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Master Thesis Defense**

Entitled

DATE PALM WASTE AS GROWTH SUBSTRATE IN HYDROPONICS TO GROW LETTUCE (LACTUCA SATIVA L.)

by

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Date & Venue

11:00am-1:00pm

Monday, 20-04-2020

LINK to Join: <https://eu.bbcollab.com/guest/ce44bd0a48ff4bdbb2b15fbb8aa5f1aa>

Abstract

Recently many countries are practicing a variety of modern farming techniques like hydroponics, aquaponics, aeroponics vertical farming etc. to enhance production and quality of the production. Among such techniques, hydroponic system of production is growing plants in an appropriate substrate, which provide both physical and nutrient support with suitable root environment. Substrate media can be either inorganic or organic. In this study, we are using date palm leaf waste, Rock wool slab and Coco peat slab. The main objective of this study is to investigate the feasibility of using palm leaf wastes as a growing substrate extensively in hydroponics system and its impact on germination and growth characteristics with lettuce as test crop. This experiment was performed in a greenhouse condition in Alfoah farm in about 26.5 °C. The experiment was conducted with 4 treatments and 20 replications. Treatments included two particle sizes, 50 mesh (0.0117) inch and 20 mesh (0.0469) inch mixture of a date palm waste between the two sizes with different ratio (1:1), (1:2), Rockwool and cocopeat. The water holding capacity, acidity or alkalinity (pH), salinity (EC) and C: N ratio of the substrate was measured and compared with other substrates to assess the quality. The germination, plant growth and the root system were studied. The results gathered from the study propose to recycle the date palm leaf waste as a new substrate in hydroponics production system. Results showed that date palm leaf waste as substrate in hydroponic system can successfully enhance growth and production of lettuce crop and is comparable to any other substrate currently used in a hydroponic system commercially. This system adds more value by successfully utilizing the enormous waste generated from the cultivation of date palm in this country.

Keywords: hydroponic, growing substrate, date palm waste, coco peat, rockwool