

# RELATIONSHIP OF PODS AND SEEDS TRAITS IN MEDICINAL VALUE TREE STEREOSPERMUM SUAVEOLENS DC.

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## Abstract

*Stereospermum suaveolens* DC. (Family Bignoniaceae) is a medicinal tree. An effort has been made to evaluate the extent of variation and relationship of pod and seed traits in *Stereospermum* trees. For pod and seed characteristics of *S. suaveolens*, the highest coefficient of variation (CV) of 38.19% was observed in the pod length whereas lowest coefficient of variation (6.09%) was observed in seed length without wings while with wings it was 6.60%. However seed width with wings and without wings shared a variation of 17.84% and 10.12% respectively. *S. suaveolens* trees will not only provide much needed fuel, timber, medicine etc. but will also contribute towards improvement of environment. Its planting and conservation is thus recommended.

**Keywords:** *Stereospermum suaveolens*, pods, environmental conservation

## I INTRODUCTION

*Stereospermum suaveolens* DC. (Family Bignoniaceae) a medium sized medicinal deciduous tree native to India, Bangladesh and Myanmar [1]. Tree with grey to dark brown exfoliating bark, pinnately compound leaves, elliptical leaflets, purple, fragrant flowers in large panicles and rough, grey bark.

The species yields a good quality timber and can be a useful medicinal plant. Both the timber [2] and the root heartwood [3] of *Stereospermum suaveolens* were found to contain *lapachol*. Moreover, barks, flowers, roots and leaves of *Stereospermum suaveolens* are used by traditional healers, rural communities and Pharmaceutical companies for remedies of diseases like vomiting, eructation, piles, acidity, diarrhoea, gonorrhoea, loss of taste, malaria and other fevers [1].

*Stereospermum suaveolens* root bark is an ingredient of *Dasmula*. Decoction of roots used in intermittent, puerperal fevers and affections of the brain. Stem bark diuretic and tonic. Flowers if given with honey, cure cough [4].

Seeds from proven source or plus trees form the backbone of any successful tree improvement and afforestation programme. Seed parameter and germination behaviour are most important for afforestation programme and these characters are interdependent and polygenically controlled. To exploit the potentiality of available resource base, variability

and genetic analysis of *Stereospermum* trees were assessed for pod and seed traits as a scope for further breeding program. The knowledge of genetic variability and association between pod and seed traits linked is considered to provide considerable help in genetic improvement of the species. Keeping all this in view, an effort has been made to evaluate the extent of variation and relationship of pod and seed traits in *Stereospermum* trees.

## II. MATERIALS AND METHODS

A mature pods were collected during November 2011 from Forest Research Institute, Dehradun campus situated at 30° 20' latitude, 77°52' longitude and at 640 m a.m.s.l altitude.

The observations for pods and seed characters were recorded at Centre for Social Forestry and Eco-rehabilitation, Allahabad [latitude: 25°28' N, longitude 81°54' E: altitude 98 ft a.m.s.l] during 2011 as follows.

### *Pod characters*

The pods were cleaned and stored in muslin bags at ambient conditions. All pods were dried under similar temperature and humidity conditions to reach constant weight. A total of 30 healthy pods were collected to make three replications containing 10 pods per replication. Observation on pod characters viz. length, width were recorded. Pod length was measured from the tip of the pod to the point of attachment of the pod to the stalk and expressed in cm. Pod width

was measured with the help of vernier caliper and expressed in mm.

#### Seed characters

Samples of 30 seeds were collected to make three replications containing 10 seeds per replication. Measurement of seed length (with and without wings), consisting of 10 randomly selected undamaged seeds was measured upto two decimal places using digital vernier caliper (Model: Absolute digimatic (mitutovo). Seed width was measured with the help of vernier caliper and expressed in mm. Number of seeds per kilogram, number of seeds per unit weight was determined, from two or more random samples. The number and weight of pure, full seeds were obtained and then the number of pure seeds per kilogram was calculated.

$$\frac{\text{No. of pure seeds/ kilogram}}{\frac{\text{Number of pure seeds in sample}}{\text{Grams of pure seeds in sample}}} \times 100$$

### III. RESULTS AND DISCUSSION

Table 1 gives observations about the pod and seed characteristics of *Stereospermum suaveolens*. The highest coefficient of variation (CV) of 38.19% was observed in the pod length as the pod length varies from 14.40 to 49.20 cm with mean value 33.91 cm. The number of seeds per kg varied from 25,641-40,000 as this depends on size of the pods. Lowest coefficient of variation was observed in seed length with and without wings (6.60-6.09%). However Seed width shared a variation 10.12%.

**Table 1 : Variation in Pods and seed traits of *Stereospermum suaveolens***

	No. of seeds/pod	No. of seeds/kilogram	Pod Character		Seed L. Character (cm)		Seed W. (mm)
			Length (cm)	Width (mm)	Seed L. (cm) with wings	Seed L. (cm) without wings	
Mean SD	49.71 ± 16.60	33080 ± 5320.06	33.91 ± 12.95	12.21 ± 3.42	3.09 ± 0.20	1.83 ± 0.11	4.42 ± 0.45
Range	22-65	25,641-40,000	14.40-49.20	7.32-16.24,	2.9-3.5	1.7-2.0	- 3.88-5.03
C.V	33.39	16.08	38.19	28.00	6.60	6.09	10.12

*S.D* is Standard Deviation and *C.V* is Coefficient of Variation.

The observations reveal that how much ever the pod characteristics differ, the seed characteristics, especially the length remains more or less the same. Thus the seed length and width look to be fairly independent of the pod size for this species. Genetic control of seed size traits has been observed in several tree species like *Faidherbia albida* [5], *Tectona grandis* [6], *Dalbergia sissoo* [7], *Tectona grandis* [8], *Strychnos cocculoides* [9], *Juniperus procera* [10] and *Cordia africana* [11].

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