World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:9, No:12, 2015

Performances of Ashwagandha (Withania somnifera Duanal) as Affected by Method of Planting and Source of Nutrients

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Abstract : Ashwagandha (Withania sominifera Duanal) is an important medicinal herb belongs to family Solanaceae. This plant has raised its popularity after discovering anti stress and sex stimulating properties that mainly due to the presence of biologically active alkaloid compounds. Therefore it is vital to adapt to a proper agro technological package that ensure optimum growth of ashwagandha to obtain the finest quality without degrading pharmacologically active constituents. Organic and inorganic fertilizer mixtures were combined with direct seeding and transplanting as four different treatments in this study. Tuber fresh and dry weights were recorded up to twelve months starting from two months after sowing (MAS) while shoot height, root length, number of leaves, shoot fresh and dry weights and root: shoot ratio up to 6MAS. Results revealed that growth of ashwagandha was not affected significantly by method of planting or type of fertilizer or its combinations during most of the harvests. However, tubers harvested at 6MAS recorded the highest dry tuber weight per plant in all four treatments compared to early harvests where two direct seeded treatments are the best. Chemical comparison of these two treatments, direct seeding coupled with organic and inorganic fertilizer shown that direct seeding with organic treatment recorded the highest values for alkaloid and withaferine A content with lower percentage of fiber. Further these values are in concurring with the values of commercially available tuber samples. Having considered all facts, 6MAS can be recommended as the best harvesting stage to obtain high quality tubers of ashwagandha under local conditions.

Keywords : alkaloids, direct seeding, dry tuber weight, inorganic fertilizer, organic fertilizer, transplanting, withaferine a
Conference Title : ICMAP 2015 : International Conference on Medicinal and Aromatic Plants
Conference Location : Penang, Malaysia
Conference Dates : December 03-04, 2015