

ARBUSCULAR MYCORRHIZAL FUNGI ASSOCIATED WITH *CISSUS QUADRANGULARIS*

Prakash. P. Sarwade, Snehal S. Kokate, Kavita N. Gaisamudre (Sarwade) and Udhav N. Bhale

Shikshan Maharshi Guruvarya R. G. Shinde Mahavidyalaya, Paranda Dist. Osmanabad. (M.S.) India.

Shriman Bhausaheb Zadbuke Mahavidyalaya Barshi Tal. Barshi, Dist- Solapur 413 401. (M.S.), India.

Arts, Science and Commerce College, Naldurg Tal., Tuljapur District, Osmanabad - 413601 (M.S.), India.

ABSTRACT

The plants of *Cissus quadrangularis*, located at different places showed AM fungal association in roots and spore population in rhizosphere soil. Maximum per cent root colonization of Arbuscular Mycorrhiza (AM fungi) was observed at Osmanabad (65 %) while minimum in Beed (20 %) Districts. Similarly, at Osmanabad more spore density was observed, whereas it was less in Beed. Total five genera of AMF were identified, which included *Acaulospora spp* and *Glomus spp.*, *Sclerocystis spp*, *Entrophosphora spp* and *Gigaspora spp*. The former two were dominant while later three were found to be poorly distributed. Highest number of AMF species were found in Osmanabad (9) while lowest in Aurangabad (3).

Key words: *Cissus quadrangularis*, Root colonization, AM fungi

Introduction

Cissus quadrangularis L. belongs to family Vitaceae. It is an indigenous medicinal plant (Nadakarni, 1954). In order to obtain information on AM fungal status in and around this plant growing at Osmanabad, Beed, Jalna, and Aurangabad, present investigation was undertaken.

Materials and Methods

Rhizosphere soil and roots sample were collected from three places of Osmanabad, Beed, Jalna, and Aurangabad. Root samples were washed in tap water and cut in to 1 cm long pieces. Those were stained following Phillips and Hayman (1970). Root colonization was measured as described by Giovannetti and Mosse (1980). Rhizosphere soil samples (100 g) were subjected for the isolation of spores by wet sieving and decanting method (Gerdmann and Nicolson,

1963). The AM fungi fungal species were identified as described by Schenck and Perez (1990).

Results and Discussion

The results obtained are presented in Table 1. All of the plants tested, were colonized by AM fungi. Maximum per cent colonization was reported in Osmanabad (65 %), while minimum at Beed (20%). Hyphal and vesicular colonization were observed in roots. Maximum number of spores (150) were observed in rhizosphere soil of Osmanabad.

In all five genera viz. *Glomus spp*, *Acaulospora spp*, *Sclerocystis spp*, *Entrophosphora spp* and *Gigaspora spp*. were observed. Highest number of AMF species were found in Osmanabad while lowest in Aurangabad (3). Among five AM fungal species *Acaulospora spp* and *Glomus spp* were dominant.

Table 1. Per cent root colonization and spore population in *C. quadrangularis*

Sr No	Location	Colonization (%) [*]	Types of colonization	Spore population [*]	AM fungal Species
1	Jalna.	45	HV	72	<i>A. scrobiculata</i> , <i>A. thomii</i> , <i>E. hexagoni</i> , <i>G. ambisporum</i> , <i>G. intraradices</i> .
2	Beed	20	H	50	<i>E. hexagoni</i> , <i>G. mosseae</i> <i>G. austral</i> , <i>Sc. sinuosa</i> . <i>Gi.albida</i>
3	Osmanabad	65	HV	150	<i>Sc. leptoticha</i> , <i>A. scrobiculata</i> , <i>G. multicaule</i> , <i>G. intraradices</i> , <i>G. geosporum</i> , <i>G. flavisporum</i> , <i>G. fasciculatum</i> , <i>S. pellucida</i> <i>Gi.margarita</i>
4	Aurangabad	50	HV	70	<i>E. hexagoni</i> , <i>G. multicaule</i> , <i>G. constrictum</i> .

^{*}Mean of three samples; H, Hyphae; V, Vesicular, A-*Acaulospora*, E-*Entrophosphora*, G-*Glomus* Gi- *Gigaspora*, Sc.-*Sclerocystis*.

References

- Gerdemann, J.W. and Nicolson, T.H. (1963). *Trans. Br. Mycol. Soc.*, **46**:235
- Giovannetti, M. and Mosse, B. (1980). *New Phytol.* **84**:489
- Nadakarni, A.K., (1954). In: "*Indian Materia Medica*", 3rd Ed. Popular Book Depot,

Bombay, India, pp. 1284-1286.

Phillips, J.M. and Hayman, D.S. (1970). *Tans. Bri. Mycol. Soc.*, **55**(1), 158

Schenck, N. C. and Perez, Y. (1990). "*Manual for Identification of Vesicular Arbuscular Mycorrhizal Fungi. (INVAM)*". University of Florida, Gainesville. FL.,U.S.A. pp.1-286