GAMMA RAY-INDUCED CHOCOLATE SEEDED MUTANT IN *BRASSICA CAMPESTRIS* VAR YELLOW *SARSON*

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BRASSICA CAMPESTRIS var yellow *sarson* have yellow seeds. However, one plant with chocolate coloured seeds was isolated in the irradiated material from gamma rays. The dry seeds of strain YSIK 4 of yellow *sarson* were irradiated with 25, 50, 75, 100 and 125 KR during winter season of 1982. The seed colour variant was isolated in 50 KR population at the time of harvesting individual plant in M_1 generation and has bred true in M_2 and M_3 generations. The mutant had compact branches, dwarf height (106 cm), more primary branches (13), secondary branches (15), siliqua number (240) and number of seeds per siliqua (35) as compared to YSIK 4 which had open branching pattern, less primary (9) and secondary branches (6), tall stature (137 cm), siliqua number (206) and the number of seeds per siliqua (28) as shown in figure 1. In mean seed weight, the mutant was also superior and had 6 g/1000 seeds and 30 g yield/plant as compared to 4.2 g/1000 seeds and 16.4 g yield/plant of YSIK 4. Chocolate seed mutant has 14.1% husk content as compared to 17.9% in the parent. Estimation of oil content has revealed that mutant has 41.5% oil and the YSIK 4 had 39.8%. Seed colour differences are presented in figure 2.

Figure 1. Plant types of YSIK 4 and mutant plants.

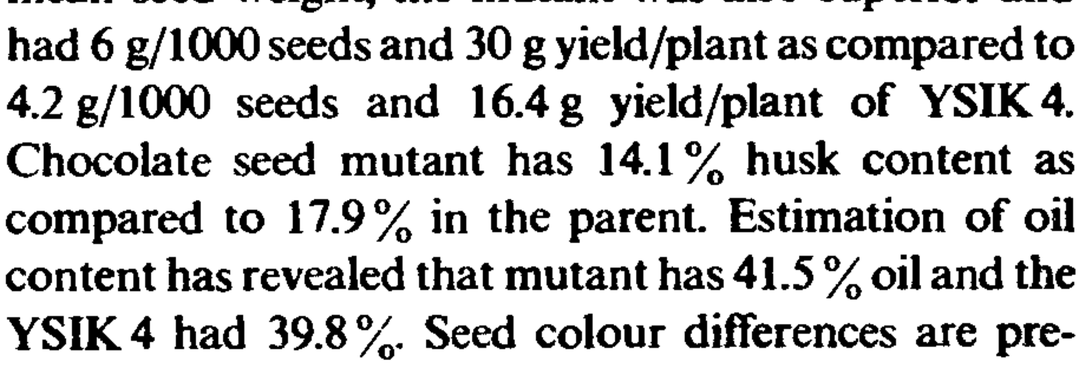

Figure 2. Seed colour differences in YSIK 4 and mutant.

As the mutant plants have compact branching pattern, more primary and secondary branches, siliqua number, number of seeds/siliqua, bolder seeds and higher yield, more population can be raised per unit area as compared to normal varieties of yellow *sarson*. It has also desirable plant type attributes for intercropping.

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A SELECTIVE METHOD FOR ISOLATING *PYRICULARIA* FROM BLAST LESIONS

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THE problem of isolation of the blast pathogen *Pyricularia oryzae* Cav. is chiefly concerned with

separating the disease causing organism from many saprophytic fungi e.g. *Alternaria* and *Curvularia* species, which frequently invade the necrotic lesion centres behind the advancing front of parasitic mycelium. *Pyricularia* is a weak saprophyte and hence the success by conventional "host tissue transplant" isolation method[1] is very low.

The spore discharge of pathogenic and nonpathogenic fungi associated with the blast lesion occurs under contrasting environmental conditions[2]. An attempt was made to develop a selective isolation method for obtaining the pure *Pyricularia* cultures by creating the congenial environment for spore release of blast pathogen and thus avoiding the spore liberation of nonpathogenic fungi.

The blast infected leaves of *Oryza sativa* L were collected at 4.00 p.m. and were cut into single-blast-lesion containing pieces. The hot OMA (oat meal agar medium, i.e. oat meal 30 g, water one lit., agar 12 g) was poured into petridishes. Each lesion sample, after surface sterilization with sodium hypochlorite was placed on the lid of petridishes. The lids were placed in position and the petridishes were incubated at 24 ± 2°C for 15 hr. The lesion samples were then removed. After three days the growing *Pyricularia* cultures were transferred to OMA slants.

The *Pyricularia* cultures were obtained from all the lesion samples. The culture growth was initiated by the liberated spores. The spores of *Curvularia*, *Alternaria* could be liberated when the conidiophore undergoes twisting movements[2]. The samples were fixed to the lids of petridishes by water drops and were incubated under high vapour pressure. Water is recognized as a releasing agent for blast conidia and it induces spore liberation by touching the juncture between conidia and conidiophore[3]. The direct contact of diseased host organ with media was avoided and the environment was favourable for the liberation of blast conidia; hence this selective isolation method was very useful for isolating the *Pyricularia* from all types (colours and sizes) of blast lesions.

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TUBER ROT—A NEW DISEASE OF *DIOSCOREA COMPOSITA* AND ITS CONTROL

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DIOSCOREA COMPOSITA (Hemst.) is a potential source of diosgenin. A disease causing tuber-rot in this crop was observed in the experimental plots at Chatha Farm as well as in the nursery plots maintained at the Regional Research Laboratory, Jammu during 1982–83. The representative samples were collected from the plants showing typical symptoms of the disease. The characteristics of the disease and identity of the causal organism was studied along with the control measures.

The typical symptoms of the disease under natural conditions were observed at the infected portion of the tubers showing brownish discoloration. Mild rotten flavour was observed in the rotten portion. White cottony mycelial growth was also observed on the upper surface of the infected tubers. During the advanced stages of the disease, longitudinal section of the infected tubers revealed very clear and distinct colour differentiation between infected and non-infected portions. Infections during storage spreads very fast at high temperature when compared to tubers stored at a low temperature.

The causal organism was isolated on P.D.A. plates and purified by single hyphal tip method.

The pathogenicity test was confirmed under laboratory conditions by inoculating healthy tubers with mycelial suspension of the same organism isolated from the diseased tubers. The characteristic symptoms of the disease developed within 10–12 days following inoculation. The infection was fast when the pathogen was inoculated with artificial injury on the tuber surface whereas the tubers without any injury took comparatively longer time to establish the infection.

To study the optimum temperature for the disease development, the inoculated tubers were kept at different range of temperatures (5–10°C and 25–28°C). The inoculated tubers kept at 5–10°C took more than 25 days to show the symptoms of the disease whereas the tubers kept at 25–28°C got diseased within 10–12 days.

Causal organism was identified as *Pythium spinosum* (CMI-276812).

However, from the literature it was revealed that the