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Studies of seed mycoflora of different varieties of ashwagandha [*Withania somnifera* (L.) Dunal.]

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ABSTRACT

Rate of seed germination of ashwagandha, is different in different varieties of ashwagandha (*Withania somnifera* L. Dunal.). The seed mycoflora percentage is also different in different varieties of ashwagandha. This variation in percentage of seed mycoflora is determined in this study.

Key words : Seeds, Ashwagandha (*Withania somnifera* L. Dunal), varieties,W.S.- 90-100, J. A. -20, Nagori, Posida, Indore general, Blotter paper, Agar plate, Soil methods and Sand methods, Rolled towel and paper method.

INTRODUCTION

Ashwagandha (*Withania somnifera* (L). Dunal.) is important medicinal plant belonging to the family Solanaceae. It is a native of Mediterranean region and commonly occurs in arid and semi arid part of India. It is a small shrub up to 30 -132 cm. height. It is commonly grown in Srilanka, Egypt, Israel, Jorden, Sudan, Iran, Afganisthan, Pakisthan (Agarwal *et al.*, 2004). It is most important due to presence of alkaloids, Withanoloids, steroids, lactones which have antimicrobial properties so that the plant are used for prepare the medicines (Baraiya, *et al.*, 2005). Ashwagandha roots, leaves, tubers and seeds are used as in medicines, against ulcers, hiccup, asthama, bronchitis, female disorder and dropsy. The roots of this important medicinal plants were also prescribed for curing general sexual weakness in human. It is general tonic to improve overall health, energy and longevity. The important preparations of ashwagandha is Aswagandharishtam, Chavanprasam and Narayana Tailum (Patel *et al.*, 2003). This crop is cultivated in north western region in about 4000 ha. (Kattimani *et al.*, 2000).

This plant is infected by fungi. The wilt infection is initial symptoms were drooping of plant and next stages plants shows severe wilts spreading to each and every plant parts which result in the death and decay of underground parts. The infected plant shows pulpiness with brownish colour cottony growth of the fungus was observed at the basal part of infected plant near the ground level (Gupta *et al.*, 2003).

The common diseases of ashwagandha (*Withania somnifera* (L.) Dunal.) are leaf rust (*Aecidium withaniae*, Thuem.), leaf spot (*Cercospora withanae*) probably apil, leaf spot (*Colletorichum capsici*) and dumping off caused by *Pythium* debaryanum. The destruction of seed occurs due to excess of water and white cottony growth of the fungus was observed on the germinated seed. The present study conducted to determine the present seed mycoflora of different varieties of ashwagandha and develop suitable agro-technique to decrease the seed mycoflora and obtain the suitable disease resistance variety of ashwagandha [*Withania somnifera* (L.) Dunal.].

MATERIALS AND METHODS

Seeds of different varieties of ashwagandha (*Withania somnifera* (L.) Dunal.) like as W.S.- 90-100, J.A.- 20, Nagori, Posida and Indore general are selected for the experiment. These five varieties seeds were brought to the laboratory and carefully separated as healthy and infected seed. Then the Healthy and Infected seeds treated on 0.1 % mercuric chloride solution for one minutes and the 10 seeds of healthy and infected are placed in Petri plate at equidistant manner by different method namely Blotter paper method, Sand method, Soil method, PDA method and Rolled towel paper method. Similarly, 10 healthy seeds and 10 infected seeds are of five above varieties placed in different methods were placed in water after 14 days. The observations were recorded as seed mycoflora and germination percentage.

RESULTS AND DISCUSSION

Result is shows after 14 days actually the germination is started after 12 days. In the variety W.S.-90-100 and J.A.-20, the seed mycoflora is low and the germination is

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Table 1 : Seed mycoflora of different varieties of Aswagandha

Sr. No.	Seed mycoflora	W.s.-90-100	J. A.-20	Nagori	Posida	Indore general
1.	Alternaria tenuis	+	+	+	+	-
2.	Colletotrichum capsici	-	-	+	+	+
3.	Fuarium oxysporum	+	-	+	-	+
4.	Aspergillus niger	-	-	+	-	+
5.	Cercospora sps.	-	+	+	+	+
6.	Aspergillus flavus.	+	+	+	+	+

high for the blotter paper method. The +ve mycoflora is 4 and -ve mycoflora is 2. The second group of variety Posida and Nagori shows the medium seed mycoflora as compaired to above variety. These varieties variation in seed mycoflora. The last variety Indore general shows maximum seed mycoflora.

Conclusion :

The above experiment shows the varieties *viz.* J.A.-20 and W.S.-90-100 lowering the seed mycoflora and varieties like Posida and Nagori shows medium seed mycoflora and the maximum seed mycoflora are shows in Indore general.

From the above observation it is concluded that appliacation of different reliable methods such as fungicides, efficacy of plant extract and nutritional sources for control of seed mycoflora. By the above methods,there is increase in seed germination and decreases seed mycoflora simultaneously. The production of ashwagandha [*Withania somnifera* (L.) Dunal.] will be increased.

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