population levels is presented in Table 1. The overall performance of this variety compared with Co 1 under various trials is presented in Table 2. The description of Co 2 is detailed in Table -3.

By virtue of the following special features, this new culture UGM 52 is released as Co 2 for general cultivation.

It matured earlier (75-80 days) and gave on average yield of 1341 kg/ha as against 1235 Kg/ha by Co 1. The per day productivity on UGM 52 was 16.76 kg compared to 13.72 Kg/ha in Co.1

It is a dwarf determinate and compact plant type.

Pods are non shattering, non lodging and photoinsensitive.

The leaves are dark green with long petiole which would help to increase the photosynthetic activity.

It was shown field tolerance to yellow mosaic virus disease and the pests like leaf miner.

It has got high oil content (24.8%) and protein (39.28%) as against Co 1 with 23% oil and 38.46% protein contents (Table 4)

It can be raised as pure crop, intercrop and rice fallow.

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EVALUATION OF INSECTICIDES FOR CONTROL OF PAINTEDBUG ON TARAMIRA

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ABSTRACT

A field experiment was conducted during *rabi* 1986-87 with RTM-2 variety of rocket *(Eruca sativa* Miller) to evaluate the efficacy of seven insecticides against painted bug, *Bagrada hilaris* Burm. The sprays of malathion, 0.05 per cent, dimethoate 0.03 per cent and monocrotophos 0.036 per cent were found effective for control of this pest.

KEY WORDS : Taramira, Insecticides, Bug, Control

Rapeseed and mustard are important oilseed crops of Northern India. This group of crops include *raya, toria, sarson, gobi sarson* and *taramira.* Taramira (rocket) is mostly grown under conserved moisture conditions in about 1.7 lakh ha in Rajasthan. It is reported to be relatively free from damage of insect pests. But is was found severely damaged by painted bug, *Bagrada hilaris* Burm at both pod formation and seedling stages, besides aphids and cutworm at Mandor research farm. The adult bugs and their nymphs suck sap from the leaves, inflorescence and pods of the plant. The infested crop develops withtish blotchy spots or give a blighted or burnt up look. Several workers have worked out the efficacy of different insecticides against painted bug on sarson (Srivastava and Dixit, 1977: Sarup *et al.,* 1971 a), cauliflower (Gupta *et al.,* 1977), pearlmillet (Sandhu *et al.,* 1974) and under laboratory conditions (Sarup *et al.,* 1971 b; Krishnan Kumar and Ratan Lal, 1966; Pradhan and Bhatia, 1952). But no specific work on control of painted bug on rocket *(Eruca sativa* Miller) is reported. Therefore, present investigation was undertaken.

MATERIALS AND METHODS

A field experiment was laid out with RTM-2 variety of *E.sativa* to work out the efficacy of differentinsecticides for control of painted bug in a randomised block design at Agricultural Research Farm, Mandor, Jodhpur during *rabi* 1886-87. Each treatment was replicated three times and the size of the plot was 4 x 3 m. The row to row distance and plant to plant distance was kept at 30 cm and 15 cm, respectively. The treatments were

Table 1. Efficacy of different insecticides applied against painted bug

Insecticide	Conc %	Mean no. of bug per five branches (nymphs and adults) before spray**	Mean per cent control of bug (nymphs and adults)* after (days) spray		Mean number of bug per five branches (nymphs and adults)** after (days)spray			
			1	3	1	3	7	14
Malathion 50 EC	0.050	30.00(5.37)	92.65(74.51)^{a}	89.34(71.28)^{a}	2.33(1.60)^{a}	1.66(1.46)^{a}	4.00(2.01)^{a}	10.66(3.30)^{a}
Phosphamidon 85 WSC	0.030	58.00(7.22)	72.77(58.56)^{b}	67.20(55.11)^{c}	17.00(3.91)^{b}	20.67(4.39)^{cd}	30.67(5.13)^{cd}	50.00(6.95)^{bc}
Monocrotophos 36 WSC	0.036	31.67(5.64)	88.64(70.33)^{a}	83.00(65.97)^{ab}	3.67(2.04)^{a}	6.00(2.55)^{abc}	7.67(2.85)^{ab}	21.33(4.66)^{ab}
Endosulfan 35 EC	0.070	34.67(5.92)	76.48(61.00)^{b}	64.48(53.43)^{c}	8.33(2.97)^{ab}	14.00(3.81)^{cd}	16.00(4.04)^{bc}	27.33(5.27)^{b}
Dimethoate 30 EC	0.030	25.67(5.02)	90.99(72.85)^{a}	81.00(63.13)^{b}	2.33(1.64)^{a}	5.35(2.39)^{ab}	7.67(2.81)^{ab}	15.00(3.82)^{a}
Methyl demeton 25 EC	0.025	31.33(5.76)	75.90(60.83)^{b}	67.59(55.35)^{c}	7.66(2.84)^{ab}	12.00(3.45)^{bcd}	13.66(3.72)^{b}	31.08(5.47)^{b}
Formothion 25 EC	0.025	27.33(5.15)	49.23(44.56)^{c}	43.66(38.14)^{d}	14.00(3.73)^{b}	17.67(4.15)^{cd}	28.33(5.34)^{cd}	33.30(5.80)^{bc}
Control (untreated)		23.33(5.36)	-	-	29.00(5.42)^{c}	32.67(5.73)^{e}	38.00(6.20)^{d}	51.67(7.21)^{c}
SEm ±		0.72	1.38	2.02	0.47	0.43	0.41	0.50
CD 5%		NS	4.24	6.22	1.41	1.31	1.25	1.52
CV (%)		7.33	3.77	6.06	28.48	21.44	17.72	16.31

* Figures in parentheses are angular transformed values

** Figures in parentheses are square root $\sqrt{n+0.5}$ transformed values

Figures bearing the same letter are non-significant (P = 0.05)

spray of 0.05% malathion (Cythion 50 EC), 0.03% phosphamidon (Dimecron 85 WSC), 0.036% monocrotophos (Monocil 36 WSC), 0.07% endosulfan (Thiodon 35 EC), 0.03% dimethoate (Rogor 30 EC), 0.025% methyl demeton (Metasystox 25 EC) and 0.025 formothion (Anthio 25 EC). One spraying was given at pod formation stage when severe infestation of the pest was noticed with the help of knapsack sprayer fitted with high volume nozzle. The spray liquid was used at the rate of 600 l per ha. Number of bugs on one branch of each of five plants, selected randomly from each plot, was recorded before and 1, 3, 7 and 14 days after spraying. The data obtained were statistically analysed. The per cent control due to treatment after 1 and 3 days of spraying was also calculated using modified Abbot's formula (Henderson and Tilton, 1955) and was analysed statistically.

RESULTS AND DISCUSSION

The data presented in Table 1 revealed that all the insecticides except formothion gave satisfactory control of the painted bug after one day of spraying. However, malathion, monocrotophos and dimethoate had a significantly superior knockdown effect over others. Malathion gave 92.65 per cent control followed by dimethoate (90.99%) monocrotophos (88.64%) endosulfan (76.48%) methyl demeton (75.90%) phosphamidon (77.77%) and formation (49.23%). Whereas, the results recorded after 3 days of spraying showed that malathion and monocrotophos had a significantly higher knockdown effect over others. Thus 0.05% malathion, 0.036% monocrotophos and 0.030% dimethoate gave significantly adequate protection with higher mortality of the bug.

The residual effect of the insecticides was evaluated by population counts of the bug at 7 and 14 days after treatment. All the insecticides except phosphamidon and formothion reduced the bug population significantly compared with control. Incidence of bug was lowest in plots treated with malathion and was at par with dimethoate and monocrotophos, suggesting good persistence of these insecticides. Gupta *et al.* (1977) suggested monocrotophos 0.04 per cent for effective control of bug on cauliflower. Srivastava and Dixit (1977) recommended phosphamidon 100 EC at the rate of 0.5 litre per hectare for control of bug on sarson. Keeping in view the present findings, malathion 0.05 per cent, dimethoate 0.03 per cent and monocrotophos 0.036 per cent may be recommended for effective control of the painted bug on *E.sativa*.

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MDU 4 : A HIGH YIELDING COLD TOLERANT RICE

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ABSTRACT

ACM 16 (AC 2836/Jeganath) was an introduced genotype in to Tamil Nadu from Central Rice Research Institute, Cuttack through Directorate of Rice Research trials. It is short statured with high tillering ability and non-lodging culms. It matures in 120- 125 days. It tolerates the cold stress at all stages of growth and produced low spikelet sterility (7.8%) as compared to IR.20 (13.7%) in cold stress areas. ACM 16 has recorded a mean grain yield of 5882 kg/ha under cold stress condition. It is resistant to blast, sheath rot, white backed planthopper and grain discoloration and moderately resistant to brown spot and brown planthopper. Hence it was released as a new rice variety MDU 4 for cold stress areas of Madurai, Salem and Dharmapuri Districts.

KEY WORDS : Cold stress, Rice Variety, Spikelet Sterility

In Tamil Nadu, the rice crop in Cumbum valley of Madurai District (1400 'MSL), Hosur and Krishnagiri of Dharmapuri District and part of Salem District is being severely affected by the cold stress during *rabi* season every year. The low temperature 14 - 16^{0}C) particularly prevailing during active tillering and flowering period considerably reduces the yield by developing high percentage of spikelet sterility in the ruling variety IR 20. Hence this situation warrented a high yielding cold tolerant rice variety for these tracts.

MATERIALS AND METHODS

Cultres from the International Rice Cold Tolerant Nursey (IRCTN) trials as well as from the Central Rice Research Institute (CRRI). Cuttack through the Directorate of Rice Research (DRR), Hyderabad, were evaluated at the Agricultural College and Research Institute, Madurai and State Seed Farm, Keelagudalur (Cumbum Valley) during the year 1984-85 to 1987-88 in *rabi* season (September - January). Among them IET 9302, a hybrid derivative of the cross AC 2836/Jeganath was identified as a promising genotype under cold strees condition and included in the