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Impact of Blessing Energy Treatment (BET) on the Vegetative Growth and Fruit Yield of *Abelmoschus esculentus* (Okra)

[1]Trivedi, D., [2]Kadam, V. D., [2]Gaikwad, T. B., [2]Phutankar, N. R., [3]Mondal, S., [3]Jana, S.

[1]Trivedi Global, Inc., Research and Development, Henderson, Nevada, USA
[2]Shree Angarsiddha Shikshan Prasarak Mandal's College of Agriculture, Dept. of Horticulture, Sangulwadi, Mohitewadi, Maharashtra, India
[3]Trivedi Science Research Laboratory Pvt. Ltd., Research and Development, Thane (W), Maharashtra, India

***Corresponding author**
Snehasis Jana
Trivedi Science Research Laboratory Pvt. Ltd., Research and Development, Thane (W), Maharashtra, India
Email: publication@trivedisrl.com

Abstract

Abelmoschus esculentus (L.) Moench, commonly known as okra, is a vital vegetable crop in tropical and subtropical regions, valued for its nutritional profile and therapeutic properties. However, optimizing its vegetative growth and maximizing fruit yield remains a challenge under conventional cultivation due to soil degradation and escalating input costs. This study evaluated the impact of an alternative, non-invasive biofield energy treatment on the growth parameters, developmental phenology, and total fruit yield of *A. esculentus*. A randomized complete block design was implemented using okra seeds and land, divided equally into a control group (untreated) and a treatment group. The treatment group was subjected to a standardized biofield energy transmission protocol prior to sowing, while the control group remained under ambient conditions without intervention. Both cohorts were cultivated concurrently under identical agrometeorological regimes, soil compositions, and irrigation schedules. Key vegetative parameters (plant height, leaf area index, and stem diameter) and reproductive metrics (days to 50% flowering, average fruit weight, and total yield per hectare) were monitored longitudinally. Phenological traits such as leaf number per plant, leaf length, fruit weight, and fruit diameter were significantly increased by (53.12%, $p \leq 0.001$), (30.78%, $p \leq 0.001$), (44.47%, $p \leq 0.001$), and (39.31%, $p \leq 0.001$), respectively, in the treatment group compared to the control group. Additionally, overall fruit yield (t/ha) increased by 27.56% in the treatment group compared with the control group. The findings indicate that spiritual blessing (biofield) energy treatment effectively alters the vegetative growth and yield-related parameters of okra. This non-chemical, sustainable approach offers a promising framework for augmenting agricultural productivity and could serve as an eco-friendly adjunct to modern precision farming practices.

Keywords: okra, spiritual blessing, prayer, biofield energy, morphology, yield, vegetative growth, phenological development

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INTRODUCTION

Global agriculture is currently confronting unprecedented challenges due to rapid population growth, climate change, erratic weather patterns, and the progressive depletion of arable land [1]. However, achieving optimal vegetative growth and high fruit yields in okra cultivation was heavily constrained by its sensitivity to variable soil quality, pathogen susceptibility, and environmental fluctuations. Conventional methods to augment its output involve intense chemical interventions, highlighting an urgent need for non-invasive, sustainable alternatives that can naturally stimulate the biological potential of the plant [2]. To meet escalating food demands without accelerating environmental degradation through excessive synthetic inputs, modern agronomy is compelled to look beyond conventional inputs toward sustainable, non-chemical yield enhancement alternatives. Among economically vital crops, okra (*Abelmoschus esculentus* (L.) Moench) stands out as an indispensable tropical and subtropical annual vegetable prized for its rich nutritional profile, high viscous fiber content, and diverse therapeutic applications [3].

The conceptual framework of the "biofield" was recognized by agencies such as the National Center for Complementary and Integrative Health (NCCIH) as a complex, dynamic, and low-level electromagnetic or putative energy matrix that surrounds and permeates living organisms [4]. While human biofield modalities have traditionally been explored within preclinical medicine and cellular biology to evaluate tissue proliferation and stress recovery [5], their application has progressively expanded into the agricultural sector. Early foundational and modern laboratory studies have demonstrated that subtle energetic modalities can significantly alter seed germination rates, modify plant phenotypes, and induce structural adaptations in plants subjected to environmental stressors [5]. This study systematically investigates the impacts of deliberate subtle energy applications on the phenotypic developmental markers, vegetative vigor, and final reproductive fruit yields of *Abelmoschus esculentus*.

MATERIALS AND METHODS

Materials and experimental design

High-purity seeds of okra (*Abelmoschus esculentus* L. Moench, cv. 'Jenifer') with a genetic purity of 95% (Lot No. NUA-54012353; Label: 17387) were procured from Namdeo Umaji Agritech (India) Pvt. Ltd. The experiment was conducted utilizing a Randomized Complete Block Design (RCBD) featuring two treatment cohorts:

- Control Group (CONOKG): Maintained under standard baseline conditions without intervention.
- Treated Group (BTOKG): Subjected to a Spiritual Blessing (Biofield) Energy Treatment (SBET) to evaluate the impact of biofield energy.

To isolate the physiological and phenotypic effects of the SBET intervention and to eliminate potentially confounding environmental variables, all post-treatment agronomic parameters such as irrigation schedules and standardized pest management protocols were kept strictly uniform across both cohorts for the entirety of the experimental timeline.

Study site description

The field experiment was established at Bhandarwadi, situated in the Sindhudurg district of Maharashtra, India (15°37’–16°40’ N, 73°19’–74°13’ E) at an elevation of 26 m above mean sea level. Characterized by a tropical climate within the Konkan agro-climatic zone, the region experiences peak thermal conditions during the pre-monsoon season, with mean maximum temperatures reaching 38–40°C. Pronounced interannual precipitation variability frequently precipitates acute soil moisture deficits. Consequently, this moisture limitation exacerbates crop vulnerability to drought stress, potentially disrupting critical physiological mechanisms across key phenological growth stages.

Field Layout

Each treatment group replicated across three blocks. Each block was partitioned into two distinct experimental plots to which treatments were randomly allocated. The total experimental area encompassed 50 m^2 partitioned into six discrete plots (3.5 m x 2 m) each, with an individual plot area of 7 m^2. Uniform buffer zones of 0.5 m were maintained between adjacent plots and blocks to prevent cross-contamination. Crop spacing was established at a density of 0.5 m x 0.5 m.

Spiritual blessing (prayer) energy treatment strategy

The control cohort (CONOKG) remained untreated to establish baseline parameters, while the experimental cohort (BTOKG) was subjected to a 4-minute SBET. This intervention was administered by an experienced (more than 12 years) practitioner, Mrs. Dahryn Trivedi from a distance of approximately 0.5 m. Environmental parameters during the exposure protocol were strictly regulated at a temperature of 28 ± 2°C and a relative humidity of 65 ± 5%. Post-intervention, both cohorts were cultivated under identical, standardized agronomic conditions. Phenotypic growth markers and physiological variations were systematically quantified to assess the efficacy of the biofield treatment on the crop and soil matrix.

Soil properties

Baseline edaphic characterization was performed on composite core samples retrieved from the upper 30 cm matrix of each experimental plot utilizing a systematic five-point sampling matrix. Following collection, the samples were ambiently air-dried to constant weight and mechanically sieved through a 2-mm mesh to eliminate macro-aggregates and ensure sample homogeneity, prior to preservation at 4 °C. Soil granulometry (particle size distribution) was quantitatively evaluated in accordance with standardized protocols [6]. Electrometric soil pH was subsequently determined in a 1:2 (w/v) aqueous suspension (soil-to-deionized water) using a glass-electrode pH meter calibrated against standard buffer solutions.

Sowing, irrigation, and crop management

Following direct sowing, experimental plots were manually irrigated for an initial 7-days establishment period before transitioning to an automated drip irrigation system equipped with pressure-compensating emitters (0.5-m spacing; discharge rate of 3 L/h). Baseline fertilization was applied at a rate of 50:100:50 kg/ha of nitrogen (N), phosphorus (P), and potassium (K), respectively. The entire allocations of phosphorus, supplied as single superphosphate (SSP) and potassium, supplied as muriate of potash (MOP) were incorporated pre-sowing alongside 50% of the total nitrogen (as urea). The remaining 50% of the N allocation was top-dressed 21 DAS. Insect populations were managed uniformly across all treatments *via* a foliar application of a broad-spectrum insecticide formulation containing 50% chlorpyrifos and 5% cypermethrin (Hamla 550, Gharda Chemicals Ltd., Mumbai, India) at a concentration of 2 mL/L.

Phenotypic characterization and agromorphological assessment

At seventy-two DAS, five plants per plot were randomly selected for destructive and *in situ* phenotypic characterization. Agromorphological evaluation was conducted utilizing a standardized repository of qualitative and quantitative descriptors. Qualitative macroscopic traits evaluated *in situ* encompassed vegetative architecture (growth habit, branching pattern, canopy structure, and stem pigmentation), foliar morphology (margin dentation, lobing depth, venation color, foliar color, blade width, blade lobing, apex angle, prickliness, and pubescence), reproductive features (floral color, floral size, and bud color), and carpological/seminological characteristics (immature fruit color, fruit shape, fruit apex shape, seed color, seed size, and seediness). Concurrently, continuous quantitative metrics were recorded for agronomic yield and structural components, specifically: plant height (cm), branch count per plant, stem diameter (cm), days to 50% flowering, fruit length (cm), and fruit diameter (cm).

Yield and morphometric characterization

Abelmoschus esculentus (okra) siliques were harvested at physiological maturity to evaluate yield components and phenotypic characteristics. Morphometric attributes, specifically fruit length and equatorial diameter, were quantified using a digital vernier caliper, while individual fruit biomass was determined utilizing a high-precision electronic analytical balance. To assess cumulative crop productivity, five representative plants per experimental net plot were selected *via* a simple random sampling design. The cumulative fruit yield per plot was recorded gravimetrically in kilograms and subsequently extrapolated to yield per unit area, expressed in metric tonnes per hectare (t/ha).

Data analysis

To assess variations between the two independent groups, a two-tailed Student’s *t*-test was employed, with data represented as mean ± standard error of the mean (SEM). All computational analyses were carried out using SigmaPlot (version 14.0). For all tests, a p-value of less than 0.05 was considered statistically significant.

RESULTS

Soil properties analysis

Pedological assessment at baseline established a prominent sandy loam matrix (pH 5.01), structurally predisposed to a low effective cation exchange capacity (ECEC) and consequent nutrient leaching. Post-harvest quantification revealed that application of the SBET treatment elevated the pH to 5.90.

Morphology of okra plants

Phenological development of *Abelmoschus esculentus* was quantified *via* longitudinal morphological assessments conducted at predetermined intervals. The observational matrix encompassed the complete ontogenetic trajectory of the cohort, capturing the transition from radicle emergence and subsequent seedling establishment, through the vegetative expansion phase, anthesis, carpel elongation, and physiological maturity at final harvest (**Figure 1**).

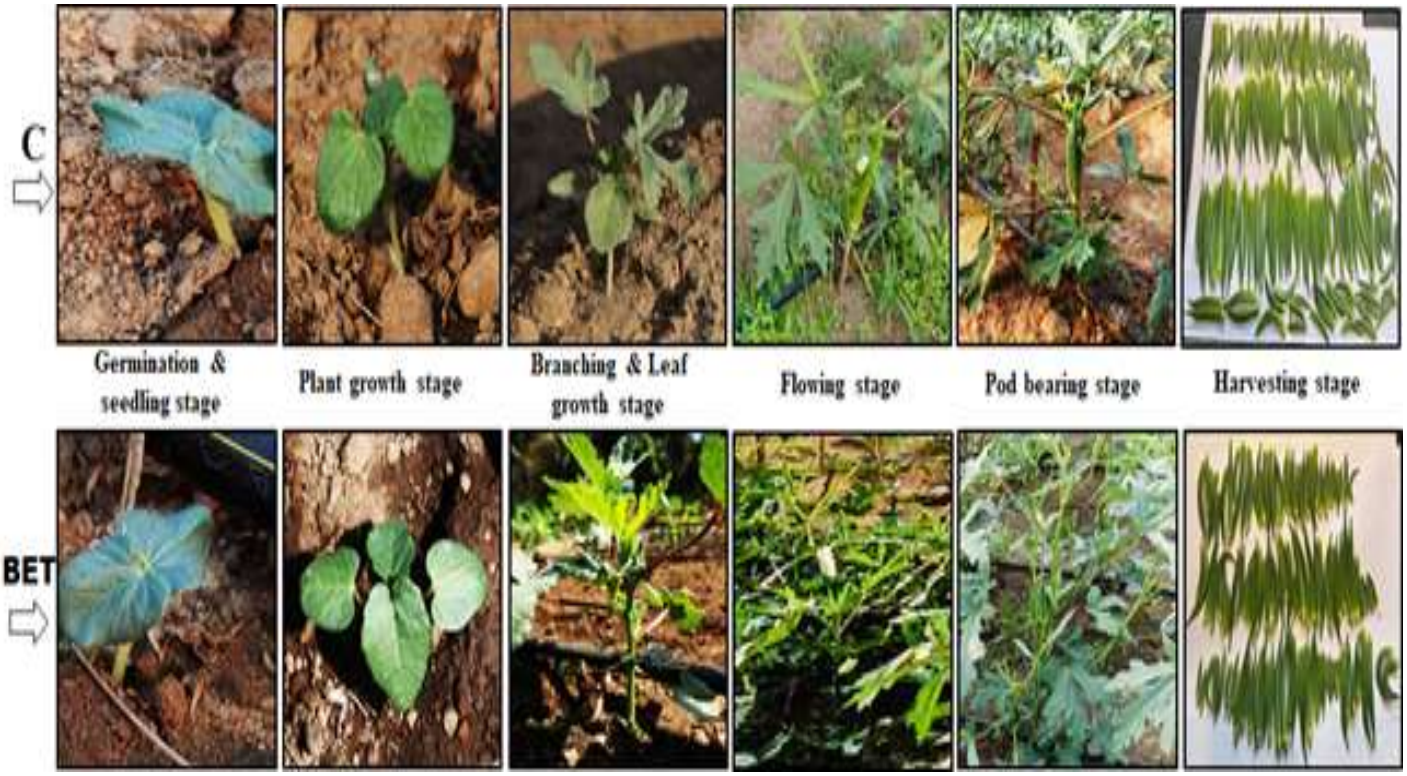

Figure 1. Representative images illustrate the changes in vegetative growth characteristics of okra at different stages. C: Control group; BET: Blessing/biofield energy treatment group.

Morphological attributes

The blessing energy-treated okra group (BTOKG) exhibited pronounced variations in vegetative and reproductive phenotypes compared to the control group (CONOKG). Vegetatively, BTOKG demonstrated an expansive plant spread area coupled with robust branching, whereas CONOKG displayed a broad spread with intermediate branching. Foliar and cauline pigmentation was notably darker in the treatment group, with BTOKG exhibiting dark green stems and leaves alongside intense dark violet anthocyanin expression, compared to the standard green tissue and greenish-violet pigmentation of CONOKG. Laminar morphology also varied significantly between the cohorts; BTOKG leaves were characterized by greater blade width, deep lobing (strong overall blade lobing), an obtuse apex angle, and strongly dentate margins. Conversely, CONOKG leaves possessed narrower blades with medium lobing, an acute apex angle, and moderately dentate margins. Trichome density and spine development were higher in the treatment group, which presented an intermediate number of prickles and high pubescence (greater than 100 leaf hairs) relative to the sparse prickles and lower trichome count (less than 50 hairs) observed in CONOKG. Venation patterns further distinguished the groups, with CONOKG showing light greenish-purple veins and medium green interveinal intensity, while BTOKG displayed purple-green veins and dark green interveinal coloration. Reproductive and fruit characteristics mirrored these robust phenotypic shifts. At anthesis, BTOKG exhibited yellow-crimson flowers, a deeper shade than the pale yellow-crimson corollas of CONOKG. Post-fertilization, BTOKG yielded dark green fruits containing intermediate-sized, brown seeds with significantly elevated seediness (greater than 50 seeds per fruit). In contrast, CONOKG produced green fruits housing small, greenish-brown seeds with lower seediness (less than 30 seeds per fruit). Despite these prominent modifications, other critical morphological markers, specifically plant growth habit, flower size, flower bud color, flower bud size, and apical fruit shape, remained invariant between BTOKG and CONOKG following SBET (**Table 1**).

.

Table 1. Effects of spiritual blessing (biofield) energy treatment (SBET) on qualitative vegetative parameters of okra

Vegetative Trait	Control Group (CONOKG)	Treated Group (BTOKG)
Plant growth habit	Upright	Upright
Plant spread	Broad (>45 cm)	Very broad (>60 cm)
Plant branching	Intermediate (3-5)	Strong (>5)
Stem color	Green	Dark Green
Dentation of leaf margin	Medium	Strong
Depth of lobbing	Medium	Deep
Pigmentation	Greenish violet	Dark violet
Leaf color	Green	Dark Green
Leaf vein color	Light greenish purple	Purple green
Color between veins	Medium green	Dark green
Leaf blade width	Narrow (< 5 cm)	Wide (>10 cm)
Leaf blade lobing	Intermediate (<5)	Strong (>7)
Leaf blade tip angle	Acute (3)	Obtuse (>7)
Leaf prickle	Few (3-5)	Intermediate (10-20)
Leaf hairs	Few (<50)	Many (>100)
Flower color	Pale yellow crimson	Yellow crimson
Flower size	Small	Small
Flower bud color	Purplish Green	Purplish Green
Flower bud size	Small	Small
Fruit shape apex	Narrow	Narrow
Fruit colour	Green	Dark Green
Seed colour	Greenish brown	Brown
Seed size	Small (< 2 mm)	Intermediate (> 3 mm)
Seediness (number of seeds/ fruit)	Medium (<30)	High (> 50)

Phenology and yield traits

Analysis of phenological and morphological traits revealed substantial improvements in the BTOKG group relative to the CONOKG control. Early developmental metrics showed that BTOKG significantly accelerated germination rates by 14.1% ($p \leq 0.001$) and enhanced final plant height by 24.41% ($p \leq 0.001$). Modifications in plant architecture were similarly pronounced, with the number of branches per plant and internodal length increasing by 22.27% ($p = 0.030$) and 17.4% ($p = 0.047$), respectively. This structural expansion correlated with a heightened photosynthetic capacity; BTOKG plants exhibited increases in leaf number per plant (53.12%, $p \leq 0.001$), leaf length (30.78%, $p \leq 0.001$), and peduncle length (21.35%, $p \leq 0.001$). These vegetative gains translated into robust reproductive outcomes. Yield-associated fruit parameters, including fruit weight (44.47%, $p \leq 0.001$), fruit length (21.03%, $p \leq 0.001$), fruit diameter (39.31%, $p \leq 0.001$), fruit girth (25.2%, $p = 0.006$), and fruit ridge count (16.89%, $p \leq 0.001$) were all significantly elevated in BTOKG. Consequently, 100-seed weight increased by 22.94% ($p = 0.004$), culminating in a 27.56% increase in overall fruit yield (t/ha) for the BTOKG group compared to the CONOKG (**Table 2**).

Table 2. Quantitative evaluation of the phenological and yield characteristics of okra following spiritual blessing (biofield/prayer) energy treatment.

Vegetative Trait	Control Group (CONOKG)	Treated Group (BTOKG)	P value
Days to germination	5-7	5- 6	-
Germination percentage	81.37 ± 0.18	92.84 ± 0.12	$p \leq 0.001$
Plant height (cm)	74.30 ± 1.82	92.44 ± 1.86	$p \leq 0.001$
Stem collar diameter (cm)	1.58 ± 0.04	1.70 ± 0.04	$p = 0.067$
Number of branches per plant	5.12 ± 0.19	6.26 ± 0.39	$p = 0.030$
Internodal length (cm)	5.46 ± 0.14	6.41 ± 0.38	$p = 0.047$
Number of leaves per plant	16.53 ± 0.15	25.31 ± 0.52	$p \leq 0.001$
Leaf length (cm)	12.64 ± 0.37	16.53 ± 0.16	$p \leq 0.001$
Leaf width (cm)	13.48 ± 0.57	14.59 ± 0.07	$p = 0.089$
Peduncle length (cm)	1.78 ± 0.04	2.16 ± 0.05	$p \leq 0.001$
Days to first flowering	41.26 ± 1.03	40.47 ± 0.97	$p = 0.592$
Days to 50% flowering	52.37 ± 1.26	50.10 ± 0.14	$p = 0.111$
Days to first fruiting	56.01 ± 1.11	54.73 ± 1.35	$p = 0.485$
Fruit pedicel length (cm)	1.51 ± 0.08	1.64 ± 0.05	$p = 0.206$
Days to first harvest	65.24 ± 1.46	64.58 ± 1.46	$p = 0.757$
Fruit weight (gm)	7.69 ± 0.23	11.11 ± 0.11	$p \leq 0.001$
Duration of crop (days)	98.87 ± 1.45	98.13 ± 1.27	$p = 0.711$
Fruit length (cm)	11.08 ± 0.13	13.41 ± 0.07	$p \leq 0.001$
Fruit diameter (cm)	1.45 ± 0.03	2.02 ± 0.02	$p \leq 0.001$
Girth of fruit (cm)	1.27 ± 0.03	1.59 ± 0.08	$p = 0.006$
Number of fruit ridge	5.27 ± 0.04	6.16 ± 0.03	$p \leq 0.001$
100-seed weight (gm)	5.45 ± 0.24	6.70 ± 0.21	$p = 0.004$
Number of fruits per plant	31.20	36.34	-
Fruits yield per plant (kg/plant)	0.28	0.36	-
Total fruit yield (kg)/plot	25.46	32.46	-
Fruit yield/sq. m plot (kg/sq. m)	1.21	1.55	-
Fruit yield/hectare (t/ha)	12.12	15.46	-

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

DISCUSSION

The pronounced enhancement of vegetative traits in BTOKG, characterized by an expansive plant spread area coupled with robust branching compared to the intermediate branch development of CONOKG, reflects an accelerated rate of cell division and optimal spatial canopy deployment. In okra cultivation, a broader plant spread and heightened branching frequency are vital agronomic indicators of enhanced vegetative vigor and carbohydrate distribution [7]. This expanded architecture serves to maximize photosynthetic interceptive capacity, facilitating a more substantial translocation of photoassimilates toward developing reproductive sinks [8]. Simultaneously, the energetic intervention modified pigmentation profiles, as evidenced by the dark green stems, dark green leaves, and intense dark violet anthocyanin expression in BTOKG, compared to the standard green tissue and faint greenish-violet markings of CONOKG (**Table 2**). The visible accumulation of anthocyanins within the cauline and foliar systems acts as an adaptive mechanism, providing tissue protection against localized radiative stress and reinforcing cellular antioxidant pathways [9].

Elevating the leaf hair density above the 100-hair threshold sets up a physical boundary layer that interferes with insect movement, oviposition, and feeding mechanics [10]. This alteration shows that the energy treatment modifies surface structural differentiation, establishing a protective mechanical barrier without disrupting the plant's broader growth kinetics. The sharp increase in seed count per fruit (exceeding 50 seeds) underscores an improvement in ovule fertilization efficiency and post-fertilization nutrient allocation [11]. This combination of robust vegetative framework, enhanced tissue defense, and elevated reproductive capacity demonstrates that the energy treatment supports a holistic up-regulation of developmental processes in *Abelmoschus esculentus*.

The significant enhancement of phenological parameters and agronomic yields observed in the treatment group (BTOKG) highlights its strong growth-promoting efficacy relative to the control group (CONOKG). Early developmental milestones, particularly the acceleration in seed germination rates, establish an essential foundational advantage for subsequent vegetative development, which directly corresponds with findings where enhanced early micro-environmental or organic interventions optimized pioneer germination indices in okra cultivars [12]. This early vigor subsequently stimulated robust morphological progression, as evidenced by the enhancement in final plant height. Such dramatic vegetative expansion under favorable treatments mirrors established phenotypic plasticity in *Abelmoschus esculentus*, where specialized treatments significantly expand the structural architecture and vertical extension of the crop [13]. Moreover, increase in primary branches per plant and elongation of internodal length, which together reflect an optimized cellular division and spatial adaptation. These architectural improvements fundamentally increased the capacity of the plant to capture solar radiation by expanding its photosynthetic canopy. This structural optimization is clearly supported by the concurrent surges in leaf number per plant and leaf length. These current findings in the BTOKG highly consistent with the outcomes of Ndungu, 2026 [14].

The substantial vegetative gains achieved by the BTOKG group successfully translated into highly robust reproductive outcomes. The yield-associated fruit parameters exhibited uniform and significant elevations, specifically across fruit weight, fruit length, fruit diameter, fruit girth, and fruit ridge count. In okra cultivation, these physical dimensions serve as direct components of individual pod weight, which maintains a highly significant positive correlation with total fruit yield per plant [13]. Because individual pod traits are highly responsive to physiological adjustments, the concurrent increase in 100-seed weight confirms that the BTOKG group successfully sustained efficient assimilate partitioning towards both consumer pods and reproductive seed sinks, matching patterns of high heritability and phenotypic expression documented for hundred-seed weight in underutilised okra germplasm evaluations [15].

Ultimately, these cumulative morphological and structural advantages culminated in an increase in overall fruit yield (t/ha) for the BTOKG group compared to the CONOKG control. This substantial increase demonstrates that accelerating early crop phenology, expanding the photosynthetic leaf area, and optimizing fruit architecture are directly linked to maximizing field-scale tonnage. These findings validate that targeting foundational vegetative and phenological traits are highly effective strategy for overcoming modern production constraints and achieving sustainable, high-yield outcomes in global okra agriculture [13, 15].

CONCLUSION

In conclusion, the experimental blessing energy treatment demonstrated a highly significant, positive impact on both the vegetative and reproductive growth parameters of okra. The substantial increases in vegetative phenological traits, indicate that the treatment strongly enhances photosynthetic capacity and overall plant vigor. This robust vegetative development successfully translated into enhanced reproductive output. Overall, these cumulative improvements culminated in a statistically superior and commercially meaningful increase in overall fruit yield (t/ha) compared to the control group.

Abbreviations

SBET: spiritual blessing energy treatment; CONOKG: control okra group; BTOKG: biofield energy-treated okra group; SSP: single super phosphate; MOP: muriate of potash

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Conflict of Interests

Author DT 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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