ROLE OF MUTATION IN CROP IMPROVEMENT

Mutation changes the characteristic of organism causing variations in the same. These variations ultimately result in revo-lution of new races or species. Hence mutation provides raw material for the evolution of species. In nature their is spontaneous mutation which has resulted in evolution of several plants and animals species. But frequency of spontaneous mutation is extremely slow. It takes thousands of years in evolution of a species. The scientists use mutagens to create variations in organisms. Such works were started after 1927 when Muller and Stalder discovered mutagens. The first crop improvment programme was initiated swedan by Nilssen - Ehle (1929). He selected several crop variety varieties, fruit, trees, vegetables and ornamentals for his work. They were treated with various doses of different mutagens. This resulted in evolution of new varieties of these plant. They were finally released to farmer for cultivation.

Similar works were also started by workers of America, Russia, Germany, Japan and India. In our country the first mutation breeding programme was carried on

wheat variety NP-797. It was a high yielding, disease resistant variety but it was high not linked by the farmers of India because it had no bristles. This variety of treated with Y-rays and a new variety with bristles which was develop It was now cultivated in different parts of India as NP. 836. Similarly the rice variety Taichung from Taiwan was not preferred by farmers of this country because of sticky grains and low starch content. This was also treated with Y-ray and a variety with non-sticky grains and high amylase content was developed. It has been named as Taichung-65. It is widely cultivated in India.

With the use of mutagen a variety of castor tree named as Aruna has been develop. It matures only in 110 days. It also has high yield Similarly new strains of Penicillium has been developed through mutation. These strains are capable of secreting high quantative of Penicillin. According to the reports of Atomic energy comession (1985, 1990) about 606 new variety of different plants have been develop through mutation.

List of varieties released by use of induced mutation.

Types of crop	No. of Release Upto act 1973	Variety till Jan 1984	Variety released ...
Cereals	54	190	N° 836, Sharbati, ...
Bread wheat	8	30	Pusa lerma, NI 5643.
Durum wheat	4	15	Jagannath, I/T 4, I/T 60
Rice	15	66	Hybrid mutant ...
Barley	22	69	RBD-1, DL-253
Oats	5	10	Pusa, Parivati (French ...
Legumes	21	51	Hans (Pea), Ranjan (Lentil) Trombay ... -Khi (Pigeon pea) Pa ... moong 2, TAP-7 (Mung bean.
Fruits tree	7	19	Pusa lal Meerutis, R ...
Other crops.	16	78	(Tomato) Aruna, Sowbha ... (157-B), RC-8 (Castor ... MU-7, Rasmi, Pusa ageti (Cotton), RLM ... RLM 514 (Mustard), Ne ... hybrid Bajra 5 (NHB ... Pusa 46 (Pearl millet) ... CO 997, CO-6608 (Sugarca ... MDU1 (Chilli) JRC-7447 ... (Jute
Total Gop	98	235	
Ornamental	47	227	
Total	145	606	