



RM-152-2 matured significantly earlier than control cultivars at different irrigated and rainfed sites in the National trials. The earliness in maturity ranged from 6 to 18 days at different sites, however, it matured a week earlier than the controls (average of 15 sites for two years). Plant height of RM-152-2 (162 cm) is almost the same as that of parent and other check cultivars. The mutant is also moderately resistant to *Alternaria* blight (*Alternaria brassicae*) and *Sclerotinia* stem rot (*Sclerotinia sclerotiorum*) and completely resistant to downy mildew (*Peronospora parasitica*) and white rust (*Albugo cruciferarum*).

Results regarding oil content, erucic acid and glucosinolates (courtesy: NARC, Islamabad) indicated that RM-152-2 possesses 46% oil (range 43-47% at different sites) as against 42% of Tower and 43% of Pak Cheen (Table 2). It contains less than 3% erucic acid (C<sub>22:1</sub>) and 25 micromoles total glucosinolates per gram of oil free meal. Based on its quality characteristics, RM-152-2 falls in to the Canola standard for Pakistan (which require less than 5% erucic acid in oil and less than 40 micromoles of total glucosinolates per gram of oil free meal).

Table 2. Oil content, erucic acid and total glucosinolate content of RM-152-2 (Abasin-95), Pak Cheen and Tower varieties analysed by the Oilseed Analytical Laboratory, NARC, Islamabad)

Entry name	Oil content (%) <sup>*</sup>	Erucic acid (%) <sup>*</sup>	Glucosinolates (μ mole/g)
RM-152-2 (Abasin-95)	46.0 (43-47)	2.98	25.0
Pak Cheen	43.5 (41-44)	33.52	68.8
Tower (Parent variety)	42.3 (41-43)	10.31	41.9

\* Ranges are given within parenthesis

RM-152-2 is uniform, stable and morphologically distinct from the parent cultivar Tower. Based on its superb performance in different yield trials and its wide adaptability to diversified climates, RM-152-2 has recently been approved by the NWFP Provincial Seed Council for normal Rabi (winter) planting in irrigated and rainfed areas of NWFP under the name of Abasin-95.

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### 'GORNOORIAHOVSKA KAPIA F<sub>1</sub>'\* - A NEW HYBRID PEPPER VARIETY BASED ON RADIATION INDUCED MALE STERILITY

The female parent line 'Zlaten medal *ms-8*' was obtained by Daskalov [1] as a gamma rays induced mutant of pepper (*Capsicum annum* L.). Dry seeds of the initial variety 'Zlaten medal' were irradiated with 135 Gy gamma rays and after screening of a large M<sub>2</sub> population



(57 000 plants) 3 male sterile mutants were obtained. After an allelic test the genes responsible for male sterility were denoted as *ms-6*, *ms-7*, and *ms-8*. After many years of testing various male sterile sources the gene *ms-8* proved to be the most suitable for hybrid seed production because it determines 100% male sterility, independent of the climatic condition or the genotype. The mutation causes the highest reduction of anthers, which allows easy distinction between male sterile and fertile flowers. The development of the mutant male sterile line Zlaten medal *ms-8* is a good example of how mutation techniques can be very useful for adding or changing only one trait without altering the basic genotype.

The male parent line 'GO-250B' was developed at the Vegetable Research Station at G. Oriahoviza and is characterized by a good combining ability and many outstanding agronomic traits. The new hybrid variety 'Gornooriahovska kapia F<sub>1</sub>' is suitable for early and middle early field production as well as for cultivation under plastic or glasshouses (Table 1). The vegetation period from emergence to maturity is approximately 105 days. The heterotic plants are 60-70 cm high and lodging resistant. The fruits are big, long (14-18 cm), "kapia" type, two to three lobbed, 70-90 g, with tender and tasty flesh (4.5-5.5 mm thickness of the pericarp), 9-10% dry matter, 220-250 mg% vitamin C, 4.5 % sugars. The immature fruits are green and the mature ones – dark red. The variety is resistant to TMV and possesses high field resistance to *Verticillium* and CMV. Hybrid seed production will be performed according to the techniques described by Daskalov [2].

Table 1. Performance of Gornooriahovska kapia F<sub>1</sub> variety under field and plastic house conditions

Variants	Early yield kg/ha				Total yield kg/ha			
	1993	1994	Average	(%)	1993	1994	Average	(%)
<b>Field</b>								
Albena (check)	18440	32490	25640	100.00	36880	41020	38950	100.00
G. kapia*	37500	31740	34620	135.02	73870	60490	67180	172.47
<b>Plastic house</b>								
Albena (check)	42340	23610	32970	100.00	8280	50960	66880	100.00
G. kapia	51000	34500	42750	129.66	10386	59760	81810	122.32

\*The hybrid variety 'Gornooriahovska kapia F<sub>1</sub>' was developed by T. Hristov, S. Daskalov, L. Milkova and E. Stoimenova.

## REFERENCES

- [1] Daskalov, S., 1973. Investigations of induced mutants in *Capsicum annuum* L. III. Mutants in the variety Zlaten medal. Genet.Plant Breed. 6: 419-429 [in Bulgarian with English summary].
- [2] Daskalov, S., 1976. Seed setting of male sterile mutants in connection with heterosis breeding in pepper (*C. annuum* L.). Genet.Agr. 30: 407-417.

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## 'CM 88' – A MULTIPLE DISEASE RESISTANT CHICKPEA MUTANT VARIETY

Chickpea is the most important grain legume crop of Pakistan. *Ascochyta* blight (*Ascochyta rabiei*) and *Fusarium* wilt (*Fusarium oxysporum* F. sp *cicer*) are most serious diseases, having the potential to devastate a crop [1]. A multiple disease resistant and high yielding mutant CM 88 has been developed through 100 Gy gamma irradiation treatment of