

## Management of black spot disease of rose caused by *Diplocarpon rosae* with fungicides and cultural practices



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*International Journal of Plant Protection*, Vol. 4 No. 2 (October, 2011) : 415-416

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### SUMMARY

The black spot disease caused by *Diplocarpon rosae* Wolf. (*Marssonina rosae*) is the most important disease of cultivated roses throughout the world particularly, so in areas of high rainfall. Under field conditions, the treatment comprising Thiophanate methyl + Potash was most effective in managing black spot disease of rose followed by the other treatments viz, Thiophanate methyl + Silicon, Carbendazim + Potash and Carbendazim + Silicon.

Jadhav, N.B. and Fugro, P.A. (2011). Management of black spot disease of rose caused by *Diplocarpon rosae* with fungicides and cultural practices. *Internat. J. Plant Protec.*, 4(2): 415-416.

### Key words :

Black spot, Rose, *Diplocarpon rosae*, Fungicides, Cultural practices

Rose is the best known and most popular of garden flower throughout the world and is one of the nature's beautiful creations. It is universally acclaimed as the "queen of flower". No other flower is a better symbol of love, adoration, innocence and other virtues than the rose.

The black spot disease caused by *Diplocarpon rosae* Wolf. (*Marssonina rosae*) is the most important disease of cultivated roses throughout the world particularly, so in areas of high rainfall. The black spot of rose is a foliar disease recognized by appearance of black spots on the upper side of the leaf. The symptoms are brown to black circular spots with an irregular margin on the upper surface of the leaf followed by yellowing and premature defoliation. Once established on plants, black spot is difficult to control despite a combination of practices that include sanitation measures and fungicide application (Bowen and Roark 2001). If black spot is not controlled, repeated defoliation of plants occurs, leading to their early decline and death. Black spot is a destructive disease in Konkan region where favourable temperature and moisture conditions for leaf infection exist for extended period of the year.

The trial was conducted in a Randomized Block Design with three replications at Department of Agronomy, Br. B.S. Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri, during *Kharif* season of 2009 using rose variety 'Sophia Lorens'. The two fungicides namely, Thiophanate methyl and Carbendazim were used in combination with cultural practices like mulching, potash and silicon application for the control of black spot of rose. In the beginning of *Kharif* season all cultural practices were applied as, 10 cm layer of paddy straw mulch placed around the base of plants, application of 60g potash per plant through muriate of potash and 10g silicon per plant through silica. Both the fungicides were applied at 0.2 per cent concentration. The spraying was done at 10 days interval starting from June month up to the end of *Kharif* season. Observations on disease incidence were recorded on fifteen randomly selected compound leaves from each plant on the basis of 0-5 disease rating scale suggested by Sharma and Singh (2002) viz., 0 = No infection, 1 = Small brownish flecks covering less than 1 per cent of the leaf area, 2 = Brownish to black small lesions on leaves covering 1-10 per cent of the leaf area, 3 = Characteristics black spots with radiating

Received :

May, 2011

Accepted :

August, 2011

**Table 1 : Mean per cent disease index (PDI) and per cent disease control (PDC) recorded in different treatments**

Tr. No.	Treatments	Mean PDI	PDC
1.	Paddy straw mulching + Thiophanate methyl sprays	33.50 (35.37)	32.66
2.	Potash application + Thiophanate methyl sprays	27.15 (31.40)	45.43
3.	Silicon application + Thiophanate methyl sprays	27.53 (31.65)	44.66
4.	Paddy straw mulching + Carbendazim sprays	34.77 (36.13)	30.11
5.	Potash application + Carbendazim sprays	28.81 (32.46)	42.09
6.	Silicon application + Carbendazim sprays	29.11 (32.65)	41.49
7.	Control	49.75 (44.86)	
S.E. $\pm$ : 0.39		C.D. (P=0.05) : 1.19	

\*Figures in the parentheses are arc sin values

fringe like margins, increasing in size covering 11-25 per cent of the leaf area, 4 = Characteristics lesions covering 26-50 per cent of leaf area and moderate defoliation, 5 = Lesions coalesced, covering more than 50 per cent of the leaf area, heavy defoliation.

The data presented in the Table 1 indicated that all the treatments were significantly superior over control in reducing disease incidence. The disease incidence was lower in treatment T<sub>2</sub> followed by T<sub>3</sub> which were at par with each other and significantly effective over all other treatments. These were followed by T<sub>5</sub> and T<sub>6</sub> which were at par with each other and significantly effective over remaining treatments. As usual, T<sub>1</sub> and T<sub>4</sub> were least effective treatments and at par with each other and significantly differed from control.

The treatment comprising T<sub>2</sub> was most effective and recorded 45.43 per cent disease control (PDC). The other effective treatments were T<sub>3</sub> with 44.66 PDC, T<sub>5</sub> with 42.09 PDC and T<sub>6</sub> with 41.49 PDC. T<sub>1</sub> with 32.66 PDC and T<sub>4</sub> with 30.11 PDC were least effective.

These results are in similar lines with those of Vlasveld (1977) who recommended the use of thiophanate methyl and carbendazim against *Diplocarpon rosae*. Maljaja *et al.* (1997) observed that spraying of 0.2 per cent carbendazim recorded lower black spot incidence and higher yield. Jalal and Sarhan (1988) reported that application of potassium fertilizers made plants resistant to foliar disease. Sharma and Kolte (1994) reported that the severity of black spot disease of oilseed rape was significantly lower when muriate of potash was applied to the plants. Gillman and Zlesak (2000) observed that effective control of black spot disease of rose was achieved with the application of silicon.

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