

Performance of medicinal plants under protected cultivation

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ABSTRACT

To study the comparative performance of various protected cultivation devices such as Net house and Polyhouse, the experiment was conducted during Dec2004 to March 2005 and October 2005 to March 2006. Considering the importance and medicinal value, Ashwagandha (*Wathamia somnifera*) and Kawachbeej (*Macuna pruriens*) crops were considered for study. Ashwagandha crop taken in the modified Quonset type structure of 17 m x 4m covered with 50% shade net house, polyhouse with fan pad cooling system type and open field. Kawachbeej crop was taken in a specially designed Net house. The seeds were sown manually of both plants. Before sowing Ashwagandha seeds were magnetically treated by putting two samples on North Pole and South Pole, third sample was revolved in rotary magnetic seed treator for 20 minutes and fourth one was kept untreated. Kawachbeej seed samples were magnetically treated for 10 min., 20 min and kept untreated, respectively. In the present study environmental parameters explicitly temperature and relative humidity were measured. Effect on Biometric characteristics and yield were also recorded.

Key words : Ashwagandha, Kawachbeej, Net house, shed house, Magnetic treatment.

Experimentation and promising results in field of herbal medicines *i.e.* "Ayurveda" are gaining popularity in the world. Still the cultivation of such medicinal plants is not so popular amongst the Indian farmers. The cultivation of such medicinal plants requires special attention to improve its quality. The medicinal plants have extraordinarily high market value. It can bestow better financial repayment to the farmers (Kindelan, 1980). Considering the climatic aspect and prerequisites of crop, Greenhouse technology is the most appropriate and practicable way of achieving the goal of protected cultivation for getting better quality and quantity produce. The quality produce can fetch foreign exchange. The whole idea of greenhouse technology is optimization of all the inputs like nutrition, pesticides application, irrigation and light. In net house, one can control these factors and get optimal results, so in present study, the medicinal plants were cultivated in net house, polyhouse and open field (Chao and Walker, 1967).

Ashwagandha (*Wathamia somnifera*) and Kawachbeej (*Macuna pruriens*) seeds were sown manually. Before sowing, Ashwagandha seeds were magnetically treated by putting two samples on North Pole and South Pole, third sample was revolved in rotary magnetic seed treator for 20 minutes and fourth one was kept untreated. Kawachbeej seed samples were magnetically treated for 10 min and 20 min and third sample was kept untreated. Temperature, relative humidity, biometric characteristics and yield performance were recorded. It has been observed that the micro climatic condition in the net house and polyhouse was favorable for the crop Ashwagandha. The performance

of southly treated seed was observed better compared to northly treated seed and 20 minutes rotated seeds. Similarly, the performance of southly treated seed in polyhouse was observed better in biomass yield, root yield and seed yield. The numbers of leaves, height of plant were more in southly treated seed in polyhouse as compared to northly treated seed in 20 minutes rotated seeds and untreated seed. The Kawachbeej seed yield, biomass yield and root yield of 20 minutes magnetically treated seed was observed better compared to 10 minute treated seed and untreated seeds.

METHODOLOGY

For Ashwagandha the flat seed beds were prepared manually with 1.5 m x 1 m size in 8 plots. A pathway of 1 m width and 17 m length was left along the midway of the net house, polyhouse and open field. A magnetic seed treator was used for presowing magnetic treatment of the seed samples. The seeds were put on north as well as South Pole for 12 hrs and rotated in rotary seed treator for 20 minutes. The biometric characteristics such as plant height, number of leaves were measured at regular interval.

For Kawachbeej, the flat seed beds were prepared manually of 1.5 m x 1 m size in 6 plots. A pathway of 1 m width and 17 m length was left along the midway of the Net house. Two seed samples were magnetically treated by placing North and South magnets on the samples for 20 min and 10 min, respectively.; third sample was kept untreated.

Environmental parameters Temperature, relative humidity and light intensity were measured daily. The data