

Morphological Attributes and Yield of *Momordica charantia* (Bitter Gourd) Under the Application of Spiritual Blessing/Biofield Energy Treatment (BET)

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Abstract

Objective

Bitter gourd (*Momordica charantia* L.) is a widely consumed vegetable. This study aimed to assess the impact of spiritual blessing (biofield) energy treatment (S/BET) known as the Trivedi Effect[®] on a plant's growth and yield when applied to both seeds and soil.

Methods

Seeds were split into two groups: an untreated control group (CONBIGG) and a BET-group (BTBIGG). Soil texture was checked by hand, and mineral contents were measured using standard procedures. An experienced scholar noted plant morphological, phenological, and yield-related parameters.

Results

The S/BET group showed improvements in stem length, fruit colour, and seediness compared to the control. Other phenological parameters, such as vine length (38.78 %; $p \leq 0.001$), branch number (54.03 %; $p \leq 0.01$), inter-nodal length (42.94 %; $p \leq 0.001$), fruit length (33.27 %; $p \leq 0.001$), seed length (40.32 %; $p \leq 0.001$), seeds per fruit (52.50 %; $p \leq 0.001$), and fruits per vine (66.88 %; $p \leq 0.001$), were significantly increased in the BTBIGG group compared to the CONBIGG. Yield per hectare rose by 61.31 % in the S/BET group compared to the control.

Conclusion

The study results suggest that the spiritual blessing/prayers/BET-Trivedi Effect[®] significantly improved morphological, phenological, and yield-related parameters compared to the control group. This study provides useful scientific research data and information for producing stable, high-quality bitter gourds.

Introduction

Bitter gourd (*Momordica charantia* L.) is a popular vegetable worldwide. To grow it well, balanced fertilization is important. This plant can adapt to various environments and grows in both tropical and subtropical regions. People are consumed to bitter gourd for its unique taste and high nutritional value. The compound 'charantin' found in bitter gourd helps treat diabetes by lowering blood sugar levels [1]. Many studies have confirmed the health benefits of bitter gourd and found that the fruit was rich in vitamins (B₁, B₂, B₃, folic acid, and vitamin C), minerals (iron, phosphorus, magnesium, zinc, manganese, calcium, potassium, and chromium), dietary fiber, and carbohydrates [2-4]. The fruits are naturally rich in β -carotene, zeaxanthin, and lycopene in the ripe stage, and lutein and α -carotene in the immature stage [5]. According to the World Health Organization (WHO), bitter gourd extracts have been used in traditional medicine by 80 percent of the world's population [6]. The fruit is known for its antioxidant and antimicrobial effects [7], as well as anti-diabetic [8], anti-dementia [9], and anti-cancer properties [10]. In India, people have long used the leaves and fruits to treat diabetes, colic, and to heal skin sores and wounds [11]. Research has shown that bitter gourd contains a substance similar to insulin, often called "plant insulin", which helps lower blood and urine glucose levels [8].

Bitter gourd is valued for its strong nutritional content and important medicinal uses, so it is important to improve its quality, productivity, yield, and cost-effectiveness. Complementary and alternative medicine (CAM) therapies include a range of approaches used alongside standard healthcare. Blessing/Biofield energy treatment (BET), such as the Trivedi Effect[®], is one type of CAM [8]. The Trivedi Effect[®] is described as a phenomenon where a spiritual energy practitioner can harness a unique form of intelligent divine energy from the universe and transmit it to living and non-living organisms through spiritual energy transmission [12]. Numerous scholars have reported that the Trivedi Effect[®]'s positive results in agriculture, such as improved growth and fruit yield in cashew [13], bottle gourd and okra [14], as well as better growth, germination rate, plant hormone levels, and antioxidant capacity in cotton [15] and mustard [16]. This experiment was designed to assess the effects of the spiritual blessing energy treatment (Trivedi Effect[®]) on various morphological traits-related to the yield of bitter gourd accessions collected from India.

Materials and Methods

Experimental Site and Environmental Condition

The experiment took place on farmland in Bhandarwadi, Sindhudurg, Maharashtra, India, from February to May 2025. The site lied between 15° 37' and 16° 40' north latitude and 73° 19' to 74° 13' east longitude, at an altitude of 26 meters above sea level. The area has hot summers and cool winters. The temperature reached up to 40 °C in April and May, and dropped to 8 °C to 25 °C from December to February. Rainfall was unpredictable, often causing dry spells and low soil moisture during crop growth.

Test Item Details

In this study, the test item was bitter gourd seeds treated with spiritual blessings energy/prayers/Trivedi Effect[®] (BET). **Table 1** shows the details of these vegetable crop seeds.

The bitter gourd seeds were split into two groups. One group served as the control and was left untreated. The other group was labeled as treated and received Blessings/BET. Both groups were then planted in the chosen farmland to analyze their growth, appearance, and yield. The same cultivation methods, including irrigation, fertilization, and pesticide use, were applied to both groups.

Table 1. Details of bitter gourd seeds used in the present research

Vegetable seed name	Bitter gourd (<i>Momordica charantia</i>)
Label Number	88101
Lot Number	NU79223240
Kind	Hybrid
Variety	Arjun-36
Manufacturer / Supplier	Namdeo Umaji Agritech (India) Pvt. Ltd.
Genetic Purity	98%
Recommended storage	Cool and dry place
Expiry Date	08-05-2025

Experimental Plot Design

We used a Randomized Complete Block Design (RCBD) with two groups: an unblessed or untreated control group (CONBIGG) and a Blessings/BET group (BTBIGG). The experimental plot was divided into two equal sections, one for the control and another for the treatment. Each plot contained three blocks. Plots were assigned randomly according to the design. In total, there were six blocks, each measuring 2.5 meters by 1.5 meters. Spacing between plants was 0.5 by 0.5 meters. There was a half-meter gap between replications and a 50-centimeter gap between plots. The entire experimental site covered 35 square meters, and each plot was 3.75 square meters. The farming area was cleaned before the experiment. Mixed chemical fertilizer levels (50, 100, and 50 kg NPK per hectare) were applied to each plot and mixed into the soil before planting.

Spiritual Blessing/BET Strategy

The control group of bitter gourd seeds and plots, called CONBIGG, did not receive any treatment. The treated group, called BTBIGG, received a spiritual blessings/biofield energy treatment (S/BET) in-person for about 4 minutes from a spiritual energy healing practitioner, Mahendra Kumar Trivedi who has more than 15 years of spiritual blessings practice experience across the globe. The practitioner delivered the S/BET by transmitting divine energy to the seeds and land without making physical contact. The blessings involved the healer using the laying on of hands and prayers from about 1.5 feet away, at a temperature of 28 ± 2 °C and relative humidity of 65 ± 5 %. During this process, the healer aimed to channel divine energy from the Universe to the treated seeds and land.

Analysis of Soil Properties

The study area had sandy loam soil, which was light, well-drained, and low in fertility. Before the experiment setting, topsoil samples (30 cm deep) were collected from random spots in each plot using a five-point sampling method. The samples were mixed, and 1 kg was taken from each plot, air-dried, sieved through a 2 mm mesh, and stored at 4 °C. The physical and chemical properties were then measured. The soil's texture was identified by hand feeling [17]. Soil organic carbon (SOC) was measured using the Walkley and Black dichromate wet oxidation method [18]. Total nitrogen (N) was determined by Micro-Kjeldahl digestion [19]. Available phosphorus (P) was measured by Bray-1 extraction and molybdenum blue colorimetry [20]. Exchangeable Ca, Mg, and Na were extracted with 1 M ammonium acetate [21]. Potassium (K) was measured with a flame photometer [22], and Ca, Mg, and Na

were measured by the EDTA titration method [23]. Soil pH was measured in a 1:2 soil-water mixture using a digital pH meter.

Seed Plantation and Management

Seeds were planted using the direct sowing method. For the first 10 days, plots were kept moist by hand. After that, a drip irrigation system with self-compensating emitters spaced 0.5 meters apart and a flow rate of 3 liters per hour was used. Each plot in both the control and treatment groups received different levels of nitrogen, phosphorus, and potassium fertilizer (50:100:50 kg NPK per hectare) as urea, single super phosphate (SSP), and muriate of potash (MOP). All SSP, MOP, and half of the urea were applied to the soil before sowing, while the rest of the urea was added 21 days later. The insecticide Hamla 550 (Gharda Chemicals Limited, India) was sprayed at 2 mL/L of water on days 21 and 49 after sowing in both groups. To assess vegetative growth and yield, five plants were randomly chosen from each plot 80 days after sowing.

Plant Morphology

We recorded several qualitative morphological traits, including main vine length, stem shape, stem length, depth of lobbing, vein colour, leaf blade colour, leaf blade width, leaf blade lobing, flower colour, flower size, flower bud colour, fruit colour, fruit shape, fruit shape apex, seed colour, seed size, and seediness colour. Quantitative traits such as plant vine length (m), number of branches per vine, stem diameter (cm), days to 50% flowering, fruit length (cm), and fruit diameter (cm) were also measured.

Crop Phenology and Yield Traits

Bitter gourd fruits were picked when they reached physiological maturity. Their size was measured in centimetres, and their weight was recorded using a weighing balance. The yield per net plot, measured in kilograms, was converted to tonnes per hectare using a multiplication factor.

Data Analysis

Data are shown as Mean \pm SEM. To compare two independent groups, we used Student's *t*-test in SigmaPlot (v14.0). Results were considered statistically significant at $p < 0.05$.

Results

Analysis of Soil Properties

Table 2 shows the physical and chemical properties of the soil at the experimental site. The soil was observed as sandy loam with high bulk density, acidic pH, and low levels of organic matter, total nitrogen, and exchangeable calcium, magnesium, and sodium. The microbial bioburdens of sandy loam soil depend on the variation of these parameters [24]. Before planting, the control group (CONBIGG) soil had an acidic pH of 5.01, a condition that severely limits nutrient availability, particularly phosphorus, magnesium, and calcium and also reduce the soil's cation exchange capacity (CEC) and make it less fertile [25, 26]. Our findings showed that the soil also had low levels of exchangeable cations like calcium, magnesium, and sodium in CONBIGG and BTBIGG (before plantation) and CONBIGG (after harvesting). However, after applying BET to the land, the soil pH increased slightly to 5.86, indicating it moderately less acidic. Total potassium and exchangeable cations (calcium, magnesium, and sodium) were also improved in the BTBIGG (**Table 2**).

Morphological Characteristics of Bitter Gourd

Table 2. Physical and chemical characteristics of the experimental sites' soil obtained from the 30 cm depth layer.

Soil properties	CONBIGG and BTBIGG (before plantation)	CONBIGG (after harvesting)	BTBIGG (after harvesting)
Sand (%)	69	71	70
Slit (%)	17	16	14
Clay (%)	14	13	16
Texture class	Sandy loam	Sandy loam	Sandy loam
Bulk density (mg/m^3)	1.30	1.30	1.30
Moisture content (%)	1.03	11.38	11.85
Organic matter (%)	4.13	2.58	3.19
pH	5.01	5.73	5.86
Water holding capacity (WHC) (%)	22.93	24.11	20.24
Total nitrogen (N) (kg/ha)	41.38	26.09	26.99
Total phosphate (PO_4^{3-}) (kg/ha)	17.78	13.81	9.01
Total potassium (K) (kg/ha)	1.43	1.21	23.01
Total sulphate (SO_4^{2-}) (kg/ha)	1.97	0.00	0.39
Total chloride (Cl^-) (kg/ha)	7.33	5.38	6.81
Exchangeable cation			
Calcium, Ca (cmol/kg)	2.67	2.64	4.13
Magnesium, Mg (cmol/kg)	2.27	2.05	3.12
Sodium, Na (cmol/kg)	1.19	1.1	2.4

cmol/kg: centimoles per kilogram



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

Various observations on the growth and yield of bitter melon were recorded at periodic intervals. **Figure 1** shows the different stages of the growth cycle of the bitter melon: germination, seedling, vegetative growth, flowering, fruit growth, and harvesting stages.

Table 3 shows the qualitative traits of bitter melon vegetative growth. The biofield energy-treated group (BTBIGG) had longer vines and stems than the control group (CONBIGG), which had medium-length. BTBIGG also had more primary branches, while CONBIGG had a medium number. Leaves were dark green in BTBIGG and medium green in CONBIGG, but both groups had five-lobed leaves with and yellow flowers. The fruit was dark green in BTBIGG and medium green in CONBIGG. Most fruits in both groups had continuous ridges and a spindle shape. Seeds were light brown in CONBIGG

Table 3. Effects of blessing (biofield/prayers) energy treatment (BET) on qualitative vegetative parameters of bitter gourd at 72 days after sowing (DAS).

Vegetative trait	Control group (CONBIGG)	Treatment Group (BTBIGG)
Cotyledon: intensity of green colour	Medium green	Green
Plant: main vine length	Medium (2.5-3.0 m)	Long (>3 m)
Stem shape	Angular	Angular
Stem length	Medium (5-8 cm)	Long (>8 cm)
Stem: number of primary branches	Medium (10 -15)	Many (>15)
Leaf blade shape	Cordate	Cordate
Leaf blade margin	Entire	Entire
Leaf blade colour (upper side)	Medium green	Dark green
Number of lobes in leaf blade	5 lobes	5 lobes
Flower colour	Yellow	Yellow
Colour of mature fruit (at harvesting)	Medium green	Dark green
Colour of mature fruit at ripening stage	Orange	Orange
Fruit shape (at maturity stage)	Spindle	Spindle
Fruit ridge	Continuous	Continuous
Seed colour (at the mature harvest stage)	Light brown	Brown
Seed surface	Smooth	Smooth
Seediness (number of seeds/ fruit)	Less (<10)	Medium (10-20)

and brown in BTBIGG. Seediness was low (fewer than 10 seeds per fruit) in CONBIGG and medium (10–20 seeds per fruit) in BTBIGG.

Crop Phenology and Yield Traits

The blessing energy-treated group had a higher germination rate (98.10 %) than the control group (CONBIGG, 84.28 %). Vine length was measured at 72 days after sowing and at harvest. At harvest, vine length in BTBIGG increased significantly ($p \leq 0.001$) by 38.78 % compared to CONBIGG. The number of branches and nodes per vine in BTBIGG rose significantly ($p \leq 0.01$) by 54.03 % and 32.34 %, respectively, compared to CONBIGG. Stem diameter and internodal length in BTBIGG increased significantly ($p \leq 0.001$) by 13.37 % and 42.94 %, respectively compared to the CONBIGG. Leaf length and width in BTBIGG improved by 15.82 % and 15.90 %, respectively. The number of female flowers in BTBIGG increased by 30.80 % ($p \leq 0.05$). Fruit weight, length, and width in BTBIGG increased significantly by 12.90 % ($p \leq 0.05$), 33.27 % ($p \leq 0.001$), and 30.68 % ($p \leq 0.001$), respectively. Seed length, width, seed count per fruit, and 100 seed weight in BTBIGG increased significantly ($p \leq 0.001$) by 40.32 %, 21.88 %, 52.50 %, and 33.27 %, respectively. The number of fruits per vine in BTBIGG increased significantly ($p \leq 0.001$) by 66.88 %. Fruit yield per hectare was 61.31 % higher in BTBIGG compared to CONBIGG (**Table 4**).

Table 4. Quantitative assessment of phenology and yield traits of bitter gourd after treatment with spiritual blessing energy/biofield energy treatment (BET)

Quantitative Trait	Control Group (CONBIGG)	Treatment Group (BTBIGG)
Days to germination	6-8	6-7
Germination percentage (%)	84.28 ± 0.19	98.10 ± 0.24***
Plant vine length (m)	2.94 ± 0.15	4.08 ± 0.18***
Number of branches/vines	15.27 ± 1.52	23.52 ± 1.63**
Number of nodes/vines	48.77 ± 2.58	64.54 ± 2.17**
Internodal length (cm)	5.17 ± 0.12	7.39 ± 0.15***
Stem diameter (cm)	1.87 ± 0.04	2.12 ± 0.02***
Leaf length (cm)	10.68 ± 0.24	12.37 ± 0.16***
Leaf width (cm)	8.74 ± 0.16	10.13 ± 0.08***
Days to first male (staminate) flower appearance	31.42 ± 1.63	29.35 ± 1.72
Days to first female (pistillate) flower appearance	37.48 ± 1.33	35.47 ± 1.14
Days to 50% flowering	55.22 ± 1.75	51.34 ± 1.37
Number of male flowers	152.44 ± 4.33	136.38 ± 6.17
Number of female flowers	35.72 ± 2.46	46.72 ± 2.37*
Days to fruit maturity	61.62 ± 2.44	60.94 ± 2.21
Fruit weight (gm)	78.52 ± 2.83	88.65 ± 1.79*
Crop period (days)	105.42 ± 3.48	105.72 ± 2.49
Fruit length (cm)	10.82 ± 0.39	14.42 ± 0.61***
Fruit width (cm)	5.77 ± 0.32	7.54 ± 0.16***
100-seed weight (gm)	8.72 ± 0.08	11.62 ± 0.05***
Seed length (cm)	1.24 ± 0.02	1.86 ± 0.03***
Seed width (cm)	0.64 ± 0.02	0.78 ± 0.01***
Seed count/fruit	14.59 ± 0.26	22.25 ± 0.66***
Number of fruits/vine	9.36 ± 0.20	15.62 ± 0.14***
Fruit yield (kg)/plant (vine)	1.11 ± 0.11	1.63 ± 0.14*
Fruit yield (kg)/plot	11.54	18.62
Fruit yield/sq. m plot (kg/sq. m)	1.03	1.66
Fruit yield/hectare (ton/ha)	10.26	16.55

Data represented as mean ± SEM (n = 5); * $p \leq 0.05$, ** $p \leq 0.01$, and *** $p \leq 0.001$ vs. control group (CONBIGG) using Student's *t*-test

Discussion

Bitter gourd is widely known not only as a food crop but also as a source of valuable chemical compounds that may help manage various disorders [27, 28]. In this study, vine length, number of branches per vine, and leaf area showed significant differences at the 5% level of significance. BTBIGG seeds germinated quickly, likely because of their soft seed coat and strong ability to adapt to soil, while CONBIGG seeds germinated more slowly, possibly due to their harder seed coat [29]. The experiment showed that bitter gourd can be grown successfully in India's climate. The treated group had more primary branches per vine, which may be linked to longer vines and better photosynthetic ability in BTBIGG corroborated with the Liu et al. 2025 [30]. This could result from the slow release of soil nu-

trients and the supply of nitrogen as the plant grows. Since nitrogen is important for protein synthesis, it may have supported the growth of more branches in the treated BTBIGG group.

Reproductive parameters, such as the number of female flowers and fruits per plant were significantly affected by treatments with organic formulations and growth regulators [31]. In this study, these parameters also improved in the BTBIGG treatment group compared to the CONBIGG group, which did not receive any organic fertilizers or plant growth regulators, except for spiritual blessings energy/prayers/BET-Trivedi Effect[®] exposure to both seeds and land. Singh et al., 2025, found that using plant growth regulators resulted in bitter gourd yields of 1.57 to 1.62 kg per plant. In our study, without growth regulators, the BTBIGG group produced 1.63 kg per plant, which is similar to the results reported by Singh et al. (2015) [31] and is highly cost-effective. The higher fruit weight may be due to better nutrient absorption by the plants, possibly influenced by biofield energy transmission to soil nutrients, and to greater movement of photosynthates to the fruits during development and maturity [32]. As fruit weight increases, so does the yield per plant. These results suggest that the blessing/BET-Trivedi Effect[®] can help maximize yield by improving fruit set, increasing the movement of assimilates, and strengthening the sink, leading to heavier fruits. Yield per plant is also linked to greater branches and node count. At maturity, both fruit length and weight were higher in the BTBIGG group than in the CONBIGG group. The variation in fruit weight in the treated group may be due to differences in vegetative growth, which affects photosynthesis and, in turn, fruit weight. This could be because of a higher accumulation of photosynthates in the fruits, leading to greater weight.

Conclusion

The study results suggest that the spiritual blessing/prayers/BET-Trivedi Effect[®] significantly improved morphological, phenological, and yield-related parameters of bitter gourd compared to the control group. Thus, blessing/BET-Trivedi Effect[®] could be a cost-effective approach for bitter gourd farming in the near future. This study can be used for high-quality bitter gourd production. Further studies are needed to understand the underlying mechanism of higher yields of bitter gourd.

Abbreviations

NPK: nitrogen phosphorus potassium; CAM: complementary and alternative medicine; BET: biofield energy treatment; CONBIGG: control bitter gourd group; BTBIGG: biofield energy-treated bitter gourd group; SSP: single super phosphate; MOP: muriate of potash; DAS: days after sowing

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Conflict of Interests

Authors MKT, DT, and AB were employed by Trivedi Global, Inc. VDK, NRP, and TBG 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. The authors do not have any commercial interests on the objectivity of the research.

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