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Assessing the Agricultural Impact of Spiritual Blessing/Biofield Energy Treatment on Sponge Gourd (*Luffa cylindrica*) Cultivation

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Abstract

The escalating demand for sustainable and eco-friendly agricultural practices has driven research into non-conventional methodologies to enhance crop yield and quality. Among these, biofield energy (or blessing energy) treatment have emerged as a promising alternative, demonstrating potential to improve plant vigor without the environmental degradation associated with synthetic fertilizers and pesticides. This study aimed to evaluate the agricultural impact of biofield energy treatment on the growth, yield, and overall quality of the sponge gourd (*Luffa cylindrica*), a highly valued vegetable crop known for its nutritional and medicinal properties. A field experiment was conducted, dividing *Luffa cylindrica* seeds and agricultural plots into two primary groups: a control group (untreated) and a test group (subjected to biofield/spiritual blessing energy treatment). Standard agricultural practices were maintained equally across both groups. Key parameters assessed included seed germination rate, plant height, days to first flowering, overall fruit yield, etc. The biofield energy-treated group demonstrated a statistically significant improvement across multiple agricultural parameters compared to the control group. Observations included a significant accelerated in vine length (33.43%, $p = 0.001$), number of nodes (38.88%, $p \leq 0.001$), leaf number per plant (42.73%, $p \leq 0.001$), number of female flowers 30.45% ($p = 0.006$), peduncle length (34.38%, $p \leq 0.001$), and fruit width (46.13%, $p \leq 0.001$) in the biofield treatment group compared to the control group. Moreover, a culminated expansion in overall fruit yield per hectare in the treatment group than control. **Conclusion:** The application of biofield energy treatment significantly enhances the cultivation profile of *Luffa cylindrica*.

Keywords: *Luffa cylindrica*, blessing energy treatment, spiritual blessing, crop morphology, yield optimization, sustainable agriculture

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INTRODUCTION

Sponge gourd (*Luffa cylindrica*), an economically important member of the Cucurbitaceae family, is widely cultivated throughout tropical and subtropical regions for its edible tender fruits, medicinal properties, and versatile fibrous vascular system [1]. Beyond its culinary utility as a tender vegetable, *L. cylindrica* possesses significant pharmacological value, containing an array of bio-functional compounds including ribosome-inactivating proteins, antioxidants, and anti-inflammatory peptides [2]. Consequently, sustainable agricultural research has increasingly pivoted toward novel, non-invasive biostimulatory interventions capable of enhancing crop establishment, vegetative vigor, and reproductive performance without deteriorating agro-ecosystem health. Agronomic management strategies, including trellising systems, optimized planting density, and strategic lateral pruning are critical parameters that dictate overall vegetative growth, fruit yield, and interior sponge fiber quality in *Luffa cylindrica* farming systems [3]. Furthermore, the unique lignocellulosic matrix derived from mature *Luffa cylindrica* fruits has demonstrated substantial agricultural utility as a natural soil amendment, enhancing moisture retention capacity and significantly mitigating water loss due to evapotranspiration and seepage during crop cultivation [4].

In recent years, alternative bio-physical biostimulators, ranging from low-frequency electromagnetic fields to biofield and subtle energy interventions, have gained attention for their potential to modulate plant physiological pathways, germination kinetics, and biomass accumulation. In recent years, alternative, non-invasive biotechnological strategies such as biofield energy treatments (The Trivedi Effect®) have gained attention for their potential to modulate plant physiological pathways, germination kinetics, and biomass accumulation [5-8]. Therefore, the present study was designed to systematically evaluate the effects of a structured spiritual blessing energy treatment (SBET) on the vegetative growth traits and fruit yield metrics of *Luffa cylindrica*. By comparing treated populations against non-treated control groups under standardized agronomic management, this work aimed to elucidate the potential utility, physiological responses, and yield efficiency associated with spiritual blessing energy biostimulation in sustainable cucurbit cultivation.

MATERIALS AND METHODS

Study site

Field experiments were executed in Bhandarwadi, Sindhudurg, Maharashtra, India (15°37′–16°40′ N, 73°19′–74°13′ E; elevation 26 m), an area within the tropical Konkan agro-climatic zone. Characterized by a hyperthermic temperature regime, the region experiences mean maximum pre-monsoon temperatures of 38–41 °C. Acute interannual rainfall variability drives severe seasonal soil moisture deficits; this environmental constraint intensifies crop vulnerability to drought stress, ultimately compromising critical physiological mechanisms during key phenological stages.

Seed source and experimental design

Sponge gourd (*Luffa cylindrica* cv. 'Desi') seeds with 98% genetic purity (Lot No. NUSP0099, Label: 00218) were procured from Namdeo Umaji Agritech (India) Pvt. Ltd. The field experiment followed a randomized complete block design (RCBD) with two treatment groups and three replicates each: an untreated control (CONSPGG) and a biofield energy treatment (BTSPGG). To minimize confounding variables, both groups were cultivated under identical environmental and agronomic conditions using standardized irrigation, fertilization, and pest management protocols.

Field Layout

We established the experimental site across a total area of 80.0 m² using a randomized complete block design (RCBD) containing six 4.5 m × 2.5 m plots. Adjacent plots and replications were separated by 0.5 m buffer zones. Crops were planted at a 0.5 m × 0.5 m grid spacing within each plot. Pre-sowing preparation involved clearing vegetation debris and uniformly incorporating basal fertilizer into the topsoil at rates of 50, 100, and 50 kg ha^{-1} for N, P, and K, respectively.

Spiritual blessing (biofield/prayer) energy treatment (SBET) strategy

Spiritual blessing (prayers/biofield) energy treatment (SBET) was provided by Ms. Alice Branton in the BTSPGG (both sponge gourd seeds and soil) *via* an online web-conferencing platform from Florida, USA. However, the CONSPGG (seeds and soil) did not receive any treatment. During the blessing the following criteria/conditions were maintained –

- ✓ *Blessing exposure time*: approximately 4 minutes.
- ✓ *Mode of blessing*: distant/remotely from Florida, USA *via* an online web-conferencing platform
- ✓ *Practitioner's experience*: more than 14 years.
- ✓ *Environmental conditions during blessing*: temperature (28 ± 2°C) and relative humidity (65 ± 5%).
- ✓ *Frequency of blessing*: single

Soil characterization and sample preparation

Baseline physicochemical properties were established using composite topsoil samples (30 cm depth) collected *via* a systematic five-point sampling design. Samples were air-dried at ambient temperature, sieved (<2 mm), and stored at 4 °C. Particle size distribution was determined following standard protocols [9], and pH was measured potentiometrically in a 1:2 (w/v) soil-deionized water suspension.

Agronomic management and plant protection

After sowing by direct method, plots were manually irrigated for 7 days to ensure crop establishment before transitioning to a surface drip system. The drip system utilized pressure-compensating emitters spaced at 0.5 m intervals with a discharge rate of 3 L h^{-1}. Fertilization was applied at a baseline rate of 50:100:50 kg ha^{-1} of N, P, and K, respectively. The full doses of P (as single superphosphate) and K (as muriate of potash), along with 50% of the N (as urea), were basally incorporated at sowing. The remaining N was side-dressed at 21 days after sowing (DAS). To minimize confounding biotic variables, insect pests were managed with a foliar application of a commercial insecticide blend (50% chlorpyrifos + 5% cypermethrin; Hamla 550, Gharda Chemicals Ltd., Mumbai, India) at 2 mL L^{-1}.

Growth and morphological parameters

To assess vegetative and reproductive performance, five plants per plot were randomly sampled at 70 days after sowing (DAS). Recorded qualitative traits included growth habit, stem shape, stem pubescence, leaf blade lobing depth, leaf blade color, fruit skin color, fruit shape, seed color, and seediness. Quantitative measurements included primary vine length (m), primary branch number, nodes per vine, internode length (cm), stem diameter (cm), days to 50% flowering, fruit weight (g), cumulative yield (t ha^{-1}), seed count per fruit, alongside leaf, fruit, and seed dimensions (length and width).

Yield parameters

Yield components were assessed from five randomly selected plants per net plot. Sponge gourd (*Luffa cylindrica*) fruits were harvested at physiological maturity to determine fruit length and diameter (*via* digital caliper) alongside individual fruit mass (*via* calibrated electronic balance). Total plot yield (kg) was then extrapolated to tonnes per hectare (t ha^{-1}).

Statistical analysis

Quantitative variables are reported as means ± standard error of the mean (SEM). Inter-group differences between independent cohorts were evaluated utilizing an unpaired, two-tailed Student's *t*-test. All statistical analyses were performed using SigmaPlot, version 14.0. A two-sided *P* value of less than 0.05 was considered statistically significant.

RESULTS

Soil properties

Compared with CONSPGG, the BTSPGG treatment significantly modified the sandy loam soil matrix, leading to an increased water-holding capacity and higher concentrations of exchangeable cations (Ca^{2+}, Mg^{2+}, and Na^{+}; $p < 0.05$) (data not shown).

Phenological progression and morphology of *Luffa cylindrica*

To delineate the ontogeny of *Luffa cylindrica* (L.) Roxb., we systematically quantified its morphological progression across key developmental transitions. Here, we establish a high-resolution phenological framework spanning germination, seedling establishment, vegetative expansion, anthesis, and fruit maturation (**Figure 1**).

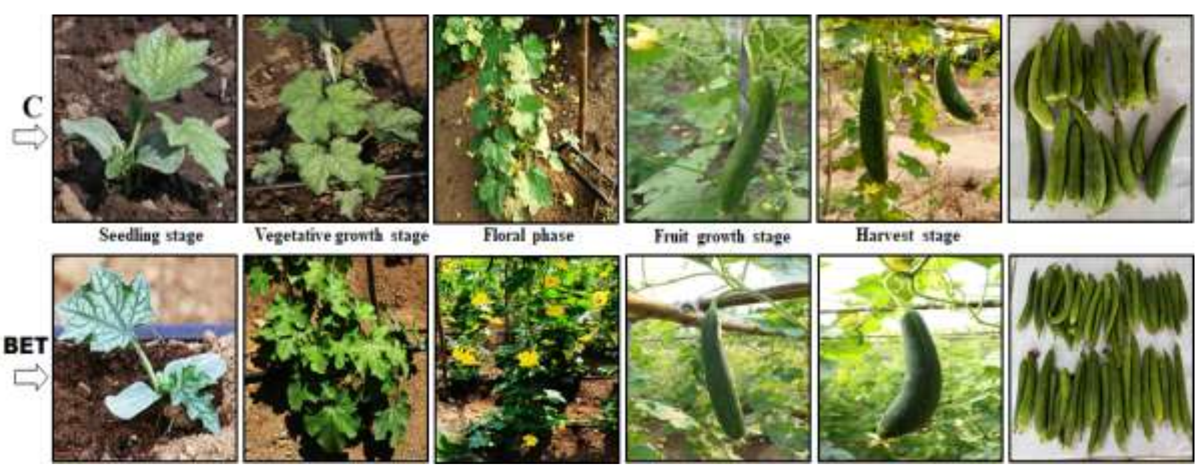

Figure 1. Phenotypic progression and vegetative growth characteristics of sponge gourd (*Luffa cylindrica*). Chronological photographic records compare developmental stages between control (C) and biofield energy-treated (BET) groups.

Morphological characteristics

Marked phenotypic divergence was observed between the control (CONSPGG) and biofield energy-treated (BTSPGG) cohorts across vegetative, floral, and reproductive structures. The BTSPGG group exhibited heightened vegetative vigor, characterized by significantly increased vine length, dense and soft stem/foliar pubescence, and larger, deeply lobed leaf blades compared to the intermediate vine length, density, texture, and lobing of CONSPGG. Treatment intensified both foliar and floral pigmentation, shifting leaf blades from green to dark green and corollas from standard yellow to bright yellow. Fruit and seed morphology similarly diverged: CONSPGG fruits featured green skins, highly fibrous, spongy internal tissue, and a mildly bitter taste, whereas BTSPGG fruits produced dark green skins, reduced fibrousness and sponginess, and a slightly sweet flavor profile. Furthermore, seed traits shifted from light black with moderate density (100–200 seeds/fruit) in CONSPGG to deep black with high density (>200 seeds/fruit) in BTSPGG. Notably, both cohorts exhibited identical traits regarding vine stem cross-section, tendril type and branching, leaf shape and margin, and overall fruit shape (Table 1). Many qualitative morphological traits in BTSPGG were better than those in CONSPGG, indicating the superior quality of the treated sponge gourd fruits.

Table 1: Impact of biofield (blessings) energy treatment on qualitative vegetative parameters of sponge gourd at 70 days after sowing (DAS).

Vegetative trait	Control group (CONSPGG)	Treated group (BTSPGG)
Plant growth habit/vine length	Medium vine (2.5-4 m)	Long vine (>4 m)
Vine stem shape	Angular	Angular
Stem pubescence	Medium	Dense
Tendril	Present	Present
Tendril type	Coiled	Coiled
Tendril branching	Branched	Branched
Leaf shape	Reniform	Reniform
Leaf margin	Dented	Dented
Leaf size	Medium	Large
Leaf pubescence	Soft	Very Soft
Leaf blade colour	Green	Dark green
Depth of lobbing in leaf blade	Medium	Deep
Flower colour	Yellow	Bright yellow
Fruit skin colour	Green	Dark green
Fruit shape	Cylindrical and elongated	Cylindrical and elongated
Fruit texture	Fibrous and spongy	Less fibrous, spongy, and soft
Fruit flesh taste	Mild bitter in taste	Mild sweet
Seed colour (mature harvest stage)	Light black	Deep black
Seediness (number of seeds/ fruit)	Medium (100-200)	Large (>200)

Phenology and yield traits

The germination rate was increased by 12.57% ($p \leq 0.001$) in the BTSPGG compared to the CONSPGG. Vegetative growth was substantially promoted in the BTSPGG, with significant increases observed in vine length (33.43%, $p = 0.001$), number of nodes (38.88%, $p \leq 0.001$), internode length (23.36%, $p = 0.002$), and stem diameter (23.66%, $p \leq 0.001$) compared to the CONSPGG. Leaf morphological characteristics also improved significantly under BTSPGG treatment, including leaf number per plant (42.73%, $p \leq 0.001$), leaf length (18.36%, $p \leq 0.001$), and leaf width (18.77%, $p \leq 0.001$) than CONSPGG. Reproductive phenology and yield components were altered favourably. The number of male and female flowers increased by 32.22% ($p \leq 0.001$) and 30.45% ($p = 0.006$), respectively, while the days to first male and female anthesis were significantly reduced by 10.56% ($p \leq 0.001$) and 11.04% ($p = 0.002$). Furthermore, yield-attributing traits such as peduncle length (34.38%, $p \leq 0.001$), fruit weight (24.83%, $p \leq 0.001$), fruit length (24.50%, $p = 0.012$), fruit width (46.13%, $p \leq 0.001$), and the number of fruits per plant (16.71%, $p = 0.015$) were all significantly enhanced. Seed metrics followed a similar upward trend, with significant increases in seed count per fruit (27.51%, $p \leq 0.001$) and 100-seed weight (15.24%, $p \leq 0.001$). This culminated in a 49.54% expansion in overall fruit yield per hectare was observed in the BTSPGG compared to the CONSPGG (Table 2).

Table 2**.** Evaluation of the phenological and yield characteristics of sponge gourd following spiritual (biofield/prayer) blessing energy treatment (SBET).

Vegetative trait	Control group (CONSPGG)	Treated group (BTSPGG)	P Value
Days to germination	7-9	6-7	-
Germination percentage	86.48 ± 0.12	97.35 ± 0.04	$p \leq 0.001$
Plant vine length (m)	3.35 ± 0.12	4.47 ± 0.19	$p = 0.001$
Number of primary branches/vines	9.17 ± 0.15	9.27 ± 0.12	$p = 0.617$
Number of nodes/vines	47.68 ± 2.01	66.22 ± 1.21	$p \leq 0.001$
Internode length (cm)	18.24 ± 0.57	22.50 ± 0.72	$p = 0.002$
Stem diameter (cm)	1.31 ± 0.05	1.62 ± 0.03	$p \leq 0.001$
Number of leaves per plant	84.69 ± 3.08	120.88 ± 3.04	$p \leq 0.001$
Leaf length (cm)	14.27 ± 0.46	16.89 ± 0.17	$p \leq 0.001$
Leaf width (cm)	12.89 ± 0.48	15.31 ± 0.14	$p \leq 0.001$
Days to first male (staminate) flower appearance	37.11 ± 0.37	33.19 ± 0.26	$p \leq 0.001$
Days to first female (pistillate) flower appearance	43.58 ± 1.07	38.77 ± 0.18	$p = 0.002$
Days to 50% flowering	54.78 ± 2.01	52.92 ± 1.40	$p = 0.469$
Number of male flowers	83.56 ± 2.97	110.48 ± 3.26	$p \leq 0.001$
Number of female flowers	17.21 ± 0.94	22.45 ± 1.08	$p = 0.006$
Days to first harvest	58.03 ± 1.05	55.48 ± 1.55	$p = 0.210$
Peduncle length (cm)	11.11 ± 0.23	14.93 ± 0.44	$p \leq 0.001$
Fruit weight (g)	116.53 ± 2.35	145.47 ± 1.36	$p \leq 0.001$
Crop duration (days)	107.28 ± 1.81	103.86 ± 1.58	$p = 0.192$
Fruit length (cm)	20.86 ± 1.08	25.97 ± 1.16	$p = 0.012$
Fruit width (cm)	3.23 ± 0.14	4.72 ± 0.14	$p \leq 0.001$
100-seed weight (g)	11.42 ± 0.06	13.16 ± 0.05	$p \leq 0.001$
Seed length (cm)	1.08 ± 0.08	0.98 ± 0.02	$p = 0.260$
Seed width (cm)	0.76 ± 0.08	0.66 ± 0.02	$p = 0.260$
Seed count/fruit	167.39 ± 6.20	213.44 ± 3.55	$p \leq 0.001$
Number of fruits per plant	33.58 ± 1.24	39.19 ± 1.34	$p = 0.015$
Fruit yield (kg) per plant	3.28	5.70	-
Fruit yield (kg)	40.27	60.20	-
Fruit yield/sq. m plot (kg/sq. m)	1.19	1.78	-
Fruit yield/hectare (ton/ha)	11.93	17.84	-

Data tabulated as mean ± SEM (n = 5); $p \leq 0.05$ *vs.* control sponge gourd group (CONSPGG) using Student's *t*-test

DISCUSSION

The observed phenotypic divergence between the control (CONSPGG) and biofield energy-treated (BTSPGG) cohorts highlights significant alterations in the vegetative, reproductive, and qualitative development of the crop. The heightened vegetative vigor in the BTSPGG group evidenced by significantly increased vine length, denser and softer pubescence, and larger, deeply lobed leaf blades, suggests an enhanced rate of cellular proliferation and primary meristematic activity. In sponge gourd, such distinct morphological plasticity in leaf area and vine length was highly correlated with enhanced photosynthetic capacity and overall biomass accumulation [10]. Furthermore, the intensified pigmentation observed in the treated group, which shifted leaf blades to dark green and corollas to a bright yellow, likely indicates an upregulation in chlorophyll and carotenoid biosynthesis, a critical factor for maximizing solar energy capture in *Luffa* species [11]. The modification of internal fruit tissue represents a highly desirable agronomic shift. The transition from the highly fibrous, spongy, and mildly bitter tissue typical of the CONSPGG cohort to the reduced fibrousness and slightly sweet flavor profile of the BTSPGG fruits points to an alteration in secondary metabolite production. The bitterness in conventional sponge gourd was driven by the accumulation of cucurbitacins, while rapid xylem lignification creates early sponginess; mitigating both traits simultaneously is historically difficult without targeted genetic breeding [12]. The suppression of these pathways in the treated cohort directly improved the edible quality of the fruit.

The present study demonstrates that the application of SBET in the BTSPGG significantly enhanced the early developmental stages and vegetative architecture of the crop. The observed data showed that an increase in the germination rate compared to the CONSPGG suggests that the treatment likely optimizes seed imbibition and the activation of hydrolytic enzymes essential for early embryo development. This physiological stimulation aligns with broader mechanisms of plant-microbiome and exogenous treatments that improve nutrient mobilization and early root vigor [13]. Following successful germination, vegetative growth was substantially promoted in the BTSPGG-treated plants, exhibiting significant increases in vine length, number of nodes, internode length, and stem diameter. These structural enhancements are crucial for vining crops, as an extensive canopy and robust stem architecture provide the necessary physical framework to transport nutrients and support heavy fruiting, a phenomenon similarly observed when optimizing nutrient and growth regimes specifically in sponge gourd cultivation [14].

In addition to structural stem improvements, leaf morphological characteristics were significantly augmented under the BTSPGG treatment. The substantial enhancements in leaf number per plant, leaf length, and leaf width over the CONSPGG directly contribute to a much higher Leaf Area Index (LAI). In cucurbits, expanded foliar dimensions are directly correlated with elevated photosynthetic rates, thereby ensuring greater synthesis and accumulation of the photoassimilates required for the transition into the reproductive phase. Enhanced leaf morphometrics in sponge gourd heavily dictate the plant’s source-sink relationship, allowing the crop to sustain the higher metabolic demands required during prolific fruit set and expansion of similar Cucurbitaceae [15].

The transition to the reproductive phase and subsequent flowering phenology were altered favourably in the BTSPGG. The days to first male and female anthesis were significantly reduced, indicating an accelerated maturation process that effectively extends the productive harvesting window. Concurrently, the total number of male and female flowers increased. Early anthesis combined with a higher proliferation of pistillate (female) flowers was a primary biological determinant of ultimate yield in monoecious, cross-pollinated crops. The modulation of sex expression and early flowering in sponge gourd was widely linked to optimized hormonal balances, specifically the regulation of gibberellins and auxins, which act to lower the node number for the first female flower and increase overall floral density [16].

Ultimately, the synergistic effects of enhanced vegetative vigor and optimized reproductive phenology culminated in massive gains in yield-attributing traits. Under the spiritual energy treatment in the BTSPGG, the peduncle length, fruit weight, fruit length, and fruit width were significantly enhanced, alongside an increase in the number of fruits per plant. Seed metrics, including seed count per fruit and 100-seed weight, followed a similar upward trend, which was a vital indicator of successful fertilization, robust endosperm development, and overall fruit quality. This magnitude of yield enhancement highlights the profound agronomic potential of the BTSPGG in maximizing the genetic yield potential and sink strength of sponge gourd in modern intensive farming systems [17, 18].

Collectively, these individual component improvements resulted in a remarkable expansion in overall fruit yield per hectare compared to the CONSPGG. The mechanism behind this targeted enhancement of vigor, pigmentation, and yield traits, without inducing deleterious structural mutations, can be contextualized by the applied treatment modality. Consequently, the biofield treatment likely acted as a catalytic epigenetic modulator in the BTSPGG cohort, optimizing enzymatic and metabolic functions to produce a superior agricultural profile while maintaining the core structural integrity of the sponge gourd.

CONCLUSION

The application of blessing/biofield energy treatment significantly accelerated the vegetative development, reproductive capacity, and overall yield profile of the crop compared to the control group. Ultimately, these coordinated physiological and morphological enhancements culminated in a substantial increase in total fruit yield per hectare. This study's findings indicate that blessing (prayer/biofield) energy treatment effectively enhances crop vigour and reproductive efficiency, demonstrating its potential as a non-chemical agronomic intervention for optimising yield parameters. Overall, the data suggest that blessing (biofield) energy can serve as a viable, cost-effective, and environmentally sustainable complementary approach to modern agriculture, potentially reducing the reliance on chemical interventions while maximizing crop productivity.

Abbreviations

SBET: spiritual blessing energy treatment; CONSPGG: control sponge gourd group; BTSPGG: biofield energy-treated sponge gourd group; SSP: single super phosphate; MOP: muriate of potash

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Conflict of Interests

Author AB was employed by Trivedi Global, Inc VDK, TBG, and NRP were employed by Shree Angarsiddha Shikshan Prasarak Mandal’s College of Agriculture, Sangulwadi, Mohitewadi, Maharashtra, India. Authors SM and SJ were employed by Trivedi Science Research Laboratory Pvt. Ltd.

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