

## Developing Indoor Enhanced Bio Composite Vertical Smart Farming System for Climbing Food Plant

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**Abstract :** The population in the world are growing in very fast rate. It is expected that urban growth and development would create serious questions of food production and processing, transport, and consumption. Future smart green city policies are emerging to support new ways of visualizing, organizing and managing the city and its flows towards developing more sustainable cities in ensuring food security while maintaining its biodiversity. This is a survey paper analyzing the feasibility of developing a smart vertical farming system for climbing food plant to meet the need of food consumption in urban cities with an alternative green material. This paper documents our investigation on specific requirement for farming high valued climbing type food plant suitable for vertical farming, development of appropriate biocomposite material composition, and design recommendations for developing a new smart vertical farming system inside urban buildings. Results include determination of suitable specific climbing food plant species and material manufacturing processes for reinforcing natural fiber for biocomposite material. The results are expected to become recommendations for developing alternative structural materials for climbing food plant later on towards the development of the future smart vertical farming system. This paper contributes to supporting urban farming in cities and promotes green materials for preserving the environment. Hence supporting efforts in food security agenda especially for developing nations.

**Keywords :** biocomposite, natural reinforce fiber, smart farming, vertical farming

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020