

## Abstract

Aging is the irreversible change of mechanical, physical, and chemical properties of materials; the main objective of this work was to study the photochemical degradation and structural changes of three major Algerian wood species. For this, we evaluated the photodegradation mechanism for Maritime Pine (*Pinus pinaster*), zeen oak (*Quercus canariensis*), and afares oak (*Quercus afares*) by accelerated aging in a Xenon test chamber. Degradation of the samples was established by an initial color change (after 30 h exposure), followed by roughening and cracking (120 h exposure) as translated by scanning electron microscopy and Fourier transform infrared spectroscopy. The discoloration of irradiated wood samples was primarily related to the decomposition of lignin which is the key structure in wood photodegradation. As expected, a decrease in mechanical properties was observed; for all samples, the modulus of elasticity decreased after aging, indicating that the wood specimens loss some of their stiffness.