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Special Issue Reprint

Driving Sustainability

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This reprint presents 12 original research and review articles published in the *Plants* Special Issue "Driving Sustainability: Innovations in Producing Eco-Friendly Substrates for Soilless Culture Systems". The volume demonstrates that a wide range of renewable by-products and waste streams—including pine bark, wood fiber, coffee silverskin, brewer's spent grain, kenaf core, green waste, and recycled construction waste—can serve as effective partial or complete substitutes for peat, perlite, and rockwool in soilless cultivation. The papers cover diverse processing methods (physical blending, aging, composting, ammonium incubation) and crop types (lettuce, lemon, basil, cucumber, ornamental Salvia, and woody shrubs). Two recurring challenges are identified and addressed: phytotoxicity and nitrogen immobilization in high-carbon substrates. The findings underscore that substrate performance depends on crop species, material pretreatment, and management. By providing a coherent scientific foundation for converting waste into high-performance growing media, this reprint supports the shift toward circular, low-carbon horticulture and offers practical guidance for researchers, growers, and policy makers.

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