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Abstract

Recent advances and future trends in phosphorus recycling with biochar: A bibliometric analysis †

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Abstract: As a non-renewable resource, phosphorus enjoys the dual characteristics of polluting and resource. Specifically, polluting refers to excessive phosphorus discharged into the waterbody will lead to eutrophication of the waterbody, thus affecting the water quality, while resource refers to the application of appropriate amount of phosphorus can promote plant growth and improve crop yield. Therefore, how to effectively remove phosphorus from bodies of water and recycle it as a soil conditioner or fertilizer for agricultural land applications has been a hot issue in global research. Here, this paper begins with a description of the current phosphorus crisis facing mankind and summarizes the wide range of uses of phosphorus as a resource. Then, two types of document (article and review article) published up to July 14, 2023 were collected and analyzed from the Web of Science core databases and a bibliometric survey was conducted using VOSviewer and Bibliometrix software. Here, bibliometric analysis of publication evolution, top 10 languages, top 15 research areas, institutions, countries/regions, journals, keyword co-occurrence network, thematic map, highly cited papers, author networks, production over the last six years of most relevant authors were taken into account and analyzed in detail. In summary, this paper seeks to provide an insightful description and analysis of current research progress in the field from a bibliometric point of view. Finally, future trends and perspectives of phosphorus recovery with biochar are explored in depth, providing a potential pathway for phosphorus recycling and solving the phosphorus crisis.

Keywords: phosphorus; recovery; biochar; bibliometrics.

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