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A Review of the Sustainable Approaches in the Production of Bio-based Polyurethanes and Their Applications in the Adhesive Field

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摘要	On account of the irreversible environmental damage caused by the utilization of non-renewable raw materials in industrial production, since the end of the twentieth century, the interest in replacing the traditionally applied petroleum-based starting compounds in the polyurethane production by more sustainable feedstocks has grown enormously. Such pursuit of Green Chemistry has been fostered by the implementation of a set of national and international initiatives and stricter regulations, especially in the field of adhesives. In this respect, the latest advances in the production of bio-based polyurethanes are collected in this review. Thus, after a brief introduction to this subject and main tendencies towards the production of more sustainable polyurethanes, the first section reviews the feasibility of manufacturing polyurethanes from a range of natural platforms, including lignocellulosic biomass and vegetable oils, whether modified or in their original form, along with some industrial wastes. Afterwards, the hitherto considered synthetic routes for the preparation of greener polyurethanes are assessed, encompassing waterborne, radiation-curable and non-isocyanate polyurethane techniques. Finally, the last section focuses on the research advancement on the synthesis, properties and different uses of bio-based polyurethanes specifically implemented in the field of adhesives.
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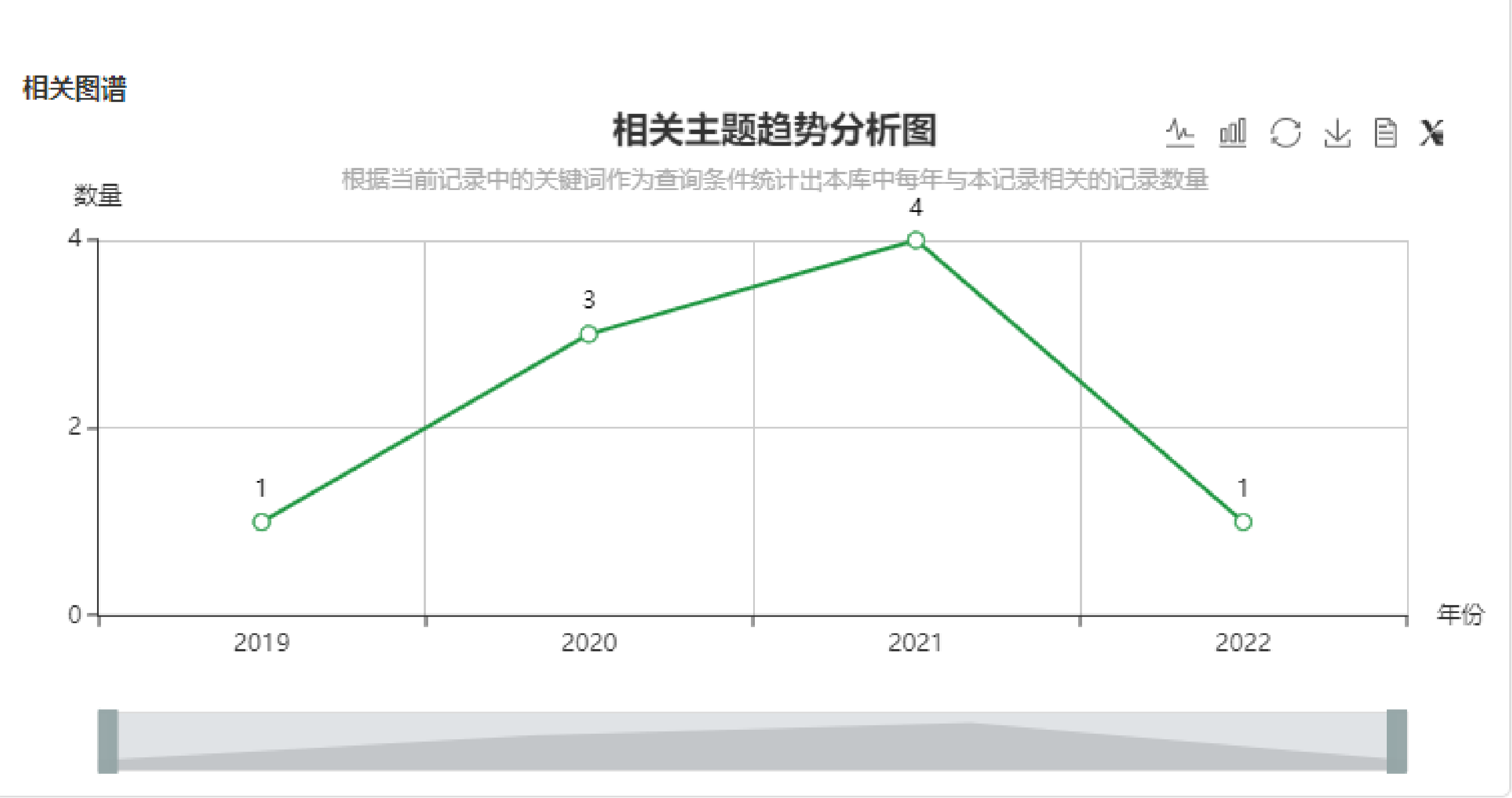
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