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TOPIC(s) : Biomass conversion

Maritime pine wood color: Identification and quantification of chromophores in extractives

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PURPOSE OF THE ABSTRACT

Maritime pine is one of the most common softwood found in South West of France, covering more than 10% of the total forestry area of the Country. Thanks to its good mechanical properties, it is a suitable candidate for the elaboration of wood-based materials for packaging purposes (ex: wood pallet) or engineered wood products for structural applications. This softwood is known to have a color difference between his heartwood and sapwood that can cause a depreciation of the commercial value of the finished products. Indeed heartwood usually have a brown reddish color contrary to sapwood, which have a pale yellow tint (figure 1).

The color of wood comes from lignin and extractives, especially from phenolic structures. Both of them are present in heartwood and sapwood but in different amounts and, in the case of extractives, structure and molar mass (presence of condensate, oligomers or polymers).

Understanding the chemical modifications that occur during the duraminisation process is a challenge in order to find a suitable method to homogenize the color. Solid/liquid extraction of maritime pine wood powders using Soxhlet method have been done by varying solvent polarity in order to recover the largest quantity of extractives. Identification of the extractives in each collected fraction and quantification have been carried out with GC-MS and GC-FID analyses and will be presented.

FIGURES



FIGURE 1

Color difference between sapwood (upper part) and heartwood (lower part)

FIGURE 2

KEYWORDS

Heartwood | Sapwood | Extractives | Gas Chromatography

BIBLIOGRAPHY