

VESICULAR ARBUSCULAR MYCORRHIZAL FUNGI DISPERSED BY WASPS**ALOK TRIPATHI¹, HARISHANKAR RAI^b AND M Z BEG^c**^{abc}Department of Botany, Shibli National (P.G.) College Azamgarh, U.P., India**ABSTRACT**

In the present study nest of different species of wasps were examined for the presence of VAM propagules. The nests of 4 different wasps namely: *Sceliphron madraspatanum*, *S. spinoli*, *Eumlines conica* and *Rhynchium* sp., were collected from B.H.U. Campus, Varanasi.

KEYWORDS : Vesicular, Arbuscular, Mycorrhizal, Arbuscules

Spores of vesicular arbuscular mycorrhizal fungi have been found in the digestive tracts of grasshoppers, crickets, millipedes, and in earthworm and ant (Hetrick, 1984). Some digging and burrowing animals do not themselves, ingest fungi but bring soil to the surface, hence may influence the dispersal of VAM fungi by wind or the activity of insects and birds which use soil for building their nests or mounds (Mac Mahon, 1982). Wasp is one such insect which uses soil for building their nest and there by can play a role in the dispersal of VAM fungal spores (McIlveen and Cole, 1976).

MATERIALS AND METHODS

The nest of 4 different wasps namely, *Sceliphron madraspatanum*, *S. spinole*, *Eumenes conica* and *Rhynchium* sp. were collected around B.H.U. campus Varanasi. Wasp nest samples were air dried, cleaned, powdered and sieved through 1mm sieve. Such sieved samples were used for checking the presence of infective propagules of VAM fungi by most probable number method of Porter, 1979 using onion (*Allium cepa* L.) as the test plant. The extent of mycorrhizal root colonization was determined after staining the roots with trypan blue (Phillips and Hayman, 1970).

RESULTS AND DISCUSSION

Out of the 174 samples tested. Onion plants did not grow in 101 samples, which constituted 58% of the sample tested (Table 1). It is possible that nest mud by wasps was phytotoxic and did not encourage the growth of onion seedlings (Deligni et. al., 1981). Out of the 73 samples in

which onion seedlings grew, only 27 samples (constituting 37%) were positive for VAM colonization. Considering the individual species of wasps VAM colonization was positive in 47% of the *Sceliphron madraspatanum* samples, 40% of the *S. spinoli* samples and 29% of the *Eumenes conica* samples, in which plants established. None of the samples of *Rhynchium* sp. are known to secrete a gummy substance from the body which is used in the construction of nests. It is likely that this gummy substance may inhibit the development of VAM fungi, which warrants further investigation. The extent of VAM colonization was maximum in *Sceliphron madraspatanum* nest samples (15%) followed by *S. spinoli* (12%) and *Eumenes conica* nest samples (9%). Similar trend was seen in the number of infective propagules. *Sceliphron madraspatanum* nests had 310 propagules while those of *S. spinoli* and *E. conica* had 190 and 92 propagules respectively.

During nest building period, which would last for two days, a female wasp is known to carry up to 40 gram of clay and cover a distance of 335 (Iwata, 1953). *Sceliphron* and *Eumenes* which are the common nest building wasps in India may act as potential vectors in disseminating VAM fungi.

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Table 1 : Per Cent Root Colonization and Infective Propagules of Vam Fungi in Wasp Nest

Wasp	Total No. of wasp nest samples	No. of Samples in which plant established	No. of Positive sample for VAM	Per cent root colonization	No. of infective propagules/g.
<i>Sceliphron Madraspatanum</i>	72	30	14 (47%)	15	310
<i>S. spinoli</i>	48	20	8 (40%)	12	190
<i>Eumenes Conica</i>	42	17	5 (29%)	9	92
<i>Rhynchium sp.</i>	12	6	0 (0%)	0	0

Figures Within Parenthesis are the Per Cent of Vam Positive Samples Out of the Total Samples in Which Plants Grew.

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