

Effects of chemical treatments of *Ampelodesmos mauritanicus* fibres on their physico-chemical characteristics

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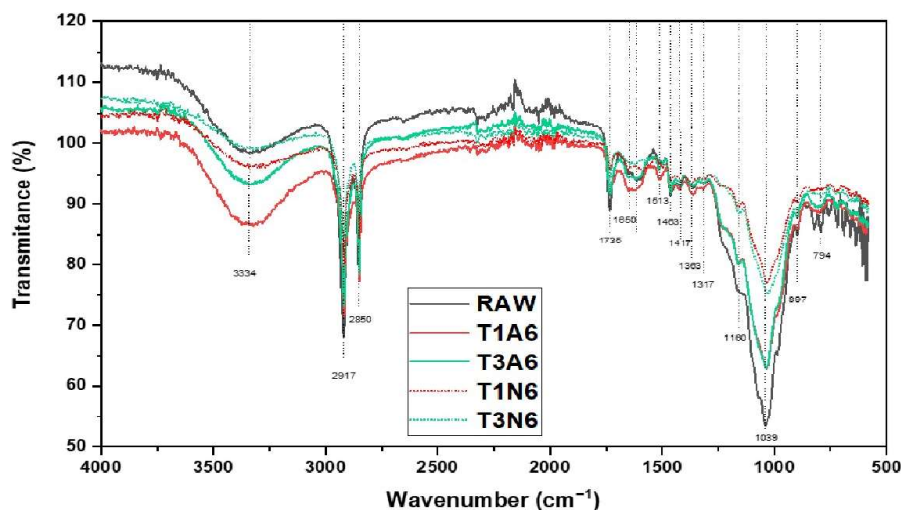
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Abstract: The fibres extracted from vegetable plants are hydrophilic and rich in cellulose and can be considered as an excellent alternative to synthetic fibres, in particular glass fibres, and to be used as reinforcement in hydrophobic polymers they must generally be chemically treated with alkaline solutions to improve their fibre/matrix bond. However, alkaline solutions are dangerous chemicals that are harmful to the environment, especially if used in high concentrations, so it is best to avoid them as much as possible. This investigation concerns the chemical treatment of the leaves of *Ampelodesmos mauritanicus* which is a wild plant, widely available on the Algerian territory and the Mediterranean basin, with a citric acid solution which is eco-friendly as a substitute for sodium hydroxide which is an alkaline. To do this, two concentrations of the solutions were used for a treatment of 6 hours each. Treated and untreated natural fibres were characterized by Fourier transform infrared spectroscopy (FTIR) and thermogravimetric analysis (TGA).

Keywords: *Ampelodesmos mauritanicus*, eco-friendly treatment, natural fibres.



Graphical abstract

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