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## **EFFECTS OF ORGANIC SUBSTRATES ON GROWTH AND YIELD OF GINGER CULTIVATED USING SOILLESS CULTURE**

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## ABSTRACT

The effects of organic soilless substrates on growth and yield of ginger were studied. In soilless production system, many types of growing media or substrates such as rockwool, perlite, vermiculite and peat have been used to grow many kinds of crops. Alternative substrates that are cheaper and locally available such as coconut fibres and burnt paddy husks should be used as alternative media. The main objective of the study was to determine the most suitable organic growth substrate for cultivation of ginger using fertigation technique. The study was conducted under the side-netted rain shelter equipped with an irrigation system to supply fertiliser solution at a regulated time schedule. Five combinations of growth substrates were evaluated: 100% coir dust; 100% burnt paddy husks; 70% coir dust + 30% burnt paddy husks; 30% coir dust + 70% burnt paddy husks; and 50% coir dust + 50% burnt paddy husks. The ginger plants were selected randomly and the rhizomes were harvested 3 – 9 months after sowing. Plants grown in 100% coir dust gave the best growth performance and yield compared to the other treatments. They produced the highest shoot height ( $123 \pm 23$  cm), shoot fresh weight ( $1,340 \pm 235$  g) and rhizome yield ( $5,480 \pm 325$  g per plant). The lowest rhizome yield ( $2,570 \pm 135$  g) was obtained from plants planted in 30% coir dust + 70% burnt paddy husks. Hence, it can be concluded that the ginger plants cultivated in 100% coir dust substrate using fertigation technique gave the best plant growth and yields.

**Keywords:** ginger, fertigation system, soilless substrate, coir dust, burnt paddy husk.