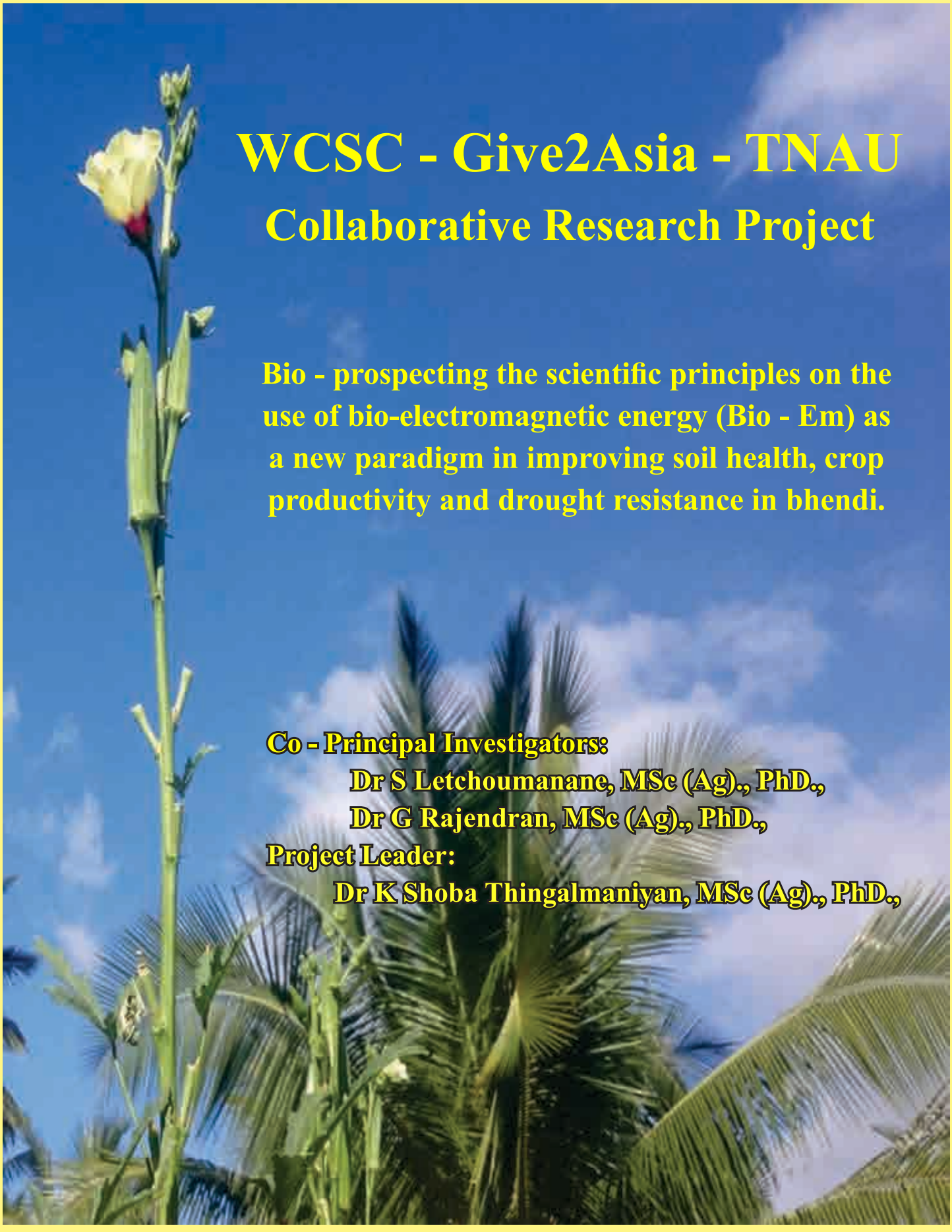
World Community Service Centre

and

Tamil Nadu Agricultural University

Project

"Bio prospecting the scientific principles on the use of Bio-Electromagnetic Energy as new paradigm in improving soil health, crop production and drought resistance"



WCSC - Give2Asia - TNAU

Collaborative Research Project

Bio - prospecting the scientific principles on the use of bio-electromagnetic energy (Bio - Em) as a new paradigm in improving soil health, crop productivity and drought resistance in bhendi.

Co - Principal Investigators:

Dr S Letchoumanane, MSc (Ag)., PhD.,

Dr G Rajendran, MSc (Ag)., PhD.,

Project Leader:

Dr K Shoba Thingalmaniyan, MSc (Ag)., PhD.,

Dr K Ramasamy, former Vice - Chancellor, TNAU., As an eminent scientist, he served for 36 yrs in various capacities in Departments of Soil Science, Plant Pathology, Agrl Micro Biology, Bio - Energy and Bio - Technology. He was instrumental to take up the experiments on the "Effect of Thought Waves (Bio - Em)" on plants. In collaboration with TNAU Scientists.

Dr N Kumar, the present Vice - Chancellor, TNAU with his 35 yrs of scholastic aptitude in teaching and research in the field of horticulture, contributed many technologies like improved crop varieties, standardized technologies of fertigation, high density planting systems in banana, papaya and mango. He is recipient of many awards & was honored as Fellow of Horticultural Society of India, New Delhi.

Memorandum of Understanding

A Memorandum of understanding had been signed between Tamil Nadu Agricultural University, Coimbatore and The World Community Service Centre, Thiruvanmiyur, Chennai on 31st Dec 2014.

Photo: (from left) Dr R Murugesan, Director (ABD), Dr R Rabindran, Registrar, TNAU, Coimbatore, Dr G Rajendran, former Prof and Head, Dept of Plant Nematology & Co Principal Investigator of the Project, Dr S Letchoumanane, former Prof of Entomology TNAU, & Co Principal Investigator of the Project, and present Director, Research & Development WCSC, Temple of Consciousness, Aliyar.

Project:

Bio - prospecting the scientific principles on the use of bio-electromagnetic energy (Bio-Em) as a new paradigm in improving soil health, crop productivity and drought resistance in bhendi.

Objectives:

- To field test the effect of Bio - EM principles using thought transaction in "Theta frequency" in improving food production.
- To test the efficacy of Bio - EM and Panchakavya on their feasibility and adaptability in improving food production.
- To test the efficacy of Bio - EM with 50% reduced irrigation in increasing food production and drought tolerance.
- To evaluate the effect of Panchakavya on crop productivity and quality of the produce.

No of Expts conducted : 2 Treatments : 7 Replications : 3

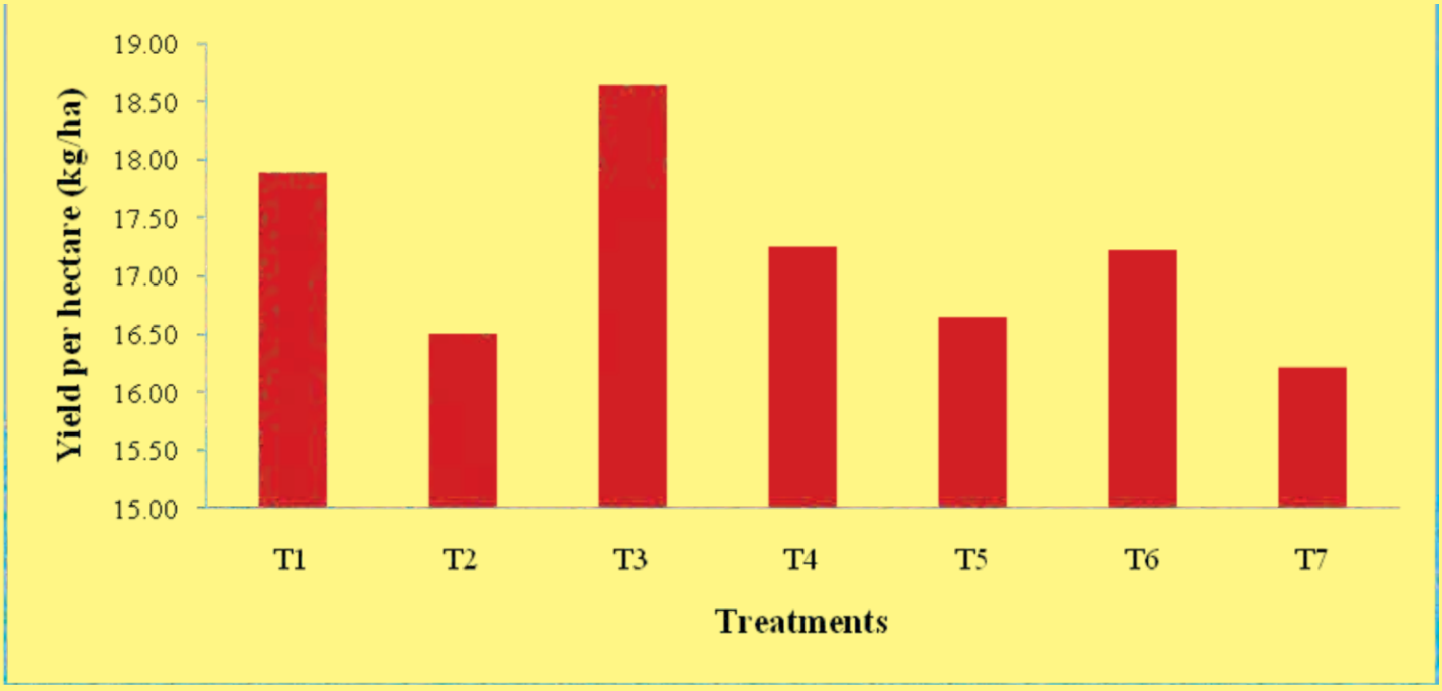
Treatments Details :

1. **Bio - EM 5mts.**
2. **Panchakavyam 3% spray.**
3. **Bio - EM + Panchakavyam 3% spray**
4. **Bio - EM + Alternate Irrigation.**
5. **Alternate Irrigation.**
6. **Recommended Fert. Dose**
7. **Control (Untreated).**

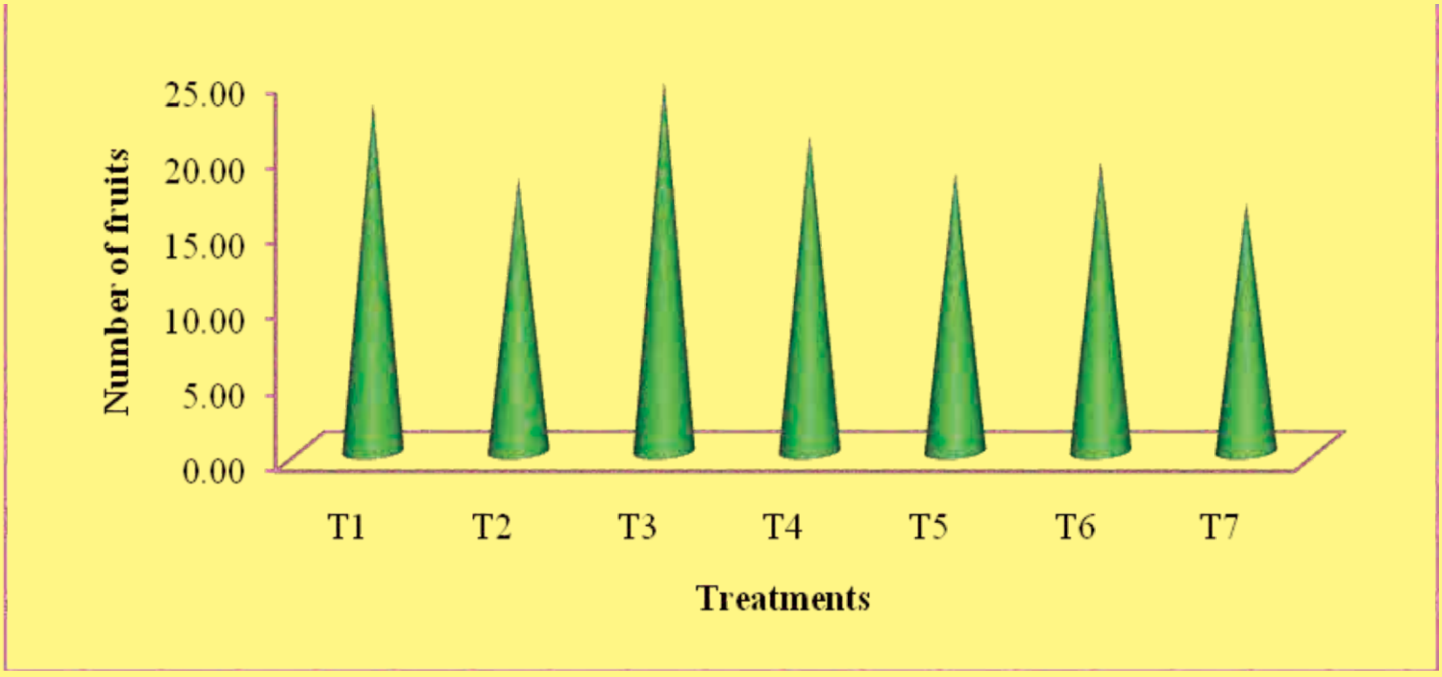
Effect of Bio - EM and Panchagavyam on biometric, yield and quality parameters in Bhendi (pooled analysis for two seasons)

Treatments	Plant height (cm)	Number of leaves per plant	Leaf area (cm^2)	Total chlorophyll ($\mu g\ cm^{-2}$)	Total phenols ($mg\ g^{-1}$)	Polyphenol Oxidase ($OD\ min^{-1}g^{-1}$)	Number of fruits per plant	Yield (Kg/ plot)	Yield (tonnes/ ha)	Crude fibre content (%)	Protein content (%)
T1	99.32	73.65	175.73	62.66	2.07	0.806	23.14	15.42	17.72	11.09	19.44
T2	92.55	63.86	163.83	52.29	1.69	0.728	18.16	14.17	16.39	10.18	17.88
T3	103.79	77.41	182.29	64.63	2.14	0.842	24.66	16.33	18.52	11.46	20.19
T4	96.43	69.96	173.16	53.65	1.93	0.789	20.90	15.44	17.24	11.00	18.98
T5	88.74	61.93	124.22	49.87	1.53	0.717	18.47	14.30	16.19	10.31	17.26
T6	95.15	65.26	162.01	51.84	1.74	0.749	19.30	15.24	16.98	10.62	18.11
T7	85.95	50.49	113.09	44.70	1.44	0.596	16.49	13.30	15.42	9.67	15.69
Mean	**94.56**	**66.08**	**156.33**	**54.23**	**1.79**	**0.747**	**20.16**	**14.89**	**16.92**	**10.62**	**18.22**
SED	0.6916	0.6093	0.7417	0.5265	0.0964	0.0111	0.2879	0.1661	0.1693	0.1359	0.1971
CD (0.05)	1.4247	1.2552	1.5278	1.0845	0.1987	0.0228	0.5931	0.3421	0.3488	0.2961	0.4061

Effect of Bio - Em and Panchakavyam on Bhendi Yield / ha



Effect of Bio - Em and Panchakavyam on number of fruits per plant



Salient Findings:

1. **Bio - Em with Panchakavya (3%) recorded the highest value for bio metric, yield and quality parameters followed by the Bio - Em and Recommended dose of fertilizers Viz.,200:100kg NPK./ha.**

2. **Bio - Em alone produced fruit yield almost equal to the treatment of recommended dose of fertilizer (RDF) but significantly higher than control.**

3. **Bio - Em found to influence the efficiency of water use thereby enhancing the drought tolerance apart from giving higher yield and improved bio metric parameters compared to 50% reduced irrigation alone.**

Photos on the Experiments conducted at TNAU Coimbatore

**Dr G Rajendren (Project coordinator for TNAU)
and Dr S Letchoumanane examining Daincha, a green manure crop raised
in the field prior to the start of experiment.**

Bhendi seed treatment guided by Dr Rajendren (left) the project coordinator.

**Traditional rituals being performed before the start of sowing.
Workers offering prayers to "Nature" for a prosperous crop.
Dr K Shoba, Project leader and other scientists attend the ceremony.**

Sowing of bhendi under progress with drip irrigation lay out

Emerging bhendi crop being examined for any pest incidence
(Right to left) Dr S Letchoumanane and Mr R Surendiran (Project Coordinators)

Field view at flowering stage
Collection of information's by Dr K Shoba (left) and Mr R Surendiran (right)

Dr S Letchoumanane and Dr G Rajendran
Coordinators of the project (left to right).

Dr K Shoba, the project leader (fore ground picture)
and the field assistant inspecting the crop.

Different levels of growth with different treatments

Bio -Em treatment being given by the scientists

Enhanced plant growth in Bio - Em treated plants compared to that of untreated control

Arulnithi R Pachayapan, Director (Finace) and Trustee of Temple of Consciousness Aliyar, 3rd from left, visiting the experiment at TNAU Coimbatore.

Pesticides free bhendi fruits

Thanks to Computer Assistants

Mr R. Boopathy
Mr K. Seethamani

On Farm Trials

Field Trial of Bio - EM in Farmers Fields

Dr S Letchoumanane inspecting rice crop raised by Mr K Pitchandi (right) of Kalambur Village, Tiruvanamalai Dt: to test the influence of Bio - Em.

Groundnut crop raised by Mr K Pitchandi (2nd from left) to test the influence of Bio - Em at Kalambur Village

Mr Pichandi (2nd from left) an organic farmer, composting all agrl. waste in his farm yard.

Mr Pichandi (2nd from left) proudly standing by the side of well ripened compost ready for application.

Dr S Letchoumanane (in the centre) visiting paddy crop with treatment of Bio - Em. On his left is Mr Pazhani, of Sozhavaram village, Tiruvanamalai Dt., an enthusiastic farmer in the application of Bio - Em in crop raising.

Mr Pazhani (1st frm left) showing to Dr Letchoumanane (center), his one day old transplanted paddy crop intended for testing the Bio - Em

Dr Letchoumanane (center) demonstrating the application of Bio - Em on finger millet cultivated by Mr Mathaiyan, a school teacher (1st from left) of Balajangamahalli village of Dharmapuri Dt.,

A good crop of groundnut raised by application of Bio - Em.
Standing (left) 85 yrs old Mr P. Govindan father of Mr Mathaiyan (right).

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Effect of Thought Transaction on 'Okra' Yield

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ABSTRACT

The foundation of this research lies in the hypothesis that thoughts transmit BioElectroMagnetic (BioEM) energy. We review pertinent literatures from the ancient science of yoga and the modern science to provide a scientific rationale for our hypothesis. Two field experiments—randomized block design with multiple replications—were conducted at the Temple of Consciousness, Aliyar, Tamil Nadu, India, to study the effects of thought transaction in Theta mental frequency on okra (*Abelmoschus esculentus L*) yield. In addition, 3% "*Panchagavya*", as described in the ancient science of Indian agriculture called *Vrikshayaurveda*, was employed in this study. Thought transaction resulted in significantly higher yields with or without the application of *Panchagavya* than untreated control. Appearance of aphids, a sap-sucking pest noticed at 20 days after sowing the crop, was naturally suppressed by enemies like lady bird beetle (*Coccinella sp.)* and hover flies (*Syrphids*). The crops were found to be pest- and disease-free without applying any pesticides. Therefore, our research addresses an economically viable and safe crop production practice in contrast to the modern and industrialized agricultural practice that has deteriorated the human and the environmental health.

Keywords: *Thought transaction, Bioelectromagnetic* (BioEM) energy, *Theta frequency, Panchagavya, Agriculture*

Introduction

There is a long tradition of indigenous farming knowledge in India. It is being revived through scrutinized and modern scientific research. We investigate the role of thought transaction in enhancing crop yield without harmful side effects on human health and the environment. Modern industrialized agricultural practices have caused extensive soil erosion, excessive use of water in agriculture, increased salinity, pollution due to fertilizers, herbicides and pesticides, reduction of socio-economic values and degrading effects on environment, humans and animals, danger to food security, quality and safety, and reduced bio-diversity. A lack of sustainable agricultural policy for the future generations and the gravity of environmental degradation are drawing attention of scientists, planners and farmers towards ecologically sound, viable and sustainable farming systems for different soil and agro-climatic situations. For instance, Shiva [1,2] has condemned industrial agriculture as a recipe for ecological and economic disaster. An effective alternative is small independent farms to ensure biodiversity that is inherent to the traditional farming practiced in small-scale organic agriculture systems in India [3]. They have proven to be highly effective, productive and sustainable [4].

To meet our objective stated above, we use the simplified Kundalini Yoga (SKY) system, pioneered by a contemporary philosopher Yogiraj Vethathiri Maharishi, which encompasses ancient wisdom, theory and practices for the modern age [5]. The SKY system of meditation is based on linking one's mind with the life force in the body. It is also known by other names in the literature such as Kundalini energy in ancient yoga, Qi in Chinese healing [6], Bioenergy [7] and Bioelectricity in the ancient Indian acupressure for self-healing [8]. Vethathiri [9] defined the life force current in a living system as a group of very minute 'life-force particles' circulating throughout the

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physical body of a living system. Circulation of the life-force particles is akin to the 'electrons' in an electric current flowing through a wire. These life-force particles generate bio-magnetism [9] or the BioElectroMagnetic (BioEM) field that supports the hypothesis of a close connection between life force and BioEM. Indeed. Waechter [6] hypothesized that "Qi" or the "life-force" is closely related to the BioEM energy. Dhamodharan [10] experimented with the SKY meditation system using Electroencephlogram (EEG) where the mental frequencies were systematically reduced from Beta to Alpha to Theta to Delta during meditation. These findings serve as the key motivation for our overarching scientific hypothesis tested here that thoughts transmit BioEM energy.

We review pertinent literature from the ancient science of yoga and the modern science to provide a scientific rationale for our hypothesis. The ancient science of yoga was formalized in India thousands of years ago, and it is rooted in mind and consciousness [11]. It may be contrasted with the modern science that is rooted in matter, and was formalized about 500 years ago [12]. We show the effect of thoughts on enhanced yield of okra through carefully conducted plot-scale experiments without applying any fertilizers and pesticides. Results of this study demonstrate how mind influences matter and that mind is not limited to brain that the modern science posits [12].

In India, it has been a traditional practice of farmers to worship soil, water, sun, seeds, farm implements and farm animals before the cultivation of crops. Farmers visited their fields at dawn and went around their crops to bless them. Their thought waves created the positive and desired effects on the crops and the farmers reaped a good yield at the end of a season. Can thoughts have a measurable effect on crop yield? It is a fundamental question that the authors investigate in this study.

The rest of the paper is organized as follows. Section –2 on the review of literature is divided into two subsections. The first one gives a brief review of the literature on the ancient science of *Vrikshayaurveda* (Ancient Indian science of plant life) [13], pertinent to this research. The second subsection provides a brief review of a new experiment describing how thought transaction in Theta mental frequency affects plants in a laboratory under controlled conditions. Section-3 reviews pertinent literature from the ancient science of yoga and the modern science to provide a scientific rationale of our hypothesis. The experimental study to test our hypothesis is given in Section-4. The results of this study are given and discussed in Section-5. The conclusion and future topics that are yet to be explored are described in the two end sections.

A Brief Review of Literature

Our review of the literature is divided into two parts. The first part reviews pertinent concepts from the ancient science of Vrikshayaurveda. The second part reviews a recent study regarding a laboratory-scale experiment on the impact of thought transaction in Theta mental frequency on plants.

1. Ancient Indian Science of Vrikshayaurveda

India has a grand scientific legacy that is thousands of years old. We call it "ancient sciences from India". Many Indian sages and revelators made profound contributions to the ancient sciences. The evidence includes the first accounts regarding gravity, inventing the concept of zero, earth's spherical nature and rotation on its axis, architecture, astronomy, literature, mathematics, agriculture, medicine, surgery, yoga and many others [13].

The traditional system of Vrikshayaurveda that developed in India is attributed to Surpala dated around 1,000 AD [14], but references to ancient agriculture predate it to the Vedic period [3]. Vrikshayaurveda described the use of Panchagavya in agriculture. Panchagavya consists of nine products, but the name derives from five cow products; dung, cow urine, milk, curd, and ghee. The other four are, banana, Tender coconut, Jaggery (raw cane sugar) and water, which are added later as additives for further improving its quality. Tamil Nadu Agricultural University (TNAU) portal on organic farming [15] gives comprehensive modern information about it. Maheswari et al [16] have reported on the basis of chemical analyses of Panchagavya that it contains flavones, phenolic compounds, steroids, vitamins and several other compounds that are useful for plant growth. Indeed, modern research at TNAU conducted by their group has observed that Panchagavya enhances crop yield. Yadav and Lourduraj [17] have demonstrated that it works as a biopesticide. Our research results presented here give an independent support that Panchagavya gives an enhanced crop yield.

2. Effect of Thought Transaction on Plants

Rajendran et al [18] conducted a laboratory experiment using thought transaction on tomato plants that were infested with root-knot nematodes. The thought transaction technique consisted of two steps: (i) The experimenter transacted thoughts in Theta metal frequency via SKY medication that is defined in the next section. (ii) The thought transfer to the plants was that "the plants in the treatment should be protected from the nematodes and the plant should grown in high vigor and able to resist the attack of nematodes".

The tomato plants were raised in pots of 1.5 kg capacity filled with sterilized pot mixture in a glass house. A plant with sterile soil without nematode was categorized as the "control set". The second set of treatment was with inoculum level of 1000 larvae/plant that received no thought transaction. The last set of treatment was with tomato with 1000 larvae/plant with thought transfer, as explained above.

After daily transaction for 45 days, the plants were examined for root growth, vigor and for the development of any root knots/galls due to nematode. The treated and untreated plants were subjected to biochemical analysis. The treated plants were observed to be healthy with more number of roots and no galls compared to the control and the plants that received no

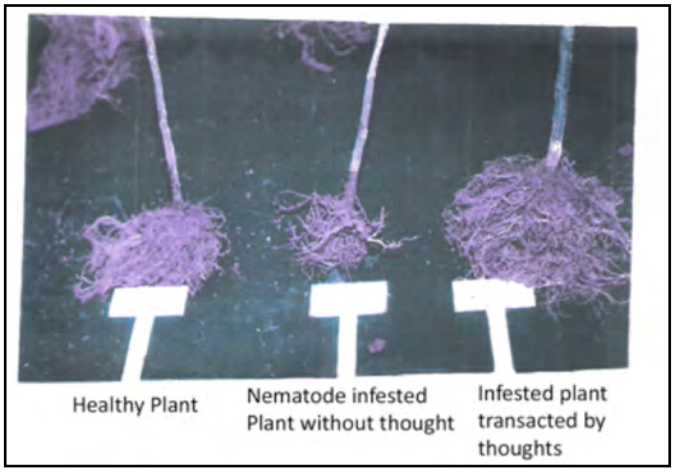

Figure 1: Effect of thought transaction for inducement of resistance [18].

thought transaction. The plant growth characteristics were perceptibly enhanced due to increased vigor as shown in Figure 1.

This study revealed that the increased chemical stimulation enhanced protein profiles and enzyme activities such as peroxidase and polyphenol oxidase, which in turn were responsible for resisting the invasion. In-depth chemical analysis is given in Rajendran et al [18]. Response to music by plants is known to science as the sound vibrations activate or depress the plants based on vibration. Plants respond to external stress of environment [19]. This study demonstrated that the plants respond to thoughts in low mental frequency of the scientist by modifying their chemical composition and behavior.

A Hypothesis Linking Thought Transaction with BioElectromagnetism

Bose [20] conducted the first set of experiments to test how plants respond to external electro-magnetic (EM) stimuli. An electric current passing through a wire generates magnetic field, which is known as the EM field in Physics [21]. The study concluded that, "the growing plants not only perceive but also respond to the stimulus of electrical waves. These effects were found in all growing plants". This research offers the first step towards understanding the work of Rajendran et al [18] reviewed above. We hypothesize that thought transacts BioEM energy, and review pertinent literature from the ancient science of yoga and the modern science to provide a scientific rationale for our hypothesis.

Saint Patanjali, who lived prior to 150 BCE or 2164 years ago [13], formulated the ancient science of yoga in his renowned 196 Yoga-Sutras. Taimni [11] translated the yoga sutras in English and provided an in-depth and comprehensible commentary on their significance. Patanjali defined Yoga in four Sanskrit words, "yogas chitta-vritti-nirodhah", translated as, "Yoga is the inhibition of modifications of mind". Yograj Vethathiri Maharishi [5, 22] developed the SKY meditation system for the modern age that is based in linking mind with the life force in the body as explained in the introduction.

Modern research has shown that brain works in different frequencies that can be measured using EEG. These are, (1) the normal Beta frequency (12-35 cycles per second (cps)), (2) Alpha (8-12 cps), (3) Theta (4-8 cps), and (4) Delta (0.5-4 cps) [23]. Dhamodharan [10] took EEG measurements on him-self during SKY meditation, so he could observe brain frequencies in different stages of meditation. He found that mental frequencies couldn't be separated from the brain frequencies. This is a very fundamental finding because it gives a clear road map to how different mental frequencies correspond to different stages of SKY meditation [5, 22]. In Delta frequency, mind of a mediator begins to go beyond the dualistic nature of reality. Thus, it provides an experiential (observational) basis for the non-dual state of reality that was explained and written elaborately by ancient Indian sages. SKY streamlined the process for all the meditators to experience the state of oneness. There is a huge literature on this topic that is beyond the scope of our research.

Main Hypothesis: Thought transaction on an object transmits BioEM energy to that object.

Cutting-edge biological experiments have demonstrated the influence of environment on cells. Quoting from Lipton [24] "specific frequencies and patterns of EM radiation regulate DNA, RNA, protein synthesis, control gene regulation, cell division. Moreover, EM frequencies are 100 times more efficient in relaying environmental information to cells than physical signals". The fact that EM and BioEM energy are environmental input to the plant cells should be noted. It gives a scientific rationale for our hypothesis. One expects that BioEM input to crops via thought transaction can greatly increase yield without any of the health and environmental hazards that accompany modern chemical and biotechnological agricultural practices. We tested our hypothesis on okra yield in a set of carefully conducted field experiments.

Experimental Details

We studied the effects of thought transaction in Theta mental frequency using the SKY system, and also evaluated the effect of Panchagavya on okra (lady's finger, or *Abelmoschus esculentus L).* Okra was selected for our study because it is a short-term crop. Two experiments were conducted in 2010 and 2011 in randomized replicated trials at the Temple of Consciousness, Aliyar, India. The first experiment was conducted with six treatments, T_1-T_6 and four replications R_1-R_4 while the second was done with three treatments (T_1, T_2, T_3) and seven replications, R_1-R_7. The plot sizes in both the experiments were 4 m x 5 m.

Our field-scale agriculture experiments differ from those conducted under isolated conditions in a laboratory [18]. Our

main goal is to advance organic farming in real-world situations. In a non-isolated and open system like ours, there are undoubtedly random influences of various sorts that can not be controlled. That is why the experiments were replicated, experiment-1 four times, and experiment-2 seven times in randomized block design as mentioned above. The details of treatments are given below:

Treatments in Experiment-1

The treatments are defined as follows, T_1: Thought transaction for 2 min; T_2: Thought transaction for 5 min; T_3: Thought transaction for 5 min + Panchagavya 3%; T_4: Thought transaction for 2 min + Panchagavya 3%; T_5: Panchagavya 3% alone; T_6: Untreated control.

Treatments in Experiment-2

T_1: Thought transaction for 5 min; T_2: Thought transaction for 2 min; T_3: Untreated control

In the first experiment the crop was sown as per normal recommended practices in agricultural sciences. The authors gave thought transaction in Theta frequency between 6.30 AM and 8.30 AM every day that consisted of 'wellness of the crop and good yield' on all plots except the control. Each experiment was continued up to 60 days from the date of sowing, and the yield of pods was recorded up to the 8th harvest.

Treatment with Panchagavya was given as 3% spray in the evening between 4.30 PM and 5.30 PM at 10 days interval. Observations were made on the advent of pests and disease and the emergence of their natural enemies. No chemical pesticides were used at any time in the experiment. In the second experiment same procedure as in the first experiment involving thought transaction was adopted.

Figure 2: A snapshot from the field experiment during treatment T_2 and replication R_2

Results and Discussion

We totaled the yield from the 8 harvests for each plot in each experiment and analyzed the data separately. We assumed that yield from each treatment is statistically independent but differs from one another in its mean, but otherwise it comes from a common probability distribution. As a result of this assumption, we pooled all the data sets together, and computed the standard deviation (SED) = 808.09. A 5% confidence interval was computed around the mean ± a value D/2, where D is the critical difference (CD) = 1722.42. The reader may observe from Table-1 that yield for each treatment and each replication falls within the 5% confidence interval around the corresponding mean yield.

Figure 2, shows a snap shot from the field experiment during treatment T_2 and second replication R_2. From the results of the first experiment, it is found that plants respond well to thought transaction in Theta frequency. The mean yield of the crop is increased by more than 121% over the untreated control. Panchagavya, being a natural product, was found to enhance the mean yield by 68.45%. Gore and Sreenivasa [25] have observed similar growth stimulant and biological efficiency enhancement effects of Panchagavya in tomato. Yadav and Lourduraj [17] reported that foliar application of Panchagavya 3% along with application of organic manures gave enhanced rice quality.

There was no significant difference in yield between the combinations of Panchagavya with 5-minute thought transaction treatments T_3 and without Panchagavya T_2 as shown in Table-1. Interestingly, the yield in treatment T_1 increased to that in T_2 and T_3 when the 2-minute thought transaction was combined with Panchagavya in treatment T_4. Moreover, the mean yield from treatments T_2, T_3, T_4 turned out to be about the same. This finding suggests that under the 5-minute treatment, the okra yield reached its maximum potential, and adding Panchagavya did not increase the yield any further.

In the 2nd experiment, thought transaction of 5 min and 2 min durations (T_1 & T_2) were adopted as shown in Table-2. Treatment with Panchagavya was eliminated on the basis of the results obtained in the first experiment shown in Table-1, and discussed above. The computed values of SED=1198.7, and CD (.05) = 2611.9047. It leads to results that are similar to those in Experiment-1. The yields for each treatment and each replication fall within the 5% confidence interval around the corresponding mean yield.

Increased yield response in both the experiments supports our hypothesis that induction of BioEM energy via thought transaction in Theta frequency gives substantially higher yield. We also conjecture that the strength of BioEM energy increases as the mental frequency decreases. Our research suggests that the metabolic functions of the plant are influenced through growth and yield hormones. Natural enemies against pests and diseases multiply normally in any crop environment, and the

Table 1: Statistical analysis of total yield of okra in Kilograms from experiment-1

Type of Treatment	R_1	R_2	R_3	R_4	Mean Yield in kg	Percentage Increase over control
T1	14488	14230	13173	12570	13615.25	87.89
T2	16434	15288	17306	14986	16003.5	120.84
T3	15434	18895	14246	15411	15996.5	120.74
T4	16948	16200	14365	15935	15862	118.89
T5	12470	11440	12284	12633	12206.75	68.45
T6	6662	8305	6895	7123	7246.25	Control

Table 2: Statistical analysis of total yield of okra in Kilograms from experiment-2

Type of Treatment	R_1	R_2	R_3	R_4	R_5	R_6	R_7	Mean Yield in kg	Percentage increase over control
T_1	10070	9897	11447	13253	12744	14024	12380	11973.57	114.41
T_2	10705	10993	10879	11739	2710	11786	13980	10398.86	86.24
T_3	5675	5893	5697	5982	4989	5017	5838	5581.43	Control

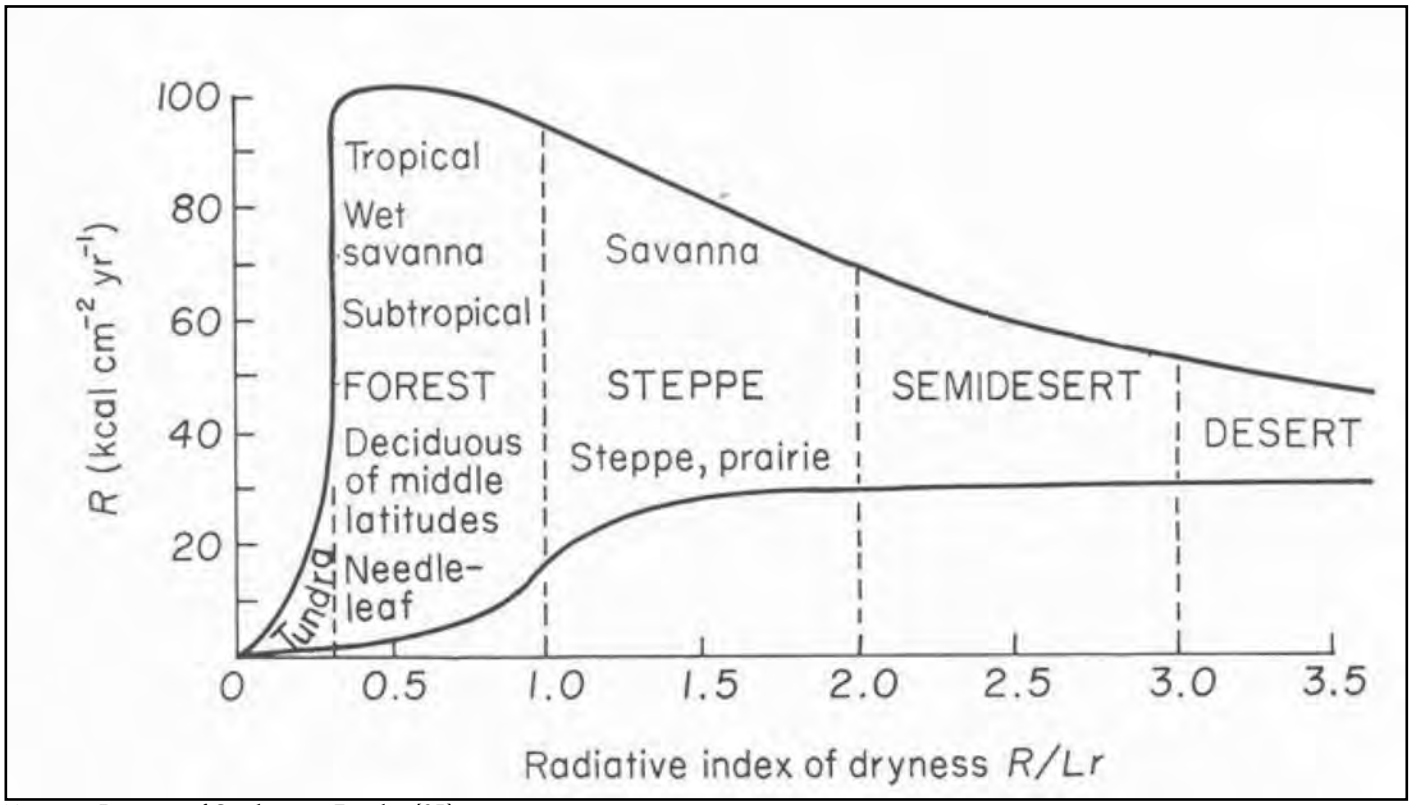

Figure 3: Diagram of Geo-botanic Zonality [27].

same condition was also observed in our experiments. Appearance of aphids, a sap sucking pest noticed at 20 days of crop was naturally suppressed by natural enemies like lady bird beetle (*Concinella sp*.) and hover flies (Syrphids). The crops were found to be pest and disease free. It kept the cost of growing okra below the economic threshold for making a profit, which is largely due to the fact that no expenses involving chemical fertilizers and pesticides were incurred in our experiments.

Conclusion

Our findings are summarized in threee key conclusions as.

1. The two experiments demonstrated that plants respond positively to thought transaction in low mental frequency. The growth and the mean yield is increased 121% over the control. Panchagavya, being a natural product, by it-self is found to enhance the growth and mean yield by 68%. Our results confirm that of other researchers [16, 17].
2. There was no observable difference in yields in the presence and absence of combination of Panchagavya and a five-minute thought transaction treatment, as shown in Table-1. Interestingly, the yield from 2-minute thought transaction in combination with Panchagavya increased substantially and reached a level comparable to 5-minute thought transaction. In other words, the mean yields from treatments T_2, T_3 and T_4 in Table-1 turned out to be about the same. This finding shows that the okra yield reached its "maximum limit" under these three treatments.
3. Natural enemies against pests and diseases multiplied naturally in our crop environment and checked the pest multiplication without any chemical pesticides.

The above three findings demonstrate the validity of our main hypothesis. However, extensive tests of our hypothesis for different crops under different environmental and soil conditions are necessary to develop a new technology that involves BioEM energy via thought transaction as an external input. This technology offers enhancement of food production free from pesticides. The food so produced will mitigate environmental pollution and eliminate health hazards. Therefore, our research addresses an economically viable solution to very serious global problems that the current chemical and biotechnological agricultural practices have created.

Topics for Future Research

We briefly discuss three key topics for future research amongst many that our research suggests.

1. We need to better understand and confirm our initial finding that okra yields show a maximum limit under three different treatments. One needs to explore if the concept of shoot-versus root allocation of resources is pertinent in this context [26].
2. Measuring yield need not be a reliable indicator of plant health. One can increase yield but still have an unhealthy plant. There is a better way to measure health than yield. It can be done in one of three ways. (i) Measure the Brix (total dissolved solids) levels of the plant sap with a Brix Refractometer and compare it to 12. (ii) Measure the pH of the plant sap with a pH meter (Horiba) and compare it to 6.4. (iii) Measure the photosynthetic rate of the plant in question using a Photosynthesis Meter (at leaf).
3. Spatial distribution of natural vegetation is determined by the geophysics of long-term values of mean annual solar radiation **R**, and mean annual precipitation **r** [27]. Fig. 3 shows global vegetation distributions in different climates ranging from the tundra to the desert. The radiative index of dryness is defined by the dimensionless ratio, **R/Lr**, where, **L** is the latent heat of vaporization. Budyko [27] mentions that the relationship between soil zonality and climate indices is similar to that in Figure 3. Therefore, a geophysical distribution of natural vegetation can serve as a key guide for planting crops that can optimize water use in given soil types. New research needs to be carried on comparing yields and reducing water use under different combinations of thought transaction with respect to change in **R/Lr** and **R**. Likewise, It would be possible to determine the maximum crop yield in each hydro-climatic zone through BioEM energy input using thought transaction in low mental frequency. It suggests a new framework for sustainability that links global food production, climate, water and health.

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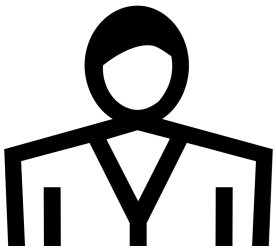
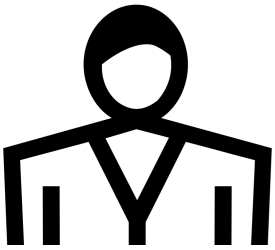
Authors Column



Biography of **Dr. S. Letchoumanane**

S. Letchoumanane (Retd.) is a former scientist of Tamil Nadu Agricultural University, Coimbatore. His field of specialization is Agricultural Entomology. He has published 78 research articles in the pest management of crops like rice, sugar cane, banana, pulse crops, vegetable crops, coffee, pepper, etc.
Apart from his scientific career, he developed quest for Indian philosophy and became a disciple of Yogiraj Vethathiri Maharishi who introduced the Simplified Kundalini Yoga (SKY) system to the world. As a Senior Professor, he conducts advanced courses at all SKY centers and in universities in Tamil Nadu, and internationally.



Biography of **Professor Vijay K. Gupta**

Vijay Gupta is a professor emeritus at the university of Colorado, Boulder. He pioneered new approaches through interdisciplinary collaboration to understand the water cycle on multiple space and time scales**.** He served on the editorial boards of prominent international journals, and lectured all over the world. Vijay is a fellow of the American Geophysical Union (AGU). He received the 2008 AGU Robert E. Horton medal for "outstanding contributions to the geophysical aspects of hydrology". Vijay studied and practiced Simplified Kundalini Yoga (SKY) with Yogiraj Vethathiri Maharishi for three decades. He is currently investigating the deep and unified science that the SKY philosophy offers.

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Effect of Bio EM and Panchagavya on Growth, Yield and Quality of Bhendi (*Abelmoschus esculentus* L. Moench) Hybrid CO4

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A B S T R A C T

Bioelectromagnetism (BioEM) is an area which studies the interaction of living biological cells and electromagnetic field. Field experiments were conducted at Horticultural College and Research Institute, Coimbatore during the year 2015-2016 and 2016–2017 to study the effect of Bio Electro Magnetism (Bio EM) and panchagavya (a biostimulant cum organic carbon source derived from cow) on growth, yield, and quality and drought tolerance of Bhendi (*Abelmoschus esculentus L. Moench*). The plot size adopted was 6 m x 3.5 m. In this investigation, among seven treatments imposed, treatment T3 viz., Bio EM + Panchagavya 3% significantly enhanced the biometric and yield parameters during both season I and season II studied. It has also significantly improved the parameters viz., plant height (103.79 cm), number of leaves per plant (77.41), leaf area (182.29 cm^2), number of fruits per plant (24.66) fruit yield (16.33 kg / plot and 18.52 tonnes/ ha), total chlorophyll content (64.63 µg cm^{-2}), total phenol content (2.14 mg g-1) polyphenol oxidase activity (0.842), crude fibre content (11.46 %) and protein content (20.19 %). The values found to be significantly higher than untreated control. The experiment also proved that Bio EM alone produced fruit yield almost equal to the treatment of recommended dose of fertilizer (RDF) but significantly higher than control treatment; Bio EM treatment also increased the drought tolerance level in the plants. The treatment Bio EM + 50% quantity of normal irrigation recorded significantly higher yield and improved the biometric parameters during both seasons than the treatment of 50% quantity of normal irrigation alone.

Introduction

Industrialized agricultural practices have caused extensive soil erosion, excessive use of water in agriculture, increased salinity, fertilizer pollution, plant protection chemical contamination, reduction of socio economic values, degradation to environment, danger to food security, poor quality and reduction in bio diversity. A lack of sustainable

agricultural policy for future generations and the gravity of environmental degradation are drawing attention of scientists, planners and farmers in developing ecologically sound, viable and sustainable farming systems.

Bioelectromagnetism (BioEM) is an area which studies the interaction of living biological cells and electromagnetic field. Researchers have demonstrated that electromagnetic field exists around the human body and the evidence was found using some medical technologies such as electromyography, eletrocardiography and electroencephalogram. This field is known as biofield and the exposure of the said biofield has been referred hereinafter as BioEM treatment.

Scientists have been conducting experiments and observed that bio electromagnetic energy affected growth of plants. Tradition of indigenous knowledge in India is revived through modern scientific research. One such method envisaged is the use of Bio EM and Panchagavya, a biostimulant to enhance plant growth and yield which is achieved without any degradation to environment. It is also achieved with a minimum cost of cultivation. In the present experiment the role of thought transaction (Bio EM) and Panchagavya in enhancing crop yield, without harmful side effects on human health and the environment was investigated.

The experiment was conducted withbhendi or lady‟s finger commonly known as Okra (*Abelmoschus esculentus* L) which belongs to the family Malvaceae. It is an important fruit vegetable crop cultivated in various states of India. The vegetable has a great commercial demand due to its nutritional values. In India it is grown in an area of 0.231 million hectares with the production of 6.35 million tonnes (Indian Horticulture Database, 2015).
As the movement of electrical energy in a medium generates a magnetic field, the Life Force in the human body also generates a kind of magnetism which is called bio magnetism. Vethathiri (1993) defined the life force current in a living system is composed of very minute „life-force particles‟ circulating throughout the physical body of a living system. Circulation of the life-force particles is akin to the „electrons‟ in an electric current flowing through a wire. He further stated that these life-force particles generate bio- magnetism or the Bio Electro Magnetic (Bio EM) field. Hence there exists a close connection between life force and BioEM. Waechter (2002) hypothesized that “Qi” or the “life-force” is closely related to the Bio EM energy. Dhamodharan (2004) experimented with the SKY (Simplified Kundalini Yoga) meditation system using Electroencephalogram (EEG) and indicated that human mental frequencies were systematically reduced from Beta to Alpha, Alpha to Theta and Theta to Delta level during different stages of meditation.

Although science has earlier tested such energies in plants, in the above mentioned studies, the scientific facts to support such claims are for the first time seeing reproducible and significant results in experimental observations. Master meditators of SKY system of Yoga from “Temple of Consiousness”, Aliyar, Tamilnadu, India are the source of BioEM treatments. Nayak and Altekar (2015) conducted experiments and found an enhanced and significant impact of *human energies of consciousness* on adaptive micropropagation response and callus induction of two plant species, *Withania somnifera* and *Amaranthus dubius*.

Another similar experiment was conducted on Casein Enzyme Hydrolysate and Casein Yeast Peptone by Trivedi *et al.,* (2015). They have concluded that Biofield treatment (*human energies of consciousness*) did cause a significant change in structure characterization, along with an increase in

particle size, melting temperature and maximum decomposition temperature as compared to control sample. In one of the latest research findings communicated (Dean Radin *et al.,* 2013), it has been proven with quantum mechanics experiments (a well-known 2 slit experiment) that conscious will influences the matter (mind will influence the photon).

Researchers consider that the prospect of using cheap magnetic energy to improve the properties of soil and plant growth and development may be of great practical importance (Mohamed and Ebead, 2013). Magnetic field has been found to improve food reserve utilization and help for better absorption and assimilation of nutrients by plants (Kavi, 1977) and photosynthetic activities (Lebedev *et al.,* 1977).

The foundation of this research lies in the hypothesis that thoughts transmit Bio Electromagnetic energy (BioEM).

The Bio EM energy favorably influences plant growth. Thus the results of various experiments indicate that energy generated by meditation can be utilized to interact with plant metabolism to achieve increased growth and yield.

These findings serve as the key motivation factor for the present investigation of the effect of thoughts transmitted Bio EM energy on the target plant which results in improvement of plant growth, yield and other qualities. Based on this view, this study was conducted to elucidate the effect of BioEM and pachagavya (biostimulant) on growth, yield and drought tolerance of Bhendi (*Abelmoschus esculentus* L. Moench) hybrid CO 4.

Materials and Methods

A field experiment was carried out during 2015- 2016 and 2016-2017 at College orchard, Horticultural College and Research Institute, Coimbatore, Tamil Nadu Agricultural University. The soil was clay loam in texture with alkaline pH (7.99), EC (1.00), low available Nitrogen (233 kg/ ha), high available phosphorus (23.00 kg/ ha) and high potassium (1052 kg/ ha). The experiment was laid out in randomized block design with seven treatments and three replications *viz.,* T_1- Bio EM, T_2- Panchagavya 3% + T_3- Bio EM + Panchagavya 3%, T_4- Bio EM+ 50 % Irrigation T_5- 50% Irrigation alone,T_6- RDF NPK @ 200:100:100 kg/ ha and T_7- Control. The plot size adopted was 6.0 x 3.5 m and the crop was irrigated through drip irrigation.

The BioEM treatment was given to the bhendi crop everyday morning and 3% panchagavya was sprayed to the respective treatments (T_2 and T_3) once in a fortnight from establishment of the crop to till harvest of fruits. The observation on biometric and yield parameters *viz.,* Plant height (cm) Number of leaves per plant, Leaf area (cm^2), Total chlorophyll (µg cm^{-2}), Total phenols (mg g^{-1}) Polyphenol Oxidase (OD $min^{-1}g^{-1}$), number of fruits per plant, yield (Kg/ plot), yield (tonnes/ha), crude fibre content (%) and Protein content (%) was recorded on five randomly selected plants respectively. The results recorded were statistically analysed (Panse and Sukhatme, 1967). Leaf area was measured using leaf area meter. Total Cholorophyll and total phenol content was analysed using Yoshida *et al.,* (1971) and Bray and Thorpe 1954. Polyphenol oxidase activity was estimated by the method formulated by Augustine *et al* (1985). Quality parameters *viz.,* Protein content and crude fibre content were estimated using the method devised by Lowry *et al* (1951) and Maynard (1970).

Results and Discussion

The SKY system of meditation is based on linking one"s mind with life force in the body. It is also referred by other names as Kundalini energy in ancient yoga and bioenergy in the ancient Indian acupressure for self-healing. The life force current in a living system, is collectively termed as life force particles. Circulation of life force particles is akin to the electrons. These life force particles generate biomagnetism (BioEM) or the bio electromagnetic field (Vethathiri, 1993). The Bio EM was focused on plants to interact with plant metabolism and produce enhanced growth, yield and improve other parameters. In addition, effect of Panchagavya individually and in combination with Bio EM was elucidated. One of the major effects studied was drought tolerance, where plants received only 50 % quantity of irrigation.

The panchagavya spray is known to provide organic carbon which facilitates increase in the concentration of microorganisms which in turn increases soil nutrient availability and thereby crop yield (Sarkar *et al.,* 2016).

In the present investigation during season I, T_3 (BioEM + Panchagavya 3 %) significantly enhanced the biometric and yield parameters *viz.,* plant height (103.28 cm), number of leaves per plant (78.54), leaf area (183.76cm^2),

Total chlorophyll content (66.13 µg cm^{-2}), Total phenols (2.28 mg g^{-1}), Polyphenol Oxidase activity **(**0.866 OD min^{-1}g^{-1}), number of fruits per plant (24.50), fruit yield (16.33 kg/plot and a total yield of 18.63 tonnes /ha (23% higher over control), crude fibre content (11.64 %), and protein content (20.98 %) compared to all other treatments (Table 1). In the investigation during season II, again T_3 (Bio EM + Panchagavya 3 %) proved its superiority by significantly improving the above said biometric and yield parameters (Table 2). Pooled analysis of consolidated data for two seasons also showed that, the treatment T3 recorded significantly the highest value with respect to plant height (103.79 cm), number of leaves per plant (77.41), leaf area (182.29 cm^2), total cholorophyll (64.63µg cm^{-2}), total phenol (2.14mg g^{-1}) polyphenol oxidase (0.842 OD min^{-1}g^{-1}), number of fruits per plant(24.66), fruit yield (16.33 kg / plot and a total yield of 18.52 tonnes/ ha (30.5 % higher over control), crude fibre content(11.46 %) and protein content (20.19 %). The values were found to be significantly superior over control (Table 3).

Effect of bio EM and panchagavya on growth parameters

The ultimate aim of any experiment is to find out that whether there is any benefit by way of higher yield and reduction in cost of cultivation by adopting any specific technology. The present field experiments clearly indicate that treatments Bio EM+ 3 % Panchakavya or Bio EM alone resulted in significantly higher fruit yield over control. Further, the treatment T4 (Bio EM+50% reduced irrigation) significantly recorded higher yield than the treatmentT5 (50% reduced irrigation alone) indicating the development of drought tolerance of the crop under with Bio EM treatment.

Significant increase in yield of bhendi fruits due to the treatment effects is also presented in terms of percent increase in yield of fruits per hectare. Consolidated data for Season I and Season II indicated that the yield increase was 30.50 % higher in T_3 (Bio EM + Panchakavya) over control. Similarly there was 22% higher yield in T_1 (Bio EM alone) over control. The treatment T_4 (Bio EM + 50 % reduced irrigation) registered 8 % increased yield over T_5 (50% reduced irrigation alone).

Similar increase in yield was achieved by Trivedi and Patil (2011) who reported on

multiple year results on Alphonso mangoes in Asia. The mango study showed yield increases and pest infestation decreases over a four year time period versus control trees which on the contrary showed lower yields and increased pest pressure.

Overall, treatment of Bio EM with panchagavya (3%) significantly influenced the growth and yield parameters of bhendi and that was elucidated through the positive response on plant height (103.79 cm), number of leaves per plant (77.41) and leaf area (182.29 cm^2). The plant height was found to be significantly higher which might be attributed to the influence of Bio EM in combination with frequent application of panchagavya at regular intervals that might have increased the nutrient availability and uptake by plants. Similar findings have been reported by Patil *et al.,* (2012) wherein exposure to the biofield treatment has caused an enhancement in growth and anatomical characteristics of herbs like *Pogostemoncablin,* that is commonly used in perfumes and alternative medicine.

Leaf area, being the fundamental determinant of the quantum of photosynthesis through its effective interception of light energy and fixation of CO_2, facilitates leaf dry matter production of crop plants (Shibbles and Webber, 1996). Panchagavya provides flexibility which enables the specific nutritional requirements of the crop to be met at different stages of its growth. The effect of nitrogen in enhancing the leaf area was well established and increased optimum levels usually had positive relationship with growth (Sarro *et al.,* 1989).

Bio EM played a role in the total leaf area and ultimately greater leaf area aids the plant to synthesize more metabolites exhibiting high photosynthetic rate during the period of growth and development (Mahadevan, 1988). This is also in line with the findings on James *et al.,* (2002).

Next to T_3, T1 (Bio EM alone) recorded higher fruit yield over control. From the present investigation, it is evident that Bio EM has favorably influenced plant growth and yield. Further, with regard to positive influence on drought tolerance, treatment T_4 (Bio EM + 50 % reduced irrigation) registered higher yield than the treatment T_5 (50 % irrigation alone).

From the study, it is evident that Bio EM has influenced the water use efficiency by registering improved growth and yield under 50 % reduced irrigation. Similar results were observed in the yield attributing parameters of chick pea and mustard crop after biofield energy treatment, as an alternative way to increase the production and yield (Trivedi *et al.,* 2015)

Effect of Bio EM and panchagavya on yield, biochemical and quality parameters

Bio EM in combination with panchagavya resulted in improved plant growth which directly influenced the yield and quality. This might be due to plant response to thought transaction in subtle frequency through SKY (Simplified Kundalini Yoga) meditation (Letchoumanane, 2014).

Panchagavya, being a natural and organic product, was found to enhance the fruit yield. Induction of Bio EM energy via thought transaction in theta frequency registered substantially higher yield. Trivedi (2012) tested the impact of biofield treatment applied to lettuce and tomato seeds and transplants and found treated plants exhibited increase in total yield of fruits and also total chlorophyll content of leaves (Fig. 1).

Table.1 Effect of BioEM and panchagavya on biometric, yield and quality parameters in Bhendi (Season I)

Treatments	Plant height (cm)	Number of leaves per plant	Leaf area (cm^2)	Total cholorophyll (µg cm^{-2})	Total phenols (mg g^{-1})	Polyphenol Oxidase (OD $min^{-1}g^{-1}$)	Number of fruits per plant	Yield (Kg/ plot)	Yield (tonnes/ ha)	Crude fibre content (%)	Protein content (%)
T1	97.67	74.57	176.52	63.00	2.16	0.841	23.04	15.42	17.88	11.52	19.67
T2	92.37	64.51	164.22	52.26	1.78	0.743	18.12	14.17	16.50	10.71	18.35
T3	103.28	78.54	183.76	66.13	2.28	0.866	24.50	16.33	18.63	11.64	20.98
T4	94.67	70.74	173.98	54.51	1.93	0.806	20.95	15.44	17.25	11.44	18.98
T5	86.88	62.50	126.76	51.32	1.53	0.733	18.41	14.30	16.64	10.58	17.26
T6	94.41	66.14	162.95	52.79	1.75	0.763	19.23	15.24	17.22	11.00	17.90
T7	83.33	51.92	115.13	45.56	1.44	0.606	16.46	13.30	16.22	9.83	15.95
Mean	**93.23**	**66.99**	**157.62**	**55.08**	**1.84**	**0.77**	**20.10**	**14.89**	**17.19**	**10.96**	**18.44**
SED	0.6881	0.6657	0.8915	0.5798	0.1056	0.0136	0.3117	0.1661	0.1449	0.0925	0.2278
CD (0.05)	1.4994	1.4504	1.9425	1.2632	0.2301	0.0296	0.6791	0.3618	0.3158	0.2015	0.4964

Legend: T_1- Bio EM; T_2-Panchagavya 3%; T_3- Bio EM + Panchagavya 3%; T_4- Bio EM+ 50 % Irrigation; T_5- 50% Irrigation; T_6- RDF NPK @ 200:100:100 kg/ ha; T_7- Control

Table.2 Effect of BioEM and panchagavya on biometric, yield and quality parameters in Bhendi (Season II)

Treatments	Plant height (cm)	Number of leaves per plant	Leaf area (cm^2)	Total cholorophyll (µg cm^{-2})	Total phenols (mg g^{-1})	Polyphenol Oxidase (OD $min^{-1}g^{-1}$)	Number of fruits per plant	Yield (Kg/ plot)	Yield (tonnes/ ha)	Crude fibre content (%)	Protein content (%)
T1	100.97	72.73	174.93	62.32	1.97	0.771	23.24	15.29	17.55	10.66	19.22
T2	92.73	63.21	163.44	52.32	1.62	0.712	18.22	14.45	16.24	9.66	17.56
T3	104.30	76.28	180.83	63.13	2.01	0.819	24.82	16.41	18.41	11.28	19.56
T4	98.20	69.18	172.33	52.78	1.93	0.767	20.85	14.93	17.22	10.57	18.45
T5	90.59	61.37	121.68	48.42	1.53	0.701	18.53	13.48	15.74	10.04	17.25
T6	95.89	64.38	161.07	50.90	1.75	0.737	19.37	14.50	16.73	10.24	18.12
T7	88.56	49.07	111.06	43.85	1.44	0.585	16.53	11.93	14.62	9.51	15.62
Mean	**95.89**	**65.17**	**155.05**	**53.39**	**1.75**	**0.73**	**20.22**	**14.43**	**16.65**	**10.28**	**17.97**
SED	0.6950	0.5472	0.5525	0.4671	0.0863	0.0078	0.2620	0.1704	0.1906	0.1391	0.1607
CD (0.05)	1.5151	1.1922	1.2039	1.0178	0.1881	0.0170	0.5708	0.3713	0.4153	0.3032	0.3502

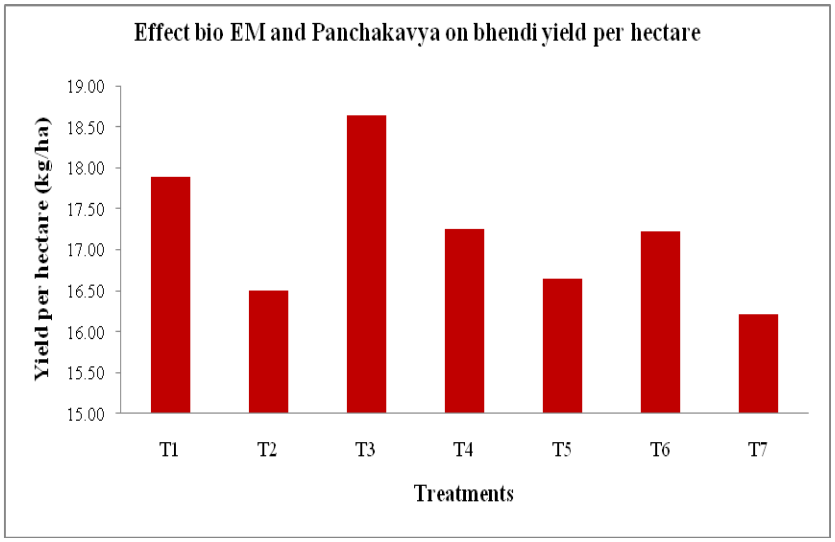
Legend: T_1- Bio EM; T_2-Panchagavya 3%; T_3- Bio EM + Panchagavya 3%; T_4- Bio EM+ 50 % Irrigation; T_5- 50% Irrigation; T_6- RDF NPK @ 200:100:100 kg/ ha; T_7- Control

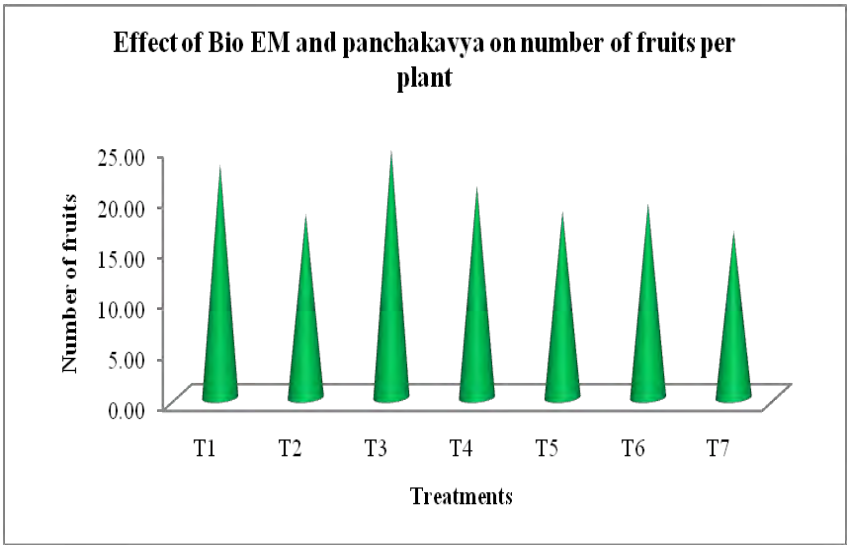
Table.3 Effect of BioEM and Panchagavya on biometric, yield and quality parameters in Bhendi (pooled analysis for two seasons)

Treatments	Plant height (cm)	Number of leaves per plant	Leaf area (cm^2)	Total cholorophyll ($\mu g\ cm^{-2}$)	Total phenols ($mg\ g^{-1}$)	Polyphenol Oxidase ($OD\ min^{-1}g^{-1}$)	Number of fruits per plant	Yield (Kg/ plot)	Yield (tonnes/ ha)	Crude fibre content (%)	Protein content (%)
T1	99.32	73.65	175.73	62.66	2.07	0.806	23.14	15.42	17.72	11.09	19.44
T2	92.55	63.86	163.83	52.29	1.69	0.728	18.16	14.17	16.39	10.18	17.88
T3	**103.79**	**77.41**	**182.29**	**64.63**	**2.14**	**0.842**	**24.66**	**16.33**	**18.52**	**11.46**	**20.19**
T4	96.43	69.96	173.16	53.65	1.93	0.789	20.90	15.44	17.24	11.00	18.98
T5	88.74	61.93	124.22	49.87	1.53	0.717	18.47	14.30	16.19	10.31	17.26
T6	95.15	65.26	162.01	51.84	1.74	0.749	19.30	15.24	16.98	10.62	18.11
T7	85.95	50.49	113.09	44.70	1.44	0.596	16.49	13.30	15.42	9.67	15.69
Mean	**94.56**	**66.08**	**156.33**	**54.23**	**1.79**	**0.747**	**20.16**	**14.89**	**16.92**	**10.62**	**18.22**
SED	0.6916	0.6093	0.7417	0.5265	0.0964	0.0111	0.2879	0.1661	0.1693	0.1359	0.1971
CD (0.05)	1.4247	1.2552	1.5278	1.0845	0.1987	0.0228	0.5931	0.3421	0.3488	0.2961	0.4061

Legend: T_1- Bio EM; T_2-Panchagavya 3%; T_3- Bio EM + Panchagavya 3%; T_4- Bio EM+ 50 % Irrigation; T_5- 50% Irrigation; T_6- RDF NPK @ 200:100:100 kg/ ha; T_7- Control

Fig.1 Effect of BioEM and Panchagavya on yield and parameters in Bhendi





Similar results were observed by other scientists also. Nayak and Altekar (2015) found enhanced adaptive micropropagation response and callus induction of two plant species, *Withania somnifera* (L.) Dunal and *Amaranthus dubius* due to the treatment of human energies of consciousness. Trivedi *et al.,* (2015) recorded significant change in Casein Enzyme Hydrolysate and Casein Yeast Peptone due to Biofield treatment (human energies of consciousness). They have observed significant increase in particle size, melting temperature and maximum decomposition temperature. They have recorded variation in bonding and structure of the experimental material due to biofield treatment.

Anandhi *et al., (2018)* have recorded significant Influence of gamma rays on germination, survival and pollen sterility in black gram (*Vigna mungo* L.) mutants. The finding proves that energy in every form alters metabolic process in plants. Panchagavya contain several natural organic materials such as cow dung and cow urine

which is a rich source of organic carbon. Hence it improves soil biological activity and thus increases plant growth. It is also conjectured that the strength of Bio EM energy increases as the mental frequency decreases**.** Besides, application of panchagavya increased the metabolic functions of the plant which ultimately increased growth and yield. This is in accordance with the findings of Cynthia (2003) and Ranjit Chatterjee and Bandhopadhyay (2014).

BioEM in combination with panchagavya also significantly increased the biochemical parameters *viz.,* the Total chlorophyll content(64.63 µg cm^{-2}), Total phenols (2.14 mg g^{-1}), Polyphenol Oxidase activity **(**0.842 OD $min^{-1}g^{-1}$) and quality parameters *viz.,* crude fibre content (11.46 %), and protein content (20.19 %**).** This increased effect is attributed to the fact that the effects of Bio EM regulate DNA, RNA, protein synthesis, gene action and cell division in plants (Lipton, 2009). In another study with carrots, the results concluded that, Biofield treatment caused the numerical improvement in yield along with nematode control. In addition, the treatment caused statistically significant increase in Vitamin A content (Shind *et al.,* 2015) an important quality parameter of carrot.

Besides, panchagavya influences biochemical constituents by improving the physical, chemical and biological properties of soil and provides carbon as an energy source to nitrogen fixing bacteria and thus proves its biological function (Satheesh and Balasubramanian, 2003). It is also reported to increase the permeability of plant membranes resulting in higher metabolic activity thereby increased the yield. This is in accordance with the findings of Gore and Srinivasa, (2011).Thus, from the above experiment, it can be concluded that the treatment T_3 (BioEM + Panchagavya 3 %) significantly enhanced the biometric, yield and quality parameters of bhendi plants compared to all other treatments.

Besides, treatment T_4 (BioEM + 50 % reduced irrigation) also recorded significantly higher values under reduced irrigation level (drought) with regard to biochemical, yield and quality parameters compared to T_5 (50 % reduced irrigation alone). Thus, Bio EM treatment registered its significance even under reduced irrigation level (50 %) which can be well explored for farming areas having water scarcity issues.

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INDUCEMENT OF BEHAVIOUR CHANGES IN TOMATO BY THOUGHT TRANSACTION

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ABSTRACT T e thought transaction for p ants infested with oot-knot nematode, *Meloidogyne incognita* revealed tha tt e chemical stimulation had been imparted for the ex end of enhancing pro e n profile and enzyme activi es like perox dase, and polyphenol oxidase which were responsible for resisting the nvasion of nematodes. The p ant growth characteristics were perceptibly enhanced and n-creased the vigour. The gall formation formed by the nematodes i arrested and behaved like resistant plant.

Key Words : Though transaction, root-knot nematode.

Response to music by plants n known to the science as the sound vibrations activate or depress t plant according o vibrations produced. Plants respond to external stress of env ronment (Bose, 906). The external stress include attack of pest and d ease. As nematologist, it was our longing that the nematode menace though we tackle by chemicals is costlier and have adverse effect on the environment as pollutant and have residual problems for the consumer, s there any technique to nduce the plants to tackle invasion of nematodes ? The selection of nematode *Meloidogyne incognita* in tomato (*Lycopersicon esculentum*) was appropriate, as the gall is very prominent. The gene transfer technique of transferring the genes responsible for root-knot resistance nvolves chemicals and sophisticated tools which may not be in the purview of ord nary scient st. Hence it was thought of transferr ng the biomagnetic waves of the scientists with low mental frequency with awareness. Normally such state s attainable due to ill health or us ng drugs wh ch re tards he awareness in persons. But transferring the mental wave frequency us ng medi ation as tool can achieve he state of subtler frequency of mind with awareness. To achieve this scientists have to practice for acquiring the skill of transaction of mental frequency change to lower state with awareness. Normal human mind is capable of transaction from 1-40 cycles per second. The fixing of mind o observing at pituitary gland brings down the frequency of mind to alpha waves (7-14 cycles/second) and further brought down while observing the m nd a pineal gland (3-6 cycles/second). The transaction to furthe down is achieved by fixing the mind expanded to universe or beyond universe. These frequencies can be measured by the instrument electro- encepha o-gram.

MATERIALS AND METHODS

The tomato plants were raised in pots of 1.5 kg capacity filled with sterilised pot mixture n glass house. One set of treatments was raised with plants with sterile soil without nematode served as control. Another set of treatment was with inoculum level of 1000 larvae/plant received no thought transaction. The last set of treatment was raised with tomato raised with 1000 larvae/plant with transaction of though transf by the biomagnetic m nd tuning for the frequency of theta frequency and further down to coma state with awareness. After daily transaction for 45 days the plants were exam ned for root growth, v gour and for the developmen of any root knots/galls due to nematode. The thought transfer was hat the plants in the treatment should be protected from the nematode and the p ant should be lth a high vigour and shou d resist the attack of the nematode". The treated and untreated plants were

Table- : Effect on plant growth and our by thought transaction to omato plant inoculated *Meloidogyne incognita*. (Mean of 14 rep ications).

reatment	Plant height (cm)	P an girth (cm)	Shoot we gh (gm)	Root weight (gm)	Root length (cm)	Root-knot index
Inoculated with thought transaction	55.	3.0	73.5	9.7	15.0	1.2
Inoculated without thought transaction	2,	1.2			7 6	
Contro	59.0	1.8	66.5	8.0	14.0	1.0
SED	1.96	0 13	2.67	0 39	1.50	0.23
CD (0.05)	4.37	0.13	5.96	0.52	0.35	0.52

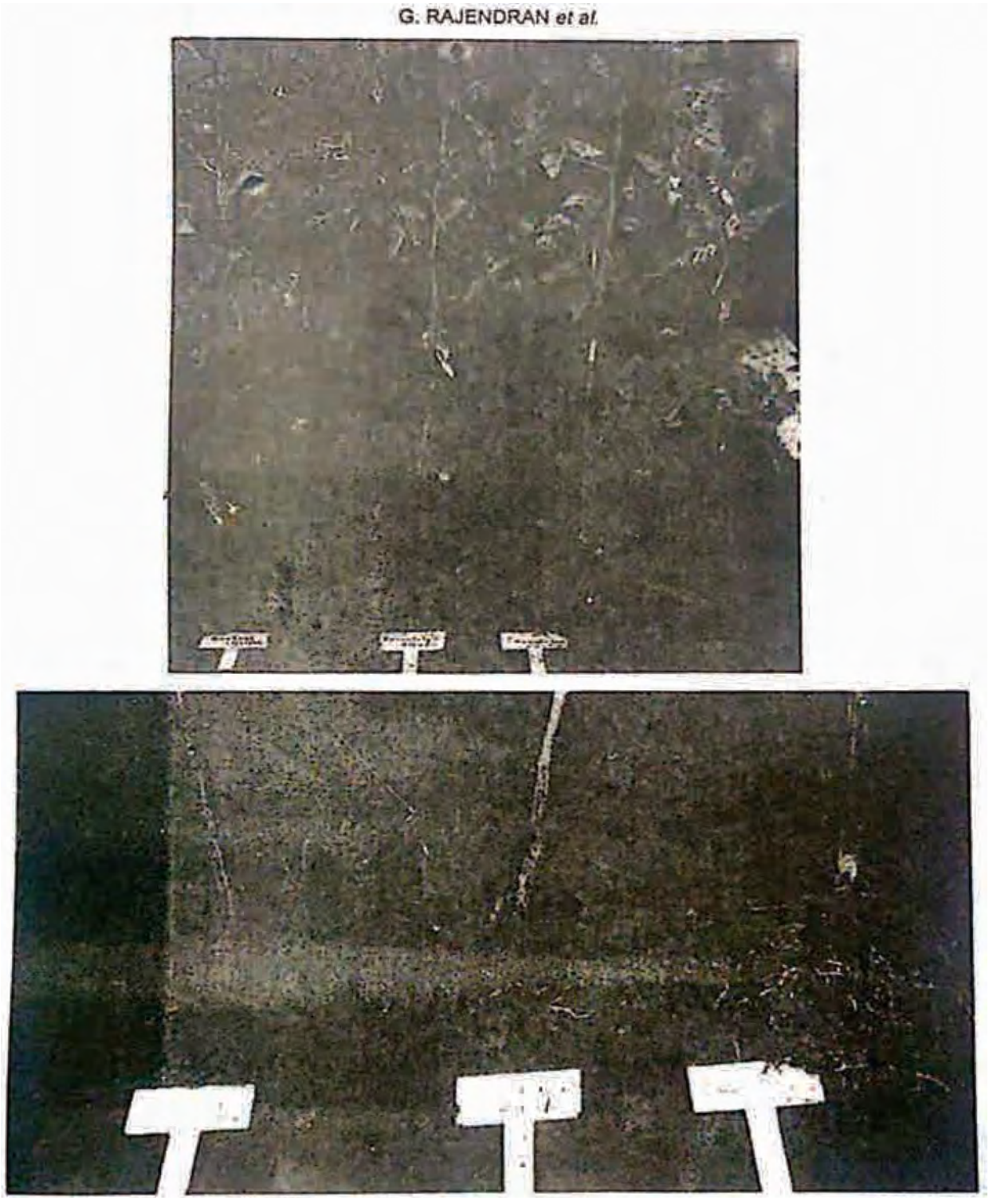
s jected to biochemical analysis. Native Poly acrylamide el e ectrophoresis analysis was done to examine the soform p ofiles of peroxidase and polyphenol oxidase. Protein profi e were examined by Sodium d decyl Sulphate-Poly acrylamide gel electropho esis.

RESULTS AND DISCUSSION

The transacted plants were hea thy with more number of roots and with no galls compared to control plants and the plants non transacted by thought (Table 1 and Fig.1 and 2). Hence it is evident that the thought of scientist who can transact and tune to such level of mental frequency by practice can induce the usceplib e, to a res stant plant. Response to music by p ants is known to the cience as the sound vibrat ons activate or depress t e plant accord ng to vibrations produced. Plants respond to external stress of nv ronmen (Bose, 1906). The present study revealed the response by the p ants to the mental frequency of the cientist by modifying th chem cal composition and haviour of plants.

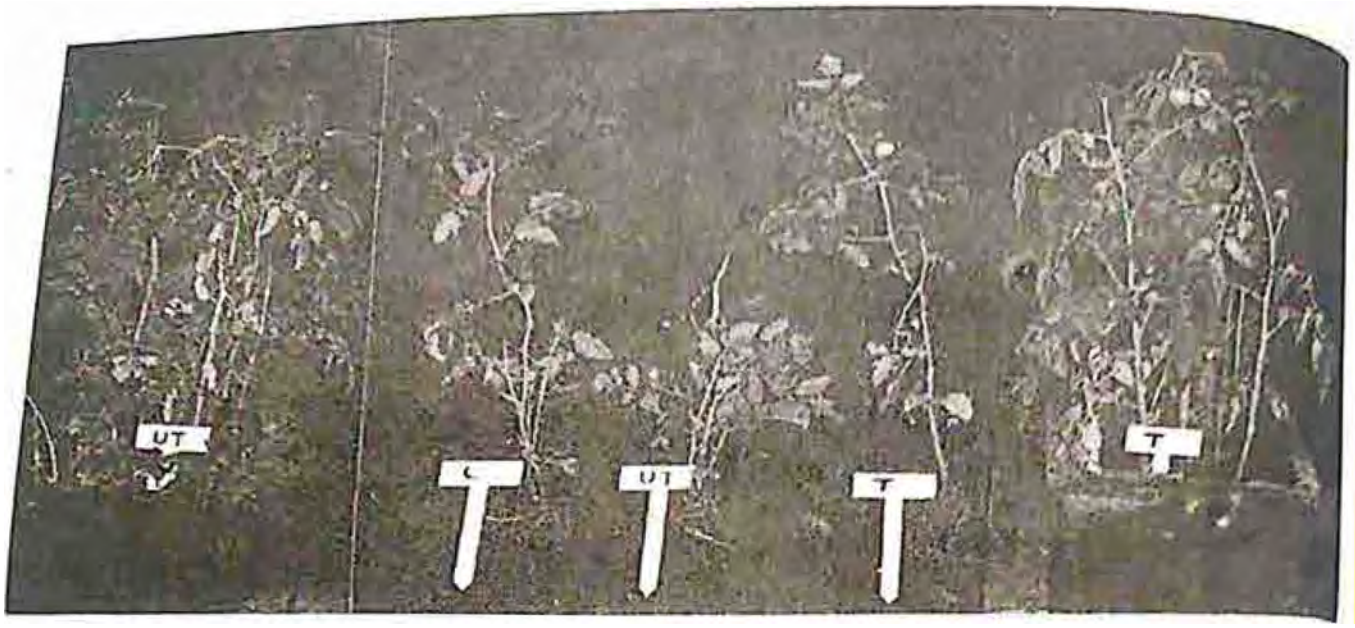
It was evident that there was more peroxidase induction in thought transacted nematode nfe plants revealing 2 isoforms as PO_1 and PO_2 where as the plants not received thought howed PO_1 soform only. For po yphenol oxidase activity mo enzyme induction was evidenced in thought transacted infested plants revealing 3 isoforms as PPO_1 PPO_2 and PPO_3 compared to plants not received thought. More number of protein profile bands were found in thought transacted nematode infeste p ants (Fig.-3). The plant perox dases are important to the reinforcement of the cel wall at the border ol infection by pathogens in resistant plants They are considered as important compo nds of an active defense response of nematode invaded tissue (Zacheo *et al.*, 1995).

Perox dase and polyphenol oxidases are precursor in phenyl propano d which l responsible for b osyn hesis of lignin in plants. High accumul tion/l gn n d position nterfere the penetration of pathogen in th host cell wall. The thought ransac-



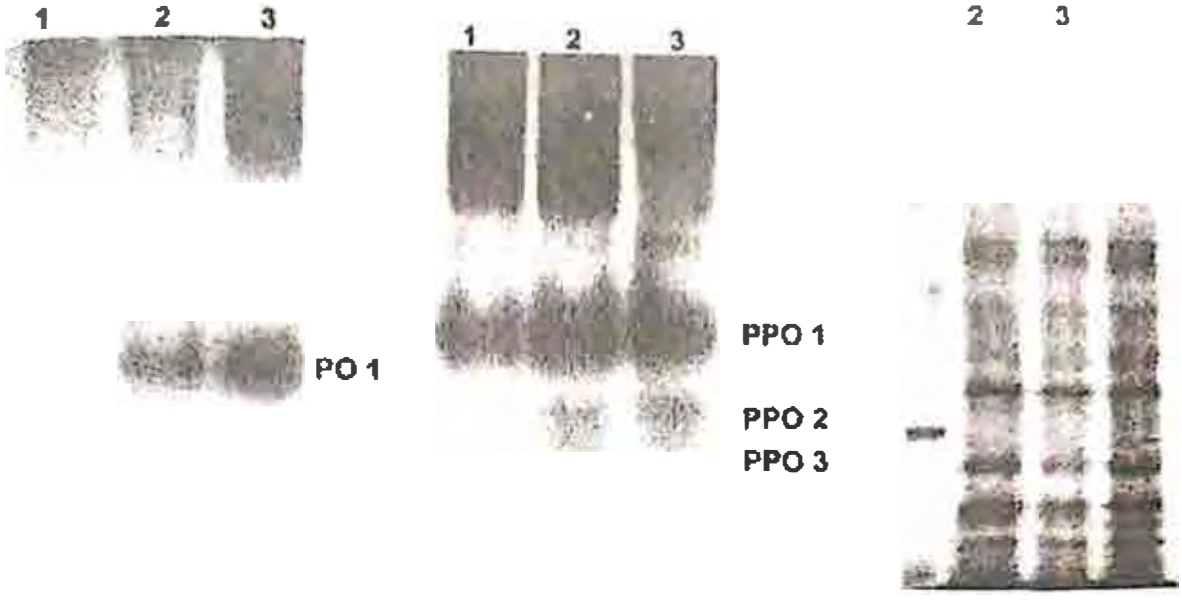
ealthy pla Nematode infested plan thou thought nfested plan transacted by thoughts.

1 : Effect of thought transaction for inducement of resistance.



yp nt | Nematode in ested plant vithout th ught | Infe d p ra d b though

-2 : Effect of thought transaction for inducement of resistance.



1. Healthy plant
2. Nematode infested plant without thought
3. Nematode infested plant ransacted by thought.

1 Healthy plant
2. Nematode infested plant without thought
3. Nematode infested plant transacted by thought.

1. Protein marker (MW Da)
2. Healthy plant
3. Nematode infested pla without thought.
4. Nematode fested plan transacted by though

Fig.-3 : Effect on peroxidase, polyphenol oxidase and protein profiles by thought transact on to tomato plants ocu- ated with *Meloidogyne incognita*.

tion with plants thus help in protect the plants from invasion as plants are of the first order of evolution and are with many secrets of life to be explored (Tompkins and Bird, 2000).

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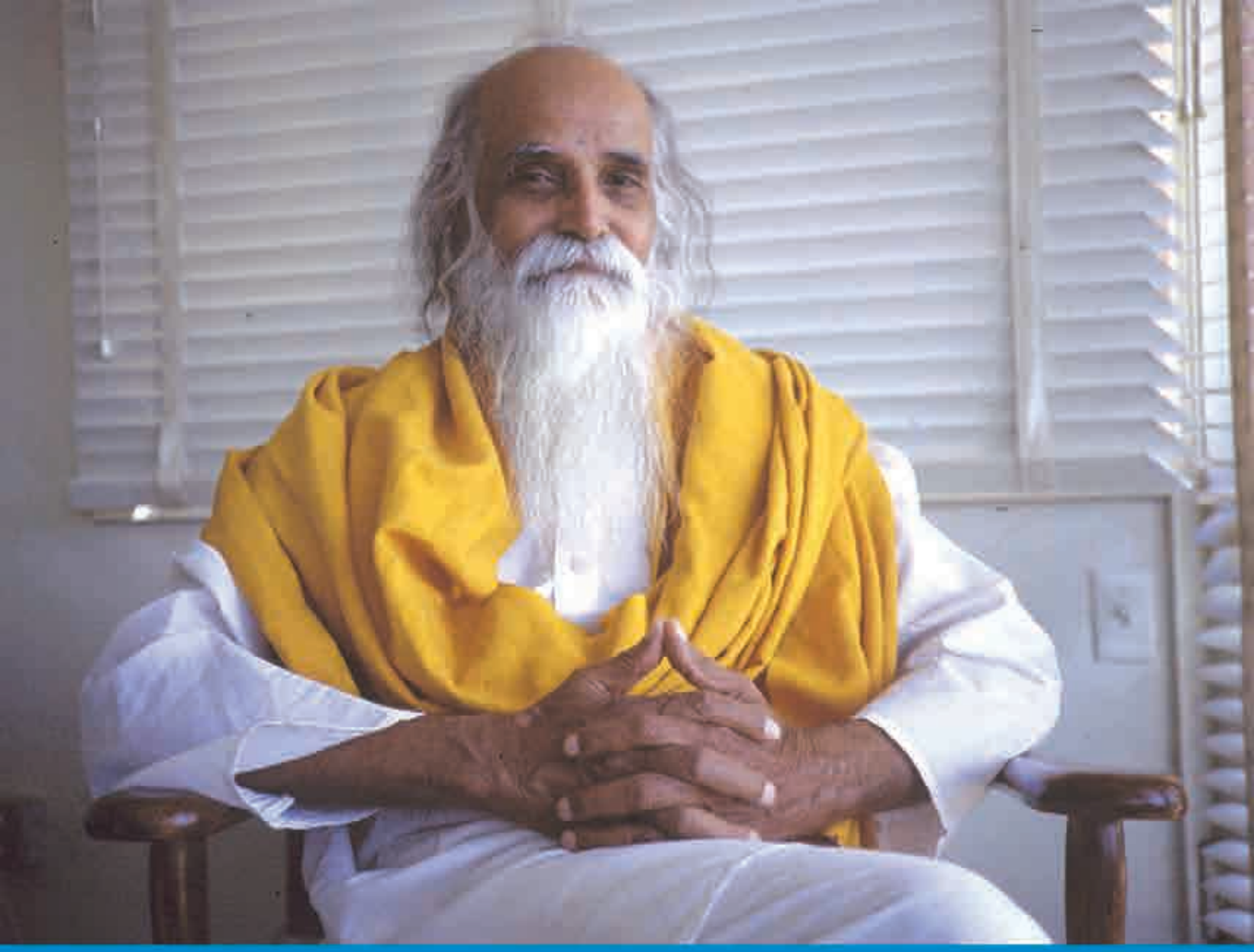

"This beautiful world designed by the Almighty is culturally evolved by innumerable generations of people, in the course of millions of years. No one has the right to destroy it. Let us preserve it for our enjoyment and for Future generations."

- Vethathiri Maharishi

"May the whole world enjoy prosperity happiness, wisdom and peace"