

CHEMICAL COMPOSITION OF FIRED ALEPPO PINE (*Pinus halepensis* Mill.) BIOMASS

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ABSTRACT

*The Republic of Croatia, as well as the rest of the Mediterranean European countries, is increasingly faced with the problem of forest fires and their immediate aftermath. After the forest fires, significant quantities of fired trees as lignocellulosic biomass are left behind, and the question arises as to what degree they are chemically degraded or whether they still possess all the properties for further application in mechanical or chemical processing. Therefore, the aim of this study was to research the impact of forest low ground fire and high fire of the treetops on the Aleppo pine (*Pinus halepensis* Mill.) chemical composition as a biomass quality property. The study was carried out by determining the group chemical composition of fired and non-fired wood anatomical parts for comparison with the fired ones, by sampling the rings at the height of the trees 0 m, 2 m 4 m. The results obtained show that the non-fired bark contains a appreciably higher content of ash, accessory materials (extractives) and lignin, and a considerably lower content of polysaccharides cellulose and polyoses (hemicellulose) than sapwood and heartwood, which is similar in comparison to the results of previous studies. The bark results show a notable difference in reduced ash, cellulose and lignin content, and in increased accessory materials and wood polyoses (hemicellulose) content between the non-fired and fired wood. Furthermore, the content of individual chemical components of fired bark at different forest fires heights of 0, 2 and 4m for each sample did not differ substantially. Contrary to fired bark, sapwood and heartwood does not have considerable differences in the chemical composition of non-fired and fired wood, as well as on different forest fires heights. The results obtained show that forest fires do not have any effect on overall Aleppo pine sapwood and heartwood; it is fired wood bark that takes on all the damage caused by the high temperature during a forest fire. In addition, the fired sapwood and heartwood still possess all the chemical properties for further application.*

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