

## Synthesis of a red glumed *periamanjol cholam* (*Sorghum durra* var. *Coimbatoricum*) with juicy stalks.

by

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**Synopsis:** In this paper, the artificial synthesis of a red glumed *periamanjol cholam* with juicy stalks is reported.

**Introduction:** *Periamanjol Cholam* is the most popular dryland variety of the Coimbatore district occupying an area of about 3 lakhs of acres. It is grown both for its grain and fodder. *Cholam* Co. 1 is the standard strain of this variety. The grains are yellow in colour and the sheath colour of the stalks is blackish purple. In spite of the excellent quality of fodder the ryots are averse to the black colour of the sheath and they prefer red sheathed stalks. Attempts were made to evolve a *Periamanjol Cholam* with reddish purple sheath and juicy stalk. This paper describes the experimental synthesis of such a type.

**Materials and methods:** An intensive collection of *Periamanjol cholam* types was made from the Coimbatore district and studied in detail. High yielding pureline selections were isolated. One such type is *Cholam* A. S. 8002 from Avanashi taluk which possesses reddish purple sheath and pithy stalks. No juicy stalked *Periamanjol Cholam* could be collected. Therefore an extracted juicy and black sheathed *Periamanjol Cholam* (Krishna Rao and Mahudeswaran 1955) was chosen as one of the parents for hybridisation work. Both the parents belong to the species *Sorghum durra* Var. *Coimbatoricum* (Snowden 1939).

The Characters of the two parents are given below :—

Characters	Extracted type A. S. 8112	Selection A. S. 8002
1. Grain	Yellow	Yellow
2. Midrib	Dull-juicy	White-Pithy
3. Sheath colour	Blackish purple	Reddish purple
4. Yield of Grain	272 kg. to 363 kg.	272 kg. to 363 kg.

The two types were crossed by the hot water emasculation method in the year 1951.

**Results and Conclusion:** The hybrids had white midrib and reddish purple sheath which are dominant traits. In the  $F_2$  and subsequent generations segregation was noted for these two attributes. Selections were made keeping in view the objective to obtain a pure breeding form with juicy stalks and reddish purple sheath. Of the several selections under experimental stage, two promising selections A. S. 9071 and A. S. 9079 were advanced for the comparative yield trial in the year 1958. The yield data obtained during the years of experimentation are presented below :—

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\* Received on 5-6-'61.

Particulars	Selections			Whether differences are significant or not. $P=0.05$	Critical difference $P=0.05$
	Control Co. 1	A. S. 9071	A. S. 9079		
<i>1958 :</i>					
Grain yield as a % of the standard.	100	159.5	151.2	Yes	30.6
Straw yield as a % of the standard.	100	277.9	194.5	Yes	33.1
<i>1959 :</i>					
Grain	100	50.9	117.2	Yes	8.1
Straw	100	100.0	82.8	No	—
<i>1960 :</i>					
Grain	100	130.0	117.0	Yes	35.3
Straw	100	106.0	69.0	Yes	22.4
<i>1961 : FAILURE.</i>					
<i>1962 :</i>					
Grain	100	117.0	90.0	Yes	32.3
Straw	100	138.8	108.4	Yes	19.7

The results show that selections A. S. 9071 and A. S. 9079 were significantly superior to the standard strain Co. 1 in both grain and straw yields in the year 1958. Selection A. S. 9071 was found to be statistically on par with the standard strain both in grain and straw yields in 1960 and it had recorded an increased grain yield of 30 per cent and straw yield of 6 per cent over the control. Selection A. S. 9079 was also statistically on par with the strain Co. 1 in grain yield but was inferior to the standard strain in straw yields. In the year 1962 though the selections A. S. 9071 and 9079 were statistically on par with the control, selection A. S. 9071 had given 17 per cent increased grain yield over the control and 27 per cent increased yield over selection A. S. 9079. In straw, A. S. 9071 was significantly superior to the control giving 38.8 per cent more yield. It will be seen from the foregoing that between the two selections compared and tried in yield plots, A. S. 9071 appeared more promising.

**Summary:** The variety *Periamanjali* is an important dryland *cholam* of the Coimbatore district. The stalks of this variety are pithy and its sheath is blackish purple in colour. Reddish purple sheath and juicy stalks are the desirable attributes. The present work describes the artificial synthesis of a type combining the above two characters.

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