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# Lignocellulosic Materials and Their Use in Bio- based Packaging



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# Preface

The use of bio-based resources for the development of new materials and structures, such as packaging materials, is one of the bioeconomy's key points. Thus, the harnessing of natural materials with a biodegradable character can help to reduce CO<sub>2</sub> emissions and use efficiently natural resources and materials. The use of bio-based polymers for packaging provides several advantages over usual polymers, but also present in most cases a poor barrier to moisture and weak mechanical properties that limit their application in foods. If these drawbacks are overcome, it will be the beginning of a new era to the bio-based packaging materials. One of the strategies is the use of lignocellulosic materials that can be used as main materials or as additives in the production of bio-based packaging and thus contribute to reduce the use of petroleum-based materials. Therefore, before using lignocellulosic materials for packaging applications, it is important to understand their main constituents, extraction methodologies and their main physico-chemical properties. The way as they can be added to packaging materials and how the lignocellulosic materials influence the main properties of packaging should also be fully understood.

Therefore, this book will provide a comprehensive review on the use of lignocellulosic materials for the development of bio-based packaging for food applications. Aspects such as, sources and extraction methods of lignocellulosic materials; main constituents of lignocellulosic materials; functionality of lignocellulosic materials; the development of bio-based and biodegradable packaging; incorporation of lignocellulosic materials in bio-based packaging materials; and properties and functionality of bio-based packaging, will be discussed. Other bio-based polymers are also considered, including the polymers extracted from biomass, those synthesized by bio-derived monomers and those produced by microorganisms. In the end, examples of the use of packaging based on lignocellulosic materials for food applications will be given.

It is expected that this book will be considered as a reference for all aspects of the use of lignocellulosic materials in the development of bio-based packaging, providing important and new information regarding the development of bio-based packaging for food applications.

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