Mycorrhizal association with roots of *Abrus precatorius* Linn.

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Abstract: *Abrus precatorius* Linn. is a perennial twining small shrub commonly known as "Rosary pea". In present research work an efforts were made to study mycorrhizal association with roots. This plant possesses with tremendous medicinal potential. Plant along with its roots and rhizospheric soil were collected from botanical garden of Yogeshwari Mahavidyalaya Ambajogai, in the month of October 2021. It is observed that roots of *Abrus precatorius* Linn. shows mycorrhizal association in the form of hyphae, arbuscules and vesicles. 100% colonization of mycorrhizae was found on the roots of selected plants. Spore density study of rhizospheric soil shows presence of 200 spore/ 10 gm. of soil.

Keywords: Mycorrhiza, arbuscules, vesicles, Abrus.

Introduction: *Abrus precatorius* Linn. belongs to family Fabaceae, commonly known as 'Rosary pea'. It is perennial twining herb, found throughout India. Precatorius is traditionally used to treat tetanus, and to prevent rabies.

. It is also used in sores and wounds caused by dogs, cat and mice and are also used in with other ingredients to treat leucoderma. The leaves of the herb are used to cure fever cough and cold. Nervous disorders, dyspepsia, inflammation tumor.

Mycorrhizal is a great interdependent symbiotic association between the roots of hosts' plant and the fungus were host plant receives minerals nutrients while fungus obtained carbon compound (Harley and Smith 1983). Mycorrhizae are mostly related with the secondary roots of the plant and the association take place in the cortical region of the root. The cortical region is the portion present in between the epidermis and the vascular tissues of the roots. In present research work Mycorrhizal association with the roots of Asparagus racemosus is studied in detail.

Materials and Methods

Roots and rhizospheric soil samples of *Abrus precatorius* Linn. Were collected from Botanical Garden of Yogeshwari Mahavidyalay Ambajogai, and Dist. Beed. In the month of October 2021.

From the selected site the rhizospheric soil along with the roots of the host plants were collected. The host plant was thoroughly washed with distilled water after brought to the laboratory. The roots of the host plants were cut into small pieces of about 1-2 cm and collected in bottle for further mycorrhizal study. The rhizospheric soil was also separated and collected it in sterilized polythene. Root samples were stored in FAA for 10. Minutes then washed with distilled water 3-4 times to remove the FAA. This roots were transferred in in glass vials which contain 10% KOH, these glass vials were autoclaved for about 15 minutes at 121^0c. After autoclaving KOH solution was removed and roots were washed with distilled water. These washed root samples were surface covered with 1% HCL for 5-10 minutes, after that roots were washed with distilled water and stained with cotton blue for overnight (Philips and Hayman, 1970). The percentage of mycorrhizal root colonization was calculated by using the following formula (Giovannetti and Mosse. 1980).

$$\text{Percentage of root colonization} = \frac{\text{Number of infected root pieces}}{\text{Number of root segments screened}} \times 100$$

The spores of arbuscular mycorrhizal fungi from rhizospheric soil were separated by the wet sieving and decanting method proposed by Gerdemann and Nicolson (1963). The estimation of spores was done according to Gaur and Adholeyas (1994) method. Whatmann No.1 filter paper was folded into two equal parts again followed by second fold, which forms four equal parts of paper. Later, such spore receiving filter paper was carefully taken in Petridis and was observed under stereo zoom binocular microscope in column by column in vertical direction to count the spores.

Results and Discussion

The roots of *Abrus precatorius* Linn. showed 100% mycorrhizal root colonization and, hyphae arbuscules and vesicles were found abundant. The collected rhizospheric soil was analyzed for spore population and its density. The observed spore density was 170 spores per 10 gm. of soil and spore population was mainly with Glomus sp and Acaulospora sp. Rhizospore soil shows presence of chlymadospore .Similar observations were made by Mulani and Prabhu (2002), and Prabhu (2002). They observed maximum number of chlymadospore in the root zone soil of *Dipcadi saxorum*. The murmy soil with low humidity and high temperature fevers more chlymadospore formation. Harinikumar and Bagyaraj (1988) and Bagyaraj (1995) also reported abundance of mycorrhizal spore in tropical soil. Pawar & Kakde (2012) recorded eight species of glomus in roots of medicinal plants. These are G. *aggregatum, G. boreale, G. fasciculatum, G. geosporum, G. heterosporum, G. segmentatum, G. tortuous and, G. radiatum* .

Conclusion

Roots of *Abrus precatorius Linn.* shows 100% colonization of Mycorrhiza. Hyphae and arbuscules were found dominant, were as vesicles were rarely found .In rhizospore soil shows presence abundant chlymadospore.

Table. 1. Abundance of Mycorrhizal colonization in roots and spores in rhizospheric spores of *Abrus precatorius* Linn*:*

Sr. No	. description / features	Results
1	Types of soil	Black loamy
2	Colonization of Mycorrhiza	present
3	Status of Mycelium	Abundant
4	Status of Arbuscules	Abundant
5	Status of Vesicle Arbuscules	Rare
6	Percentage of Root colonization by mycorrhiza	100%
7	spores density in rhizospheric soil	200 spores/10gm of soil
8	Mycorrhizal genera observed	Glomus sp. Acaulospora sp. Ggigaspora sp.

a) Glomus sp.

b) Glomus sp.

c) Acaulospora sp.

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