

**INTROGRESSION OF '00' QUALITY CHARACTERS IN BRASSICA JUNCEA  
CV PUSA BOLD**

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**ABSTRACT**

Plants of Brassica juncea (L) Czern. var. Pusa bold with 45% erucic acid and  $>155 \mu\text{m}/(\text{g of deoiled meal})$  glucosinolate were crossed with B. juncea (L) Czern. var. Heera with zero erucic acid and  $<30 \mu\text{m}/(\text{g of deoiled cake})$  glucosinolate. F1 plants were selfed and harvested individual plantwise, F2 seeds of individual plant progenies were grown in rows and selfed. F3 seeds were analysed by paper chromatography for erucic acid and tes tape for glucosinolate. Selections were made for zero erucic acid and Westar level glucosinolate plants. Seeds of these plants were used to grow F3 generation which was selfed and harvested on individual plant basis, F4 seeds were screened for erucic acid and glucosinolate and selections were observed to segregate. Hence, seeds with zero erucic acid and low glucosinolate characters were sown to raise F5 generation and selfed, even these F5 plants were found to be segregating for high erucic acid as well as glucosinolate characters, however, few lines have been identified with Westar level glucosinolate and responding better to the Indian agroclimate. The performance of this material is being assessed.

**INTRODUCTION**

There is an urgent need to develop Brassica juncea with '00' characteristics. Khalatkar *et al.* (1991) have introgressed '00' characteristics in B. juncea, however, due to exotic nature, there are inherent problems like late flowering, height at maturity, small seed size, etc. Hence, considering the performance of Cv Pusa bold, investigations were planned to introgress the '00' characteristics.

**EXPERIMENTAL**

Brassica juncea cv Pusa bold seeds were obtained from Project Coordinator, ICAR. Heera seeds were produced in the Experimental Field of Department of Botany, Nagpur University. Both parents were selfed and seeds were analyzed for erucic acid on a GLC (Thies, 1971), glucosinolate by Tes-tape (Mc Gregor and Downey, 1975) and for oil on NMR. Heera plants only with zero erucic acid and low glucosinolates were used as the parents.

Reciprocal crosses were made during the summer of 1990. F1 seeds were grown and plants were selfed. F2 seeds obtained were analyzed for erucic acid by paper chromatography and GLC and selections were made for plants with zero erucic acid. F2 seeds were grown in progeny rows and selfed. F2 plants were harvested individual plantwise and screened for

glucosinolate by Tes-tape. F3 seeds with Westar level low glucosinolate were selected. These seeds were used to grow F4 generation, which was again selfed. F5 seeds were found to be segregating, selections were made for low glucosinolate and selfed. These seeds were used to grow F6 generation.

World over attempts are being made to introgress '00' characteristics in *B. juncea*. This effort was made possible by the Canadian success story (Love et al., 1990). Similar success in introgressing the quality characteristics has been achieved in *B. juncea* by Khalatkar (Unpublished). Khalatkar et al. (1991) have also reported introgression of zero erucic acid character in Pusa bold background. However, the photoperiodic response of Canadian material has necessitated to introgress '00' characteristic in Pusa bold background.

The comparative data in some of the F6 lines with parents are presented in Table 1. Pusa bold had a height of 165 cm at maturity, while Heera grew to 195 cm. Whereas Pusa bold x Heera had 165 cm height in one line, while the other was 160 cm. Pusa bold had twenty-one branches, while Heera had 19. Pusa bold x Heera F6 lines had 20 and 14 branches, respectively. On an average Pusa bold had 416 siliqua. Heera had 499 siliqua, while the F6 lines of the crosses had 294 and 278 siliqua, respectively. Pusa bold flowered in 40 days, while Heera flowered in 45 days. The F6 lines, however, flowered in 41 and 39 days, respectively. Pusa bold matured in 115 days, while Heera took 120 days. One F6 line matured in 106 days, while the other matured in 123 days. These lines had Westar level glucosinolate. Pusa bold had 32.0% oil, while Heera had 29.0%. Introgressed F6 lines had 36.0% and 32.0% oil.

TABLE 1. Data on morphological and quality parameters in Pusa bold, Heera and their F6 lines

Parameters	M a t e r i a l			
	Pusa bold	Heera	Pusa bold x Heera	Pusa bold x Heera
Branches	21	19	20	7
Flowering (days)	40	45	41	39
Siliqua	416	499	294	278
Ht.at Maturity(cm)	165	195	165	160
Maturity (days)	115	120	106	123
Glucosinolate	(+++)	(-)	(-)	(-)
Oil content (%)	32	29	36	32

The data obtained indicate reasonable reduction in the height and maturity compared to Heera. However, the lines need further refinement before they can be considered for larger testing.

#### ACKNOWLEDGEMENTS

The authors are thankful to National Dairy Development Board, Anand for financial assistance.

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