

Investigations on unexploited medicinal legume, *Cassia absus* Linn.

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ABSTRACT

Poor germination is one of the constraints identified with the production of an unexploited medicinal legume *Cassia absus* Linn. (Chaksu) due to its hard seed coat. Results of the present investigation revealed that higher germination was observed when the seeds were nipped (68%) followed by hot water treatment (54%) as compared to direct sowing (15%). The higher monetary returns and B:C ratio (Rs.4377/ha and 3.93) were recorded in sole crop of *C. absus* followed by mixed cropping of *C. absus* and red gram (Rs.5288/ha and 2.40).

Key words : Unexploited medicinal legume, *Cassia absus*, Chaksu

INTRODUCTION

Cassia absus Linn. is a naturally grown leguminous weed in red hillocks of Northern Karnataka. This weed is called as Kanbeeja or Adavihurali in Kannada and Chaksu in Hindi. The weed is grown to an height of 25-60 cm covered with gray bristly viscous hairs. Leaves are long petiolated with small linear persistent stipules. Leaflets 4, membranous 2.5 to 5.0 cm x 1.5 to 2.0 cm oblong, flowers reddish yellow in narrow racemes, pods oblique 2.5 to 3.7 cm long, seeds 5-6 in a pod, dark brown shining and compressed (Kiritikar and Basu, 1980). The seeds and leaves are bitter and astringent. The extract of the seed is used to purify blood and in mucous disorder treatments. A decoction of seeds is used to cure eye diseases. The baked kernels are used in the treatment of purulent ophthalmia and conjunctivitis. A paste made from the seeds is recommended as an application to wounds and sores. The leaves are used as purgative and as a remedy for cough, asthma and bronchitis. Application of powdered leaves is reported to heal ulcers and haemorrhoids (Cavis, 1989). The roots are known to have shown antibiotic activity. In Ghana, a decoction of the roots is given along with palm wine and chillies as a purgative (Rastogi and Mehrota, 1991). The weed has not been domesticated so far and the life cycle of this plant is being continued by means of self seeding. Though it is grown in marginal lands and seed yield levels are quite low, it is highly remunerative crop because of its higher seed price both at local and national market (Rs.30/kg seed in local market and Rs.60/kg seed in National market).

MATERIALS AND METHODS

An elaborative survey was conducted in two villages each of four talukas of four districts of Northern

Karnataka and informal meetings were conducted with the local persons involved in collection and marketing of *C. absus*. The foremost constraint in its production was non germination of the fresh seeds. A field experiment was conducted to find out the best method of seed treatment in randomized block design with three replications. There were seven treatments viz., nipping, water treatment (hot water for 25 minutes and boil water treatment for 10 minutes), mud and dung treatments, sulphuric acid treatment for 2 minutes and direct sowing without any treatment. The plot size for individual treatment maintained was 25 sq m. The spacing followed was 45 x 10 cm. The seed rate used was 10 kg/ha. In the fields where *C. absus* appeared naturally with the *kharif* crops namely, groundnut, sunflower, bajra and pigeonpea were selected and the yield data of both the crops and weed have been recorded and presented, as it is very difficult to conduct field trials because of its seed dormancy. Though the weed was grown naturally in red hillocks with *kharif* crops, its effect (either root or shade) on different *kharif* crops was different. This observation was recorded by taking net plot seed yield of *C. absus* and other *kharif* crops.

RESULTS AND DISCUSSION

The facts known during the survey about the medicinal value, market demand, suitability for marginal lands of red hillocks, its adoptability as intercrop with late *kharif* crops are as follows. The baked seeds after removal of hard seed coat are directly used to treat the eye diseases by the villagers. The seeds were collected by the local business men at cheaper rate (Rs.25-30/kg) and then sent to pharmaceutical industries situated in Bombay and Amritsar. Though there is lot of demand for seeds every year from pharmaceutical industries, because of its self seeding and germination problem, the production

Table 1: Present status of *Cassia absus* in Northern Karnataka

Villages	Taluk	District	Area covered (hectare)	No.of local persons involved in collection and marketing of <i>Cassia absus</i> seeds
1. Nalatwad 2. Ennivadigeri	Muddebihal	Bijapur	60	90
1. Mustigeri 2. Kerur	Badami	Bagalkot	20	30
1. Gudgunta 2. Devargaddi	Lingsur	Raichur	40	60
1. Gonal 2. Rajanpet	Surpur	Gulbarga	35	50

Table 2 : Effect of seed treatment on germination of *Cassia absus*

Sr. No.	Treatments	Germination percentage
1.	Nipping	68
2.	Acid treatment (2% H ₂ SO ₄ for 2 minutes)	31
3.	Mud treatment	21
4.	Dung treatment	28
5.	Hot water treatment (25 minutes)	54
6.	Boil water treatment (10 minutes)	17
7.	Direct sowing	15
	S.E.±	5.4
	C.D. (P=0.05)	16.3
	C.V (%)	19.0

and in the drought year as compared to any other crops or weeds. It has been observed that this weed was found to be associated with *kharif* crops like groundnut, pigeonpea, sunflower and bajra. So far, it has not been domesticated and the life cycle of this legume is being continued by means of self seeding. Its germination and performance was found better in red soils. The results from Table 2 indicates that the higher germination was observed when the seeds of *C. absus* were nipped (68%) followed by hot water treatment for 25 minutes (54%) as compared to direct sowing (15%). Table 3 indicates that comprised information gathered from the observations recorded in the selected fields, where *C. absus* appeared naturally along with the *kharif* crops.

Table 3: Performance of *Cassia absus* as a sole crop and as an intercrop with *kharif* crops

Crop	Average sole crop yield (kg/ha)	Intercropping		Gross returns (Rs/ha)	Cost of cultivation (Rs/ha)	Net returns (Rs/ha)	B:C ratio
		Main crop	<i>Cassia absus</i>				
Redgram (<i>Cajanus cajan</i>)	325 (5850)	291 (5238)	75 (2250)	7488	2200	5288	2.40
Groundnut (<i>Arachis hypogea</i>)	313 (6260)	208 (4160)	100 (3000)	7160	3100	4060	1.31
Sunflower (<i>Helianthus annuus</i>)	267 (6942)	217 (5642)	63 (1890)	7532	3210	4322	1.35
Bajra (<i>Pennisetum typhodeum</i>)	625 (3125)	521 (2605)	88 (2640)	5245	1497	3798	2.50
<i>Cassia absus</i>	183 (6690)	-	-	5490	1113	4377	3.93

(Figures in parantheses indicate the returns in rupees)

Prices of different seed (Rs/kg)

Redgram : 18 Groundnut : 20 Sunflower : 26 Bajra : 05 *Cassia absus* : 30

level will not remain same every year.

Though the farmers tried to sow the seeds of *C. absus* with seed drill, the seeds did not germinate in the immediate succeeding year but after completion of one year there was optimum population of this weed in sown or self shottered area. This indicated that because of hard seed coat, the seed may require alternate drying and wetting and to get smoothened for germination in the next year. It is an annual herb highly resistant to drought as it is indicated by its survivalance even under drastic situation

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