

**PRELIMINARY STUDY ON GROWTH,
CORRECT HARVESTING STAGE AND
CHEMICAL COMPOSITION OF AMUKKARA
(*Withania somnifera*) FOR COMMERCIAL
CULTIVATION**

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By

WADUGE HARSHANI NILUKA SILVA

**Export Agriculture Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

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ABSTRACT

Determination of correct harvesting stage of Amukkara helps to obtain tubers with higher chemical composition and low fiber content which is preferred by the herbal manufactures. Because of that research was conducted to study the effect of different types of fertilizers and method of planting on growth and 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 interval up to five months. Tuber fresh weight, tuber dry weight, moisture percentage and fiber content were analyzed at monthly interval after three months of planting up to five months of planting. Chemical compositions of tubers were evaluated using Thin Layer Chromatography in 5% methanol and chloroform solvent using sohxlet crude extract of tubers in 95% ethanol. Fiber content and TLC product were compared with the properties of market available imported tubers of Amukkara.

Interaction effect and method of planting were 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 showed 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 with organic fertilizer can be used to obtain Amukkara tubers from commercially cultivations at 150 days after planting which showed the similar chemical composition as in imported Amukkara tubers.