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Innovative Solutions for Sustainable Agriculture

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Modern agriculture is a significant contributor to climate change and environmental degradation, and various environmental stressors—significantly exacerbated by climate change—affect cropping systems, decreasing yields and product quality. Therefore, it is imperative to identify innovative, biobased approaches to improve the sustainability of cropping systems, reduce their contribution to climate change, and make agriculture more resilient and productive. In this context, the valorization of agro-industrial waste represents a strategic and relevant way to reduce the environmental impact of agriculture and increase its productivity. Some recent studies have focused on producing biostimulants and biofertilizers from agro-industrial wastes, thereby advancing a circular economy paradigm. Furthermore, within the scope of promoting third-generation biorefinery, following pretreatment for the extraction/production of valuable substances, this kind of biomass can be utilized for anaerobic digestion for energy production and finally converted into (bio)fertilizers.

This Special Issue provides an overview of innovative and cutting-edge research on the potentialities of biomass, including the research on obtaining biostimulants, biofertilizers, and composting from natural resources and waste. The studies also focused on producing biogas or biomethane from agro-industrial waste for energy production.

