

## **Chapter 2**

### **Feedstocks, preparation, and characteristics of pristine biochars**

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#### **Abstract**

As an environmental remediation technique, biochar, a carbon-rich material prepared from different biomass feedstocks, has received great attention owing to its multibeneficial purposes. It can be utilized in diverse applications, including soil remediation, water decontamination, and composite-development. Due to its wide applications, it is vital to understand the kinds of feedstocks and conditions that produce biochar with desired properties for environmental remediation. Hence, this chapter comprehensively summarized the types of biomass feedstocks suitable for biochar production for environmental decontamination, biomass quantification methods, biochar preparation methods, physicochemical properties of biochar, functional characterization, and finally, the challenges and hotspots for future research directions. The physicochemical properties of biochar vary with different feedstocks and preparation conditions, and pristine biochars provide precursor materials for the development of novel engineered biochars with better properties and performance. Nevertheless, future work is required to understand the relationship between preparation conditions and the properties for enhanced efficiency.