

Effect of malathion on morphological parameters in *Coriandrum sativum* in Gwalior (M.P.)

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Experiment was conducted at Jiwaji University, Gwalior. Malathion 50 EC was used. Malathion was sprayed at the rate of 1 ml l⁻¹ of water, 0.5 ml l⁻¹ of water, 2 ml l⁻¹ of water. At low and recommended dosages of malathion coriander did not show any significant reduction in morphological parameters but, at 2 ml l⁻¹ there was reduction in growth parameters.

Key words : Malathion, Morphological parameters, *Coriandrum sativum*

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INTRODUCTION

Coriander (*Coriandrum sativum* L.), Dhania/Dhanya is an annual spice crop and a member of Apiaceae family (Evans *et al.*, 2002) with 40-50 cm height and has two kinds of leaves, having white or pink flowers borne in compound umbels and fruit consists of two one-seeded carpels or mericarps with numerous oil ducts (European Pharmacopoeia, 2004; Handa and Kaul, 1996). Coriander occupies a principal position among all the crops grown in Madhya Pradesh and is grown in approximately 0.55 lakh hectares of land (Spice Board of India). Various parts of this plant possess diuretic, anti-oxidant, anti-diabetic, hyponotic, and anti-convulsant properties (Misharina and Samosenko, 2008; Emamghoreishi and Hamedani, 2006; Hosseinzadeh and Madanifard, 2005; Aissaoui *et al.*, 2008; Dhanapakiam *et al.*, 2008). For controlling insects and other pests, farmers use several types of insecticides. Amongst them, malathion is commonly used. It is a non-systemic broad spectrum organophosphate insecticide which is used for controlling sucking and chewing insects on fruits and vegetables (Bonner *et al.*, 2007; Chamber, 1992). Moreover, almost all the farmers were not using recommended doses for the particular chemical used. Hence, an attempt was adopted to study the effect of different concentrations of malathion on morphological parameters of coriander.

RESEARCH METHODOLOGY

The study was carried out during the winter season of 2010-11 at School of Studies in Botany, Jiwaji University Gwalior (M.P.). Well drained soil was prepared and filled into the pots of 35 cm × 30 cm size. Seeds of improved variety (Gujarati-1) were sown by conventional method and after germination seedlings were thinned to 5 plants in each pot. Various rates of Malathion 50 per cent EC were given after 50 and 60 days. Recommended dose of the malathion (labelled as MND *i.e.* 1 ml malathion, l⁻¹ of water), double dose of malathion (labeled as M2ND *i.e.*, 2ml malathion l⁻¹ of water) and half dose of malathion (labeled as M ½ ND *i.e.*, 0.5 ml malathion, l⁻¹ of water) was applied to the pots. Samplings of plants were done in order to observe the various parameters like shoot length, root length, fresh weight, dry weight and number of flowers. Sampling has been done as follows :

- I Sampling: 65 DAS.
- II Sampling: 75 DAS.
- III Sampling: 85 DAS.
- IV Sampling: 95 DAS.

Statistical analysis :

Statistical tests were performed using the standard procedures of mean and standard error.

RESEARCH FINDINGS AND ANALYSIS

Malathion significantly affected various morphological