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SURVEY OF MYCOFLORA ASSOCIATION WITH RHIZOSPHERE OF JOJOBA (*SIMMONDSIA CHINENSIS*)

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The seasonal association of fungal species in the rhizosphere and rhizoplane of Jojoba plant has been investigated in the present study. 30 fungal species belonging to Zygomycetes, Ascomycetes and Deuteromycetes were isolated from the rhizophere and rhizoplane of Jojoba. Among these, *Aspergillus flavus, A. niger, A. fumigatous, Rhizopus stolinifer* and *Curvularia lunata* were found predominant which appeared in higher frequency in all the seasons, while *Alternaria solani, Fusarium moniliforme* and *Trichoderma harzianum* were recorded only in rainy season. Mycorrhizal fungi such as *Glomus moseae, G. macrocarpum* and *Gigaspora margarita* were also found in association with the roots of Jojoba in all different seasons.

Keywords : Jojoba; Mycoflora; Rhizosphere.

Simmondsia chinensis commonly known as Jojoba (Hohaba) belongs to Simmondaceae family. It is desert plant of sonaran desert of Maxico. The plant is introducing in Indian Thar desert for due to its soil binding capacity and economically important liquid wax (Jojaba oil), as substitute of sperm whale oil, obtained from seeds. Establishment of newly introducing plant depends upon several factors including micronutrition which is supplied by rhizosphere and rhizoplane decomposing soil microflora. However, no comprehensive studies have been carried out on rhizosphere mycoflora of Jojoba. Hence, an attempt was made for isolation, purification and identification of rhizosphere and rhizoplane mycoflora of Jojoba.

Two site of Jojoba plants (CAZRI and Botanical Garden, Jodhpur) were selected for rhizosphere and rhizoplane mycoflora studies. Soil samples were collected in different seasons. Soil dilute plate method was used for isolation of mycoflora as described by Johnson *et al*[1]. Identification key described by Gilman[2], Bennett[3] and Barron[4] were used for identification of Mycoflora. Mycorrhizal association was recorded by method described by Gardeman and Nicolson[5] and Mycorrhizal fungi were identified following the synoptic key of Trappe[6].

During the present investigation 30 fungi were found to be associated with rhizosphere and rhizoplane regions of Jojoba growing in both sites (Table 1). Among these, *Aspergillus flavus, A. niger, A. fumigatous, Rhizopus stolinifer* and *Curvularia lunata* were found predominant which appeared in higher frequency in all the seasons, while *Alternaria solani, Fusarium moniliforme* and *Trichoderma harzianum* were recorded only in rainy season. It was found that fungi were considerably higher in rhizosphere regions of the plant during winter season as compared to rainy and summer rainy seasons respectively. These findings are in accordance with that of Saroj[7] and Sharma and Bohra[8] who noted that fungal population in rhizosphere considerably decline in summer. Comparatively *Aspergillus* species were found dominant with higher frequency percentage in all the different seasons. Mycorrhizal association was recorded consistently through out all the season. Spores of *Glomus moseae, G. macrocarpum* and *Gigaspora margarita* were separated.

It is concluded that organic substances secreted from the roots of the plant attracted *Aspergillus* species which has capacity to hydrolyse complex organic compounds to simple inorganic compounds in soil and play role in providing these substances in soluble form for better establishment of newly introducing Jojoba plants.

Table 1. Mycoflora isolated from rhizosphere and rhizoplane soil of Jojoba plants of different season.

	Mycoflora	Summer (March-June)	Rainy (July-October)	Winter (November-February)
1.	*Alternaria solani (Ellis & Mart)*	-	+	-
2.	*Alternaria tenuis Nees*	-	+	-
3.	*Aspergillus flavus Link ex fr*	+	+	+
4.	*Aspergillus fumigatus*	+	-	+
5.	*Aspergillus nidulans (Eidam)*	+	+	+
6.	*Aspergillus niger van Tiegh*	+	-	+
7.	*Aspergillus ochraceous Wilhelm*	+	+	+
8.	*Aspergillus tamariitrita*	-	+	+
9.	*Aspergillus terrous thom*	+	+	+
10.	*Aspergillus rersicolor*	+	+	+
11.	*Chaetomium globosum kunze ex. Fries*	-	-	+
12.	*Clodosporium herbarum*	-	+	+
13.	*Curvularia lunata Wallker*	+	+	+
14.	*Fusarium moniliforme sheldon*	-	-	+
15.	*Fusarium oxysporum schlechtendhl*	-	+	+
16.	*Fusarium solani (marticus)*	-	-	+
17.	*Macrophomina phoseolina*	+	+	+
18.	*Mucor sp.*	+	+	+
19.	*Penicillium citrinum*	+	+	+
20.	*Rhizoctonia sp*	+	+	+
21.	*Helmithosporium sp.*	-	+	+
22.	*Rhizopus stolonifer*	+	+	+
23.	*Trichoderma harzianum*	-	-	+
24.	*Trichoderma sp.*	-	-	+
25.	*Sterile mycelium with chladoporium*	-	-	+
26.	*Sterile mycelium*	-	+	+
27.	*Drechslera sp.*	+	-	-
28.	*Glomus moseae*	+	+	+
29.	*Glomus macrocarpum*	+	+	+
30.	*Gigaspora margarita*	+	+	+

(+ = present; - = absent)

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