Rice pseudograin on cytoplasmic male-sterile Line Wu 10A.

Mean level of sugars and amino acids of Wu 10A pseudograins.

Property	Mean
Caryopsis dry wt (mg)	0.89
Soluble sugars (µg glucose/grain)	219
Soluble sugars (% glucose dry basis)	24.5
Free amino acids (µg leucine/grain)	54
Free amino acids (% leucine dry basis)	6.0

Pseudograins could not be germinated in the seed germinator or by in vitro culture. Biochemical analysis of freeze-dried pseudograins showed high levels of soluble sugars and free amino acids (see table) comparable to those of a 1-day-old fertile grain. Normal embryo weighs 0.3 mg and a fertile caryopsis 21 mg. Pseudograin weight was less than 1 mg. Whether or not this is a case of parthenocarpy (a type of apomixis) remains to be established.

The International Rice Research Newsletter (IRRN) invites all scientists to contibute concise summaries of significant rice research for publication. Contributions should be limited to one or two pages and no more than two short tables, figures, or photographs. Contributions are subject to editing and abridgement to meet space limitations. Authors will be identified by name, title, and research organization.

Gamma ray-induced semidwarf mutants in Basmati 370

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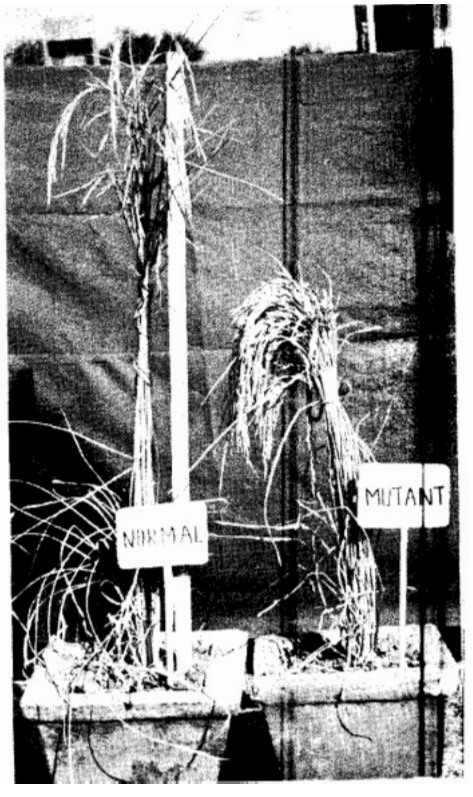
Local, tall, superfine-grained, and scented indica variety Basmati 370 was exposed to 20, 30, and 40 Kr of gamma rays from a ^{60}Co source. Several chlorophyll and other morphological mutants were isolated in the M_2 and M_3 generations.

A highly productive semidwarf mutant, Basmati A54. was recovered from 20 Kr gamma ray-treated material in the M_2 generation. It showed high uniformity in the M_3 generation (see figure).

This mutant matures 28 days earlier and has agronomic and quality characters superior to those of the original Basmati 370 (see table).

Semidwarf mutant BMS 1 was isolated from the same treatment. It had thin plants, profuse tillering (15-20 tillers/ plant), and reduced panicle and grain size. Its lemma and palea were fully opened and grains were not fully covered with husk. Anthers were small and 35 to 40% pollen sterility was observed in the M_3 generation. This mutant showed alternate branching from every node of the stem. Leaves were erect and dark green.

These two mutants can be used directly or indirectly to replace tall variety Basmati 370, which has a low yield potential.



Basmati 370 and mutant Basmati A54 recovered in the M_3 generation after exposure to 20 Kr gamma rays at Karnal, India.

Some agronomic and quality characters of Basmati 370 and its mutant Basmati A54 at Karnal, India.

Line	Plant ht (cm)	Maturity (days)	Tillers/ plant (no.)	Grains/ panicle (no.)	1,000-grain wt (g)	Grain yield/ plant (g)	Grain			Scent
							Length (mm)	Breadth (mm)	L:B	
Basmati 370	125	148	7.50	125	20.10	9.31	6.75	1.80	3.75	Yes
Basmati A54 (mutant)	85	120	12.50	130	23.80	14.72	7.45	1.85	4.02	No
C.D. at 5%	7.35	2.42	2.12	ns	1.12	3.45	0.23	ns		