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Comparison of Physical and Chemical Properties to Find the Alternative Substrate Material for the Betterment of Green Roof Technology

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Green roofs are becoming increasingly implemented aspect in building construction at recent years. Growing substrate is the most important component of Green roof. The main problem faced with implementing the Green roof technology is heavy weight of substrates. The primitive reason is the inability of existing production trends to incorporate the identification of lightweight composition with required physical and chemical properties. Identification of proper lightweight substrate is essential for environmental sustainability since it provides a good living nature for human specially in urban nature through facilitating more chances for increased vegetation. Therefore, the aim of my research is to propose alternative lightweight substrate mediums with high drought resistance, optimum thermal conductivity, ambient nutrient provision (N, P, K content), optimum electric conductivity while having allowable pH magnitude that is suitable for plantations. The accomplishment of aim would mitigate the ongoing environmental impacts like lack of rainfall, scarcity of water and drought conditions due to lack of vegetation. The objective of this research project is to reduce the cost of manufacture and to increase productivity of Green roof substrates through locally sourced wastes. Since Green roof is an improving concept, it is essential to examine substrate compositions and characteristics. Waste materials like Coir, Saw dust, Biochar, Wood bark and cooked food wastes would be compared in terms of mentioned parameters. The optimum substrate medium can be implemented effectively in Green roofs technology to resolve UHI effect issues and to increase the longevity of living ecosystem.