

Potential of *Withania somnifera* Dunal Cultivation as a Medicinal Crop in Jaffna District

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Abstract

The medicinal plant, *Withania somnifera* (Ashwagandha) is becoming popular among farmers. Due to its importance, farmers are interested to cultivate it in larger extent. *W. somnifera* is an evergreen shrub reaching height up to 118 ± 32.40 cm. Generally it is propagated by seeds and germination take place 5.6 ± 1.16 days after sowing. Present study was aimed to assess the potential of *W. somnifera* to be cultivated in Jaffna district, Sri Lanka during the cropping period of August 2011 to June 2012. Different field trials and *in vitro* studies were conducted. For field trials, Seeds of *W. somnifera* were water soaked overnight and sown to evaluate the phenology of the plant. Transplanting was done at one month age to main field at $45\text{cm} \times 60\text{cm}$ spacing. Flowering was observed continuously but flowering and fruiting commenced 66.17 ± 3.43 and 79.77 ± 2.07 days after the transplanting, respectively. Harvesting can be done between six to seven month old because in this time root: shoot ratio was optimum but at six months old it was maximum. The highest dry root yield was obtained at six month old stage which was 58.32g. Seed production of *W. somnifera* was registered that plant produced an average of 6581.89 seeds. This number is good enough to get adequate planting material but the germination percentage of *W. somnifera* generally low due to dormancy. To break down the dormancy, seeds were subjected to different treatments including water soaking over night and hot water soaking. Germination percentage significantly increased in all treatments than control (12.5%). Highest germination percentage was obtained in hot water soaking that induced 52.75% germination while water soaking resulted in 33.75% germination. These studies suggest that the climate and soil prevalent in Jaffna are suitable to multiply this herb with least cost techniques.