Bio-efficacy trial of research product Potassium Salt of Active of Phosphorus (PSAP) on

Opium poppy (*Papaver somniferum* L.)

Compiled by

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3.2 Opium Poppy (*Papaver somniferum L.*)
3.2.3 Technical programme for 2018-19: Contractual Trial

Title of Experiment	:	Bio-efficacy trial of research product Potassium Salt of Active of Phosphorus (PSAP) on Opium poppy (*Papaver somniferum* L.)
Name of Product	:	Potassium Salt of Active Phosphorus (PSAP)
Year of start	:	2018-19
Objective	:	To develop efficacy of PSAP for management of Downy mildew (*Peronospora arborescens)* & Powdery mildew (*Erysiphae polygoni*) on opium poppy through foliar spray of PSAP
Variety	:	Jawhar Opium -16 (JA-16)
Treatment	:	04
Replication	:	05
Plot size	:	3 m x 2.7 m
Centre	:	College of Horticulture,Mandsaur
Observation to be noted	:	1. Plant Height (cm) 2. Downy mildew disease incidence (%) 3. Powdery mildew disease incidence (%) 4. Latex yield (kg/ha) 5. Seed yield (kg/ha) 6. Yield increase over control (%) 7. Husk yield (kg/ha) 8. Morphine content (%)
Investigators	:	Dr. G. N.Pandey & Dr. S .N. Mishra

Experimental Results:

In order to test the efficacy of combination of PSAP with systemic fungicides against downy mildew (*Peronospora arborescens)* & Powdery mildew (*Erysiphae polygoni*) of opium poppy. A field trial were conducted during Rabi season 2018-19 at research field, RVSKVV, College of Horticulture, Mandsaur. Each of the treatments was sprayed as per scheduled following appearance of the disease symptoms. All the treatments were found to be effective in controlling the diseases. Among the four treatments, treatment T-3 (50 % reduction in scheduled recommended plant protection measures including foliar spray of PSAP @ 4g/litre at 35, 60, 80 and 100 days,2 spray of Metalaxyl + Mancozeb @ 0.2 % at 55

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and 75 days and 1 spray of Nativo @ 0.1 % at 95 days) recorded minimum downy mildew (16.71%) and powdery mildew disease incidence (18.31 %) and maximum latex, seed and husk yield (56.56 kg, 947.94 kg & 1045.40 kg/ha) followed by treatment T-1 (recommended spray schedule for the crop i.e., 3 spray of Metalaxyl+ Mancozeb @ 0.2% at 35, 55 and 75 days + 2 spray of Nativo @ 0.1 % at 85 and 100 days) (24.80 & 22.86 %, 49.05 kg, 855.24 kg and 1000.79 kg/ha). Whereas maximum downy mildew and powdery mildew disease incidence (43.64 % & 37.42 %), minimum latex, seed and husk yield was recorded in treatment T-2 (foliar spray of PASP @ 4g/litre at 35, 55, 75 and 95 days. (39.23 kg, 736.48 kg and 903.01 kg/ha).

Conclusion : From above experiment concluded that the foliar spray of PSAP at 358,60,80 and 100 days included Metalaxyl+ Mancozeb @ 0.2 % at 55 and 75 days & Nativo @ 0.1% at 95 days shows maximum reduction in disease incidences and maximum increase in seed yield latex and husk yield.

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Table: 3.2.3 : Bio-efficacy of foliar spray of PASP on downy mildew and powdery mildew diseases, seed latex and husk yield of Opium poppy.

S. N	Treatment	Plant Height (cm)	PDI (%)		Latex yield (kg)		Seed yield (kg)		Seed yield increase over check (%)	Husk yield (kg)		Morphine (%)
			Downy mildew	Powdery mildew	10 ari	ha	10 ari	ha		10 ari	ha	
1	T-1 : Recommended spray schedule for the crop without PSAP (3 spray of Metalaxyl + Mancozeb @ 0.2 % at 35, 55 and 75 days+ 2 Spray of Nativo @ 0.1 % at 85 and 100 days)	120.60	24.80 (29.86)*	22.86 (28.56)	4.90	49.05	85.52	855.24	16.12	100.07	1000.79	12.93
2	T2 : Foliar Spray of PSAP without recommended schedule spray @ 4 g/litre at 35, 55, 75 and 95 days	111.47	43.64 (41.33)	37.42 (37.67)	3.92	39.23	73.64	736.48	-	90.30	903.01	12.37
3	T-3: 50 % reduction in scheduled recommended plant protection measures (foliar spray of Metalaxyl + Mancozeb @ 0.2 % at 55 and 75 days and Nativo @ 01 % at 95 days)	117.47	30.38 (33.43)	23.54 (29.01)	457	45.76	81.84	818.44	11.13	98.34	983.49	12.85
4	T-4 : T-3 + foliar spray of PSAP @ 4g/litre Foliar spray of PSAP at 35, 60, 80 and 100 days, Metalaxyl + Mancozeb @ 0.2% at 55 and 75 days, Nativo @ 0.1 % at 95 days	118.80	16.71 (24.09)	18.31 (25.28)	5.65	56.56 13.28%	94.79	947.94	28.71 9.8%	104.54	1045.40 4.27%	12.95
	S. Em (±)	1.61	0.39	0.46	0.09	0.92	1.76	17.66	-	1.10	11.05	-
	CD (0.05)	NS	1.19	1.40	0.28	2.83	5.41	54.41	-	3.40	34.04	-
	CV (5%)	6.87	6.02	7.56	9.65	9.65	10.52	10.52	-	5.62	5.62	-

*parenthesis shows angular transformed value

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