

## **Preliminary Study on Growth, Correct Harvesting Stage and Chemical Composition of *Amukkara* (*Withania Somnifera*) for Commercial Cultivation**

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Determination of correct harvesting stage of *Amukkara* helps to obtain tubers with high chemical composition and low fiber content which is preferred by the herbal drug manufactures. Hence, the research was conducted to study the effect of different types of fertilizers and method of planting on growth and the quality of *Amukkara* at Uva Wellassa University.

Two methods of planting (direct seeding and transplanting) and two types of fertilizer (organic and inorganic) were used according to Completely Randomized Design with four replicates. Growth parameters like plant height, fresh weight were recorded at monthly intervals up to five months. Fresh weight, dry weight, moisture content (%) and fiber content of tubers were analyzed at monthly interval after three months of planting up to five months. Chemical compositions of tubers were estimated using Thin Layer Chromatography in 5% methanol and chloroform solvent using soxhlet crude extract of tubers in 95% ethanol. Fiber content and TLC product were compared with the properties of imported tubers of *Amukkara* available in the local market.

Interaction effect and method of planting was not significant at 5% significant level in all treatments. But use of organic fertilizer was shown the higher significance than inorganic for all the parameters used to analyze the growth of the plants. Fiber content of the tubers tends to increase with maturity. Direct seeding and organic fertilizer combination shown the lowest fiber content (32.25%) which almost similar to the values of commercial tubers (36.84%). The above treatment combination recorded the highest banding pattern and moderately higher alkaloid percentage (0.28%) than other treatments used in the experiment which was similar to commercially available *Amukkara* tubers in TLC.

According to the results, direct seeding and organic fertilizer application in commercial cultivation produce tubers which are having similar composition in imported *Amukkara*, at 150 days after planting.

Key words: Direct seeding, Organic fertilizer, Alkaloids, Fiber content