

Cultivation of medicinal crop Ashwagandha (*Withamia somnifera*) under protected conditions

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ABSTRACT

At Nagarjuna Medicinal Plant Garden, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, an experiment was conducted during 11th October to 22nd March, 2006. Modified Quonset type structure of 17 m x 4m *i.e.* Nethouse covered with 50% shade and one Polyhouse with fan pad cooling system and one open field was used for experimentation. Ashwagandha (*Withamia somnifera*) crop was selected for this study considering its massive substance and medicinal worth. The magnetically treated seeds were manually sown in each plot on 11.10.2005. Magnetic treatment was given by putting two samples on North Pole magnet and South Pole magnet and one sample of seeds was revolved in rotary magnetic seed treator for 20 minutes and the fourth sample was kept untreated. In the experimentation, environmental parameters like temperature, relative humidity and light Intensity alongwith biometric characteristics of the plant were inspected. Yield performance in Nethouse, Polyhouse and open field was evaluated.

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“Ayurveda” *i.e.* Science of herbal medicines is again gaining back its popularity in the modern world due to meticulous trials and prospective results in field. Still, these medicinal plants are not cultivated on a large scale by the farmers though they are very popular amongst people. The cultivation of these plants needs special attention to get the desired quality. As the medicinal plants have very high market value, due to its life saving element, it assures better financial benefits to the farmers/growers (Kindelam, 1980).

Considering the climatic factor and requirement of crop, the protected cultivation is the most suitable and practicable technology for getting better quality and quantity produce. Greenhouse technology is the most practical way of achieving the goal of protected cultivation. The quality produce can fetch foreign exchange. The whole idea of greenhouse technology is optimization all the inputs like nutrition, pesticides application, irrigation and light. In nethouse one can control these factors and get a optimum results. So in present study, the efforts will be made to study the medicinal plant in nethouse, polyhouse and open field.

The climate of Vidarbha region of Maharashtra state is hot and dry. Specially during summer the temperature reaches at 45°C at relative humidity 10% to 20% under such a condition to maintain a micro climate in polyhouse is a major problem. Also in commercial horticulture under polyhouse condition the microclimatic factor influences the growth and development of the crop. Ashwagandha

having botanical name *Withamia somnifera*, family solanaceae, is the king of herbs in India and is constituent of more than 26,900 indigenous drug formulations. All the parts *i.e.* phylathus, aloe-vera possess valuable medicinal properties and they have heavy demand of Ashwagandha in Indian market.

METHODOLOGY

The flat seed bed was 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 nethouse, polyhouse and open field condition. A magnetic seed theater was used for presowing magnetic treatment of the seed samples. The seed had putted on north as well as South Pole for 12 hrs and also putted in rotary seed treator for rotation for 20 minutes. The biometric characteristics such as plant height, number of leaves were measured at regular interval (Chao and Walker, 1967; Murphy, 1942).

The data of biometric characteristics was collected for five representative plants. The height of plant and number of leaves were measured with the five days interval period. Before harvesting the crop seed maturity was confirmed by pressing pods between two fingers till the matures seeds comes out. It was observed that the maturity was recorded approximately 154 days after sowing.

Immediately after harvesting the plant was exposed to atmosphere for 3 days, then seed was separated