Optimizing the harvesting time of Palmyrah (*Borassus flabellifer*) haustorium to retain its nutrient content without affecting the development of tuber

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ABSTRACT

Palmyrah haustorium, consisting of nutritional values for mankind is generally wasted without consumption. The main aim of this research is to find the best developmental state of Palmyrah haustorium at which more nutrients are retained for the betterment of human health while taking care not to disturb the traditional tuber production. Raised seed beds were made with randomly selected 400 similar seeds (age, size, variety) in four different places in Jaffna peninsula, Sri Lanka. Those four places were Island, Thenmaradchi, Vadamaradchi and Valikamam. Samples consisting of 40 seeds were collected in three week time intervals, starting from sixth week of germination. The haustorium was analyzed for change of mass and amounts of nutrients while starch and total sugar present in tuber were also analyzed. Mass of haustorium in samples of Island and Valikamam increased steadily up to 9\textsuperscript{th} week with values 19.25 and 21.17 g/seed respectively whereas samples of Thenmaradchi and Vadamaradchi showed their maximum having 16.64 and 15.76 g/seed respectively. Sugar content of haustorium was found to be at their maximum at the age of 12 weeks and afterwards their concentrations started to decline. Total phenolic content had almost reached the maximum and an appreciable amount of protein was found in all the four different samples at the end of 12\textsuperscript{th} week. On the other hand a drop in starch content and an increase in sugar content were observed in tubers at this stage. Taking into account the nutritional content of both haustorium and the tuber, it was concluded that harvesting should be done at the end of 12\textsuperscript{th} week.

Keywords: Palmyrah, Haustorium, Tuber, Nutritional changes, Locations