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Chemical Characteristics of Bark Tannins and Their Chemical and Enzymatic Conversions

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Abstract: In the wood industry, large quantities of wastes are generated. Bark is one of the typical wastes, and the rate of its utilization is considerably lower than that of other main wood wastes such as slabs and sawdust. Recently, it has become an important matter to develop an effective utilization of woody biomass ; however, the present use of bark is restricted to compost and livestock bedding, etc. Therefore, development of high-valued utilization of bark is greatly anticipated. Condensed tannins are present at very high concentrations in the bark of tree species, and many investigations of their new utilization have been reported. Furthermore, several modifications of condensed tannins have also been studied to improve their function or to develop their efficient utilization. This paper reviews progress made in the fields of chemical characteristics of condensed tannins and their chemical- and enzymatic-conversions, and finally describes prospects of bark tannin utilization.

Keywords: bark, condensed tannins, alkaline rearrangement reaction, amination, laccase

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