

ASSOCIATION OF AM FUNGI WITH PARTHENIUM HYSTEROPHORUS AT OSMANABAD

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Arbuscular mycorrhizal fungi (AMF), form a symbiotic association with majority of land plants. More than 80 percent of plants are associated with AMF in their root system (Smith and Read, 1997). AMF enhance phosphorus uptake by the associated plant (Draft and Nicolson, 1966). Present survey was conducted in and around Osmanabad district to observe AM fungi associated with *Parthenium hysterophorus* - an obnoxious weed.

Rhizosphere soil and roots samples of *P. hysterophorus* were collected from different locations of Osmanabad district (Viz. Kallam, Omerga, Paranda, Osmanabad, Tuljapur, and Bhoom) in three replicates. Root samples were stained as described by Phillips and Hayman (1970). Root colonization was measured following Giovannetti and Mosse (1980). Hundred grams of rhizosphere soil samples were employed for isolation of spores by wet sieving and decanting method (Gerdemann and Nicolson, 1963). Identification

of AM fungi was done as suggested by Schenck and Perez (1990).

Maximum AMF colonization was found at Paranda (98 %), while minimum at Omerga (58%). Hyphal and vesicular types of colonization were found in roots of *P. hysterophorus* plants. Maximum number of spores were observed in the Rhizosphere soil of Paranda. Total five genera viz., *Acaulospora spp*, *Glomus spp*, *Sclerocystis spp*, *Entrophosphora spp* and *Gigaspora spp*. were identified. Highest number of AMF genera were associated Paranda. Among AM fungal genera *Acaulospora spp* and *Glomus spp* were found abundantly, whereas *Sclerocystis spp*, *Entrophosphora spp* and *Gigaspora spp* were rare (Table 1).

Thus *Parthenium hysterophorus* might be considered as a good host for AMF under natural conditions, the occurrence or distribution of which varies with different sites at Osmanabad District.

Table 1 : Root colonization of AMF in *Parthenium hysterophorus* at 6 locations of Osmanabad District.

Sr No.	Location	Colonization (%)	Types of colonization	AM fungal genera
1	Kallam	75	H	<i>Glomus</i> spp <i>Acaulospora</i> spp
2	Omerga	60	HV	<i>Glomus</i> spp <i>Acaulospora</i> spp <i>Gigaspora</i> spp
3	Paranda	98	HV	<i>Glomus</i> spp <i>Acaulospora</i> spp <i>Sclerocystis</i> spp, <i>Entrophosphora</i> spp
4	Osmanabad	74	HV	<i>Glomus</i> spp <i>Entrophosphora</i> spp <i>Acaulospora</i> spp
5	Tuljapur	62	H	<i>Glomus</i> spp <i>Acaulospora</i> spp
6	Bhoom	67	HV	<i>Glomus</i> spp <i>Acaulospora</i> spp

*Mean of three samples, H- Hyphae V- Vesicular

References

- Draft, M.J. and Nicolson, T.H. (1966). *New Phytologist*, **65**:343
- Gerdemann, J.W. and Nicolson, T.H. (1963). *Trans. Br. Mycol. Soc.*, **46**:235
- Giovannetti and Mosse (1980). *New Phytol.* **84**:489
- Phillips, J.M. and Hayman, D.S. (1970). *Tans. Bri. Mycol. Soc.*, **55(1)**, 158.
- Schenck, N. C. and Perez, Y. (1990). "Flora of U.S.A." Synergistic Publications : Gainesville, pp.1-286.
- Smith, S.E. and Read, D.J. (1997). "Mycorrhizal symbiosis", 2nd Ed. Academic, San Diego, CA.