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Biochar has been a hot topic over the last decade. Terra Preta in the Amazon Basin evidenced long-term beneficial effects of the addition of char-like materials to soils. Biochar, one of the components obtained after the combustion of biomass under a limited supply of oxygen, is believed to be able to provide similar effects when used as an amendment in soil. It is also touted as a potential means to sequester carbon to combat global warming as it exhibits a stability of hundreds to thousands of years when introduced into soil. Biochar will become a common good in the context of the biobased economy, which relies on the conversion of biomass into value-added chemicals and energy. Waste streams are valorised using thermochemical conversion techniques, and residual carbon might be fixed as biochar in the soil. Biochar is also being investigated to remediate environments, to reduce contaminant mobility in contaminated soils, to reduce transfer of hazardous elements to agronomic crops, and to use as a filter material in the treatment of waste water. The production of "designer biochar" is specifically tailored towards obtaining biochar with optimal properties for a specific application through the selection of specific feedstocks and pyrolysis conditions, and is leading to an expansion of the use of biochar as catalyst, as supercapacitor, anode material, and potentially also for biomedical applications.

Research on the use of biochar in environmental applications to control trace elements has intensified over the last decade and reveals promising trends, in particular on the use of biochar for combating