

## Influence of pyramids on germination and growth of fenugreek

Itagi Ravi Kumar\*, NVC Swamy, HR Nagendra & Radhakrishna

Hindu University of America Extension Center, Swami Vivekananda Yoga Anusandhana Samsthana, Eknath Bhavan,  
19 Gavipuram Circle, Bangalore 560019, Karnataka  
E-mail: ravi\_itagi@yahoo.co.in; svyasablr@yahoo.com

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Research has been undertaken to find out if square pyramidal structure has any influence on the germination, radical emergence and seedling vigour in terms of germination percentage and length of fenugreek, as given in Indian scriptures and literature. Two models were used, one of them made of wood and other one made of plywood with both of them having square base. The control sample was kept in open air. Results subjected to statistical analysis indicated that there is a significant influence on the radical emergence and seedling vigour when germinated in both pyramid models. However there was no statistical significance in germination percentage.

**Keywords:** Pyramids, Radical length, Seedling vigour, Seed germination, *Tantra*, *Mantra*, *Yantra*

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Fire is one of the five primary elements of the universe according to Indian philosophy. The others being earth, water, air and space. In ancient Indian scriptures, fire is defined as the universal energy, the vitality permeating all of life. Pyramids are extremely strong structures, the polygonal base providing a very solid, stable foundation for the triangular sides meeting in an apex. The triangle represents the element fire, or *agni*, which is the fire of supreme sacrifice. The triangle also conveys a feeling of aspiration towards the heavens, raising the spirit of the beholder. The *Āgveda* refers to a structure called *agnitreya* to perform sacred rituals which is very similar to the pyramid. This later evolved into the science of architecture dealing with construction of temples<sup>1</sup>. The caves were naturally the earliest shrines and were also places, where the primitive burial relics or the funerary urns were preserved. The memory of the cave shrines lingered on in the *Upaniṣads* 'heart cave'. Time has wiped out the artificial caves, but the tiled, sloping and conical roofs of the temples of ancient times may be regarded as survivals. The *stūpas* are the earliest shrines on records as well as in actual evidence. The expression *stūpa* means a heap of grain or a mound of earth. As a heap of grain it was precious; as a mound of earth it was a monument. The word is found in the *Yajurveda* in the sense of precious

monument, *Viñēoh stūpa*. The word *agnidreya* means *vedic stūpa*. The trace of divinity or some life energy can be thought of from or in the pyramidal triangular shape by looking into the evolution or using of this shape in the different form like dead body was buried by erecting on it a mound of earth or rubble, *agnitreya*, a triangular shape to do vedic rituals, *stūpas* or *goparas* as the canopy of the sanctum sanctorum of temples, the celebrity of *Kailāṣa* in the form of mountain as the abode of *Śiva*, *Mahā Meru*, the elevated form of *Çrécakra* for the *upāsanā* and triangular shapes in the various *yantras* to do *Tāntric* rituals to achieve materialistic as well as spiritual desires<sup>2</sup>.

In the experimental investigation, pyramids were used to scientifically determine influence on the germination of fenugreek as an attempt on validation of life energy existing in the triangular shape as mentioned in the ancient Indian scriptures and literature. The *Tantra śāstra* contains *tāntric* rituals to achieve desired results of materialistic as well as spiritualistic. The word *Tantra* is derived from the root *tan*, to spread. The major components of *Tantra* are *Mantra* and *Yantra*. The *Mantra* is the sound form that makes one to go inward. *Yantra*, shape form, which preserves the essence and liberates. The *Yantra* involving points, lines, triangles and squares represent energies in various modes to exert its influence in the desired manner<sup>3</sup>. The evidences of claims of *Tantra śāstras* have hardly done scientific investigations

\*Corresponding author

which would have found a place in scientific journals<sup>4</sup>. The investigation was undertaken on a strictly scientific basis to study whether pyramids have any influence on the germination and growth of fenugreek.

**Methodology**

The main objective of the investigation was to compare the conditions of seeds kept in a pyramid with a control seeds kept outside. Two following pyramids were used for the experiments, a wooden square pyramid (WSP) with a square of length 770 mm and height 590 mm; a plywood square pyramid (PLSP) with square of length 320 mm and height 725 mm (Fig.1). The reason for selecting the above pyramids was to enable the comparative study with respect to material of the pyramid used. The fenugreek seeds were procured from Seed Technology Information Center, UAS, GKVK. Pyramids and control samples were kept inside the same room. The pyramids were kept with one of the sides being oriented in the magnetic North-South direction. Total of 120 seeds were used for each pyramid and control. Seeds are selected randomly from pool of seeds, soaked in distilled water for 30 minutes and cleaned to remove any toxic materials.

Seeds are placed on germination paper wetted with distilled water and sandwiched with another wet paper and covered top and bottom with plastic sheet and made into a roll. Total of 18 rolls are made with 40 seeds in each roll. Six rolls were kept at the base of each of the two pyramids and another set of 6 rolls kept outside for control. Seed germination was determined on 2<sup>nd</sup> day by taking 3 rolls at random or 6 rolls from

both the pyramids, counted number of seeds showing germination and percent germination calculated. The radical emergence was measured by taking the length of the radical, fresh and dry weight of the radical recorded. On 4<sup>th</sup> day taken out remaining 3 rolls or 6 rolls from both the pyramids, the seedling vigour was measured by counting the seeds showing germination and its percentage calculated, taken it length, fresh and dry weight of the seedling recorded. The temperature is recorded at every 4 hrs interval in inside the pyramids and outside for all the 4 days.

**Results and discussion**

Table 1 contains day 2 parameters: germination count in terms of percentage, radical emergence in terms mean in cm, standard deviation and Mann-Whitney test result, fresh and dry weight of radical in gm and average temperature. Table 2 contains day 4 parameters: mean in cm, standard deviation and Mann-Whitney test result of seedling vigour measured in terms of length in cm, seedling vigour in terms of percentage germination, fresh and dry weight of seedling vigour in gm and average temperature. Trend of radical emergence in length in cm of all the 120 seeds kept in side of each pyramids and of control (Fig. 2) and trend of seedling vigour measured in terms of length in cm of each seed which are kept in side of each of pyramid and of control (Fig. 3) are shown.

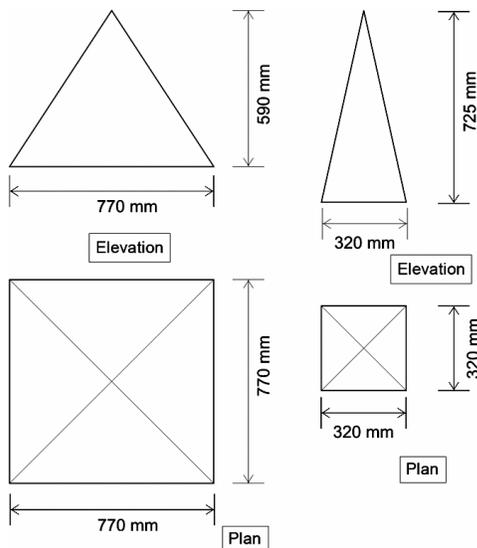


Fig. 1—Pyramid models

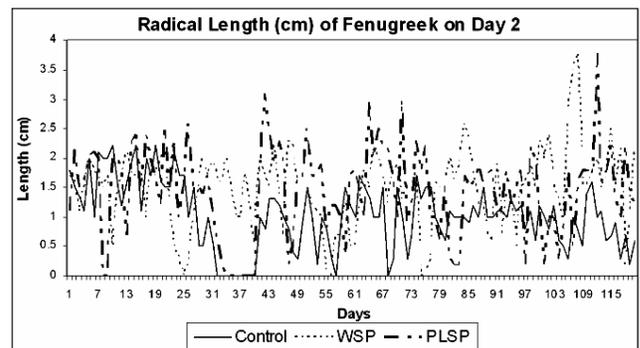


Fig. 2—Radical lengths of fenugreek

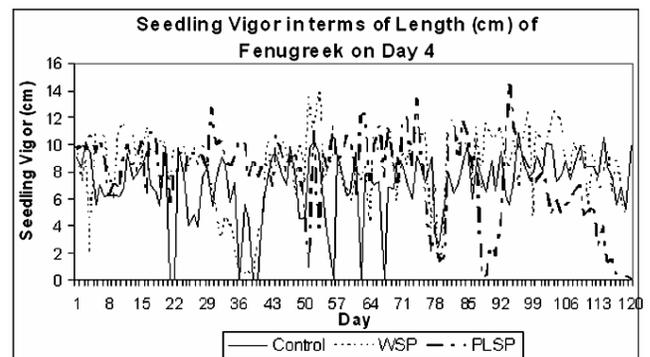


Fig. 3—Seedling vigour of fenugreek

Table 1–Radical emergence, fresh and dry weight of fenugreek on Day 2

Treatment	% Germination	Radical emergence			Radical fresh weight		Radical dry weight		Average temperature
		Mean (cm)	Std Dev	Mann-Whitney	Weight (gm)	% Change	Weight (gm)	% Change	
Control	92	1.03	0.57	-----	7.38	-----	2.01	-----	26°C
WSP	96	1.47	0.68	0.000	7.62	3.25	2.07	2.99	31°C
PLSP	93	1.45	0.78	0.000	7.56	2.44	2.04	1.49	28°C

Total seeds in each treatment are 120 nos; WSP shows maximum mean radical length; WSP and PLSP shows significant radical length; WSP sample has maximum percentage germination; WSP sample has maximum total fresh and dry weight

Table 2– Seedling vigour of fenugreek on Day 4

Treatment	Seedling vigour			% Germination	Seedling vigour fresh weight		Seedling vigour dry weight		Average temperature
	Mean (cm)	Std Dev	Mann-Whitney		Weight (gm)	% Change	Weight (gm)	% Change	
Control	7.02	2.51	-----	93	13.29	-----	2.25	-----	27°C
WSP	8.20	2.91	0.003	99	15.78	18.73	2.91	29.33	33°C
PLSP	7.73	3.27	0.004	98	14.70	10.61	2.67	18.67	31°C

Total seeds in each treatment are 120 nos; WSP shows maximum mean radical length; WSP and PLSP shows significant radical length; WSP sample has maximum percentage germination; WSP sample has maximum total fresh and dry weight

Summary of result of the day 2 are given, which shows that pyramids' samples show greater mean radical emergence in length and significant difference in growth compared to control sample, but WSP sample showing maximum mean radical emergence in length compared to PLSP and control samples (Table 1). Even both WSP and PLSP samples have more percentage in germination on day 2 compared to control sample but WSP shows 3% more germination count compared to PLSP sample. Result of the day 4 of all the three types of samples indicates that samples of both pyramids-WSP and PLSP have greater mean seedling vigor which is measured in length in cm compared to control. WSP shows 1% more germination compare to PLSP sample (Table 2).

WSP and PLSP samples have more fresh weight and dry weight of seedling vigor compared to control but WSP sample shows high value compared to PLSP. Samples of WSP and PLSP show significant increase in radical emergence in length, higher fresh weight and dry weight of radical, significant increase in seedling vigour, higher fresh weight and dry weight of seedling vigour as well as germination count compared to control sample, this indicates that pyramidal shape has an influence on these parameters and can be speculated that pyramidal shapes are effective in capturing cosmic radiation and manifest as life energy, which helps to accelerate in growth of radical emergence in length and seedling vigour which was measured in terms of length and also higher percentage of germination. The higher average temperature in the pyramids compared to outside

might also indicate that pyramids shapes create a different energy field inside which is different from outside which may cause in accelerating the growth of radical and higher seedling vigour compared to control sample. The WSP sample accelerates the growth of radical and higher seedling vigour compared to PLSP sample, this may be because of WSP is made of natural wood as against of PLSP, which is made of company plywood. This indicates that pyramid made out of natural wood is more effective in creating energy field in the pyramidal space.

### Conclusion

The investigation shows that pyramidal structures exhibit a positive influence on the growth of radical emergence and seedling vigour in terms of length as well as on germination compared to control sample. Wooden pyramidal structure is more effective than plywood structure.

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