

## **BIOCIDAL COMPOUNDS IN SOIL AND AVAILABLE PLANT NUTRIENTS**

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The increased growth response (IGR) which follows soil application of chemicals/pesticides is generally suggested due to increased mobilization and availability of plant nutrients in treated soils (Jenkins *et al.*, 1972). Now a days a single crop is treated with more than one pesticide or a pesticide may be used more than once on the same crop. These different pesticides may mix up, interact and ultimately influence availability of nutrients in soil. The effect of carbendazim and its combination with malathion and fluchloralin (Basalin) on available plant nutrients in soil is studied here.

Surface soil (0-20 cm depth), collected from the experimental plot, was air dried, crushed and passed through 2mm sieve. Four Kg. of this soil was transferred to each of required number of polythene bags and treated as follows:

1. MBC - 50 & 500 ppm.
2. MBC (50 & 500 ppm) + MBC 100 ppm (2nd application on 30th day).
3. MBC (50 & 500 ppm) + Fluchloralin - 50 ppm.
4. MBC (50 & 500 ppm) + Malathion - 50 ppm.
5. Fluchloralin alone - 50 ppm.
6. Malathion alone - 50 ppm.

All the chemicals used were commercial formulations and used as aqueous solutions to treat the soil. All the treatments were duplicated twice and the treated soils were incubated under laboratory conditions. Soil samples were drawn on 7th, 15th, 30th, 60th and 90th day. Available N and K were determined by the method of Sankaram (1966) and the micro-elements by the method of Lindsay and Norvell (1978).

As there were no appreciable changes between sampling intervals, values of the five samplings in each treatment were added together and reduced to single value for overall comparison. An increase in available N, K, Mn and a slight decrease in Cu content over

control was registered in all treatments (Table-1). Similarly availability of Fe also increased in all treatments but for 1 or 2 treatments. But the available Zn did not deviate much in treated soils and almost remained close to control values. Earlier workers, Wainwright and Pugh (1974) have reported an increase in available nutrients in fungicide treated soils. The increase in available nutrients in treated soils may be due to chemical reactions or microbe mediated mobilization from unavailable source (Barber, 1968; Berthlin *et al.*, 1974). It is concluded from the present investigation that Bavistin a wide spectrum fungicide singly or in combination with other pesticides tested here did considerably raise the available plant nutrients in soil. This is a secondary benefit which may arise due to the pesticide use in addition to the target effect.

The authors are thankful to the Director, CAS in Table 1: Available plant nutrients in soil treated with biocides

Treatment (Conc. in ppm)	Available nutrients **					
	N Kg/ha	K Kg/ha	Zn ppm	Mn ppm	Cu ppm	Fe ppm
Control	282.0	243.0	7.5	33.72	10.83	121.7
MBC-50	295.5	320.0	7.22	40.21	10.37	139.5
MBC-500	336.5	280.0	7.87	36.48	9.29	125.3
MBC-50+100*	296.9	338.8	7.0	39.17	10.23	133.9
MBC-500+100*	336.0	312.4	7.22	36.15	9.56	120.6
MBC+Fl. 50	342.0	266.5	6.8	36.17	9.86	124.4
MBC-500+Fl. 50	308.0	257.5	8.0	34.38	9.07	106.5
MBC-50+Ma.100	368.0	271.5	6.8	40.82	10.05	137.4
MBC-500+Ma.100	332.5	293.5	8.2	36.76	10.24	118.5
Fluchloralin 50	338.0	269.7	7.58	38.22	10.41	127.2
Malathion 100	337.5	268.1	7.61	36.8	9.19	128.2

\*\* Values are total of 5 samplings

\* MBC 2nd application on 30th day after 1st application.

Fl- Fluchloralin; Ma - Malathion.

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