which appears after 10–15 days after the second flush, gives 200-250 g of mushrooms. Thus the present method gives the total yield of 1,500 g of mushrooms, with 1:1.25 ratio of dry straw to yield, in three flushes and during a total period of 50 days.

The Zadrazil's method utilizes the premoulded removable cylindrical plastic case and the central metal non-perforated rod with the metal basal plate to support the developing cylinder. Furthermore, in Zadrazil's method, a mechanized sophisticated expensive means is employed. The other methods such as bamboo basket method[3] and polythene bag method[3,4], though less expensive, lack certain advantages. The present method gives the maximum yield in the minimum period.

The authors thank Prof. V. P. Bhide, Head, Department of Mycology and Plant Pathology, for valuable suggestions and to Dr S. H. Godbole, the Deputy Director, and Dr K. R. Surange, the Director of this Institute for their interest in and facilities for the present work.

3 January 1983; Revised 2 July 1983.

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MALE STERILITY IN INDIAN TURNIP RAPE

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AMONG the rapeseed-mustard crops, *Brassica campestris* occupies prominant place as an oilseed crop in India. Three varietal forms *viz* yellow sarson, toria and brown sarson are cultivated commercially in different parts of the country.

Efforts to improve these crops by pedigree method in self-pollinated and self-compatible forms and by mass selection, synthetic, composites and recurrent selection methods in self-incompatible are in progress in India and abroad. Reports showing high heterosis in yield and other important traits in several specific cross combinations[1,2] are available. Despite this there is no significant progress in production, isolation and maintenance of male sterile genotypes (lines) and materializing them into heterosis breeding. *B. napus* (Rape) on the other hand, has been studied more extensively in Europe and Japan and valuable information of applied nature has been provided[3-8]. Recently Rawat and Anand[9] reported cytoplasmic male sterile plant occurring spontaneously in *B. juncea* (Indian mustard).

Present paper reports occurrence of two male sterile plants (MS-1 and MS-2) in intervarietal crosses in *B. campestris* and describes their morphological features. Such male sterile plants have not been reported in this species of Brassica.

Male sterile-1 (*MS*-1): This male sterile plant was recovered in F_3 family of a cross between brown sarson (as female parent) and yellow sarson (as male parent). The plant is characterised with medium height, large number of racemes emerging at 20° from the main axis, small petal, pollen sac, pistil and pod length. When self-pollinated (bagged) small empty fruits were formed unlike the open pollinated pods that produced 3-9 seeds. Male sterile plant exhibited late flowering and maturing than normal fertile plants. Data on comparative morphological traits is summarised in table 1.

TABLE 1

Comparison of various traits in male sterile and normal (fertile) plants in B. campestris.

Characters	MS-1	MF-1	MS-2	MF-2
A. Flower characters (cm)				
Sepal length	0.8	0.7	0.8	0.6
Petal length	0.7	1.3	1.0	1.1
Petal breadth	0.4	0.7	0.5	0.6
Anther length	0.5	0.7	0.5	0.7
Pistil length	0.7	1.0	1.3	0.7
Length of Pollen Sac	0.1	0.2	0.1	0.1
B. Plant characters				
Plant height (cm)	85.0	117.0	142.0	141.0
No. of primary branches	15.0	12.0	7.0	5.0
No. of secondary branches per primary branch	5.0	3.0	2.7	3.0
No. of pods on main axis	26.0	40.0	14.0	6.0
Pod length (cm)	3.9	3.5	2.3	5.7
Beak length (cm)	0.5	1.8	1.0	1.7
No. of seeds per pod under open pollination	4.0	12.0	4.3	18.0

MS = Male sterile MF = Male fertile

Figure 1. Photograph of Male sterile plant (MS–2).

Male sterile-2 (*MS–2*): In figure 1 male sterile plant is shown. This was recovered in F_3 family of a cross between yellow sarson (as female parent) and brown sarson (as male parent). This produced cleistogamous flowers with highly elongated pistil protruding outside of flower. Empty non-dehising pollen sac with small filament remaining inside the unopened petals renders the plant to get open pollinated. Plant stature, branching pattern and flowering time resembles with male fertile. It is interesting to note that pistil length is almost double to that of anther in MF–2. Decreased flower parts, small curved-seedless fruits (figure 2) resulted by self-pollination (by bagging) and poor seed set under open pollination are some other characteristic features of the plant. The comparative morphological features are given in table 1.

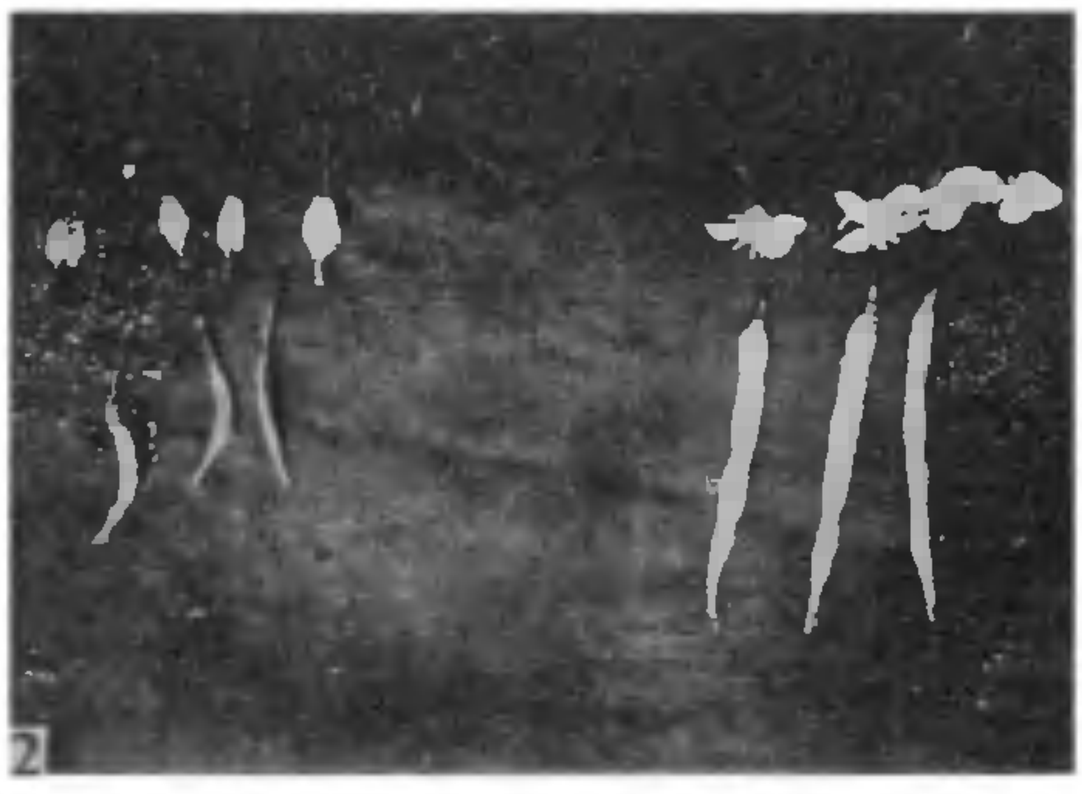

Figure 2. comparison of flowers and fruits of male fertile and male sterile plants, left hand side-flowers and pods from male fertile, right hand side-flowers and pods from male sterile plant (MS-2).

The male sterile plants have been crossed to a number of lines including their parents to study the genetic behaviour and explore the possibility of maintenance of sterility and restoration of fertility for aiming successful heterosis breeding in this crop.

13 April 1983, Revised 7 July 1983

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ACUTE TOXICITY OF STERIGMATOCYSTIN IN CHICKS

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ASPERGILLUS versicolor has been detected as natural contaminant in grains, bread, cheese and similar edible products[1]. Sterigmatocystin, a secondary metabolite of *A. versicolor*[2]. bears a structural relationship to aflatoxins[3-5]. Preliminary studies indicated that it was a hepatotoxin inducing tumours in lungs[6]. It was, therefore, of interest to study the acute toxicity of this mytoxin in chicks.

The medium of Rabie *et al*[1] was used for growing *A. versicolor*. *A. Versicolor* strain and was obtained