Identification of the essential oil obtained from leaves and twigs of *Eucalyptus viminalis* waste collected in the Southwest Region of Paraná - adding value to the production chain of wood.

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The *Eucalyptus* genus comprises a large number of species; each species has different adaptive characteristics in relation to climate and soil. The studied species, *Eucalyptus viminalis*, is native of Australia and is usually found in high altitudes and cold places. This species has adapted well to some regions of Brazil (1). Its use in the plywood and furniture industry is growing, causing a demand for more cultivating space; this results in an increased the amount of waste. Leaves, twigs, barks and seeds, are byproducts usually used in kilns adding little value to the wood. These facts justify the need for study and planning a better use for this waste material. Gums, resins, essential oils, may have good potential for various applications. In this context, a previous study we performed served as factorial design to optimize the conditions for obtaining the essential oil via hydrodistillation, using the leaves and twigs from residual *E. viminalis*. Five essential oil samples were obtained, their chemical components were identified and quantified. The extraction time was 4 hours and the essential oil was collected using diethyl ether, and dried with anhydrous sodium sulfate. Each essential oil sample was stored in vials and kept refrigerated until analysis, which was done using a GC-431 gas chromatograph associated with a MS-210 mass spectrometer, both Varian®. 1.0 µL of each sample was injected in the gas cromatograph, at a temperature of 250 °C, with a column flow of 1.2 ml min^{-1}. The column temperature ranged from 50 ºC to 240 ºC. The initial temperature during first minute was of 50 ºC, then heated at 3 ºC min^{-1} over the following 3 minutes, and 3.5 ºC for the remainder of the analysis. The final temperature was maintained unchanged for 14.5 minutes resulting in a total analysis time of 70 minutes. The identification essential oil constituents was based on retention indices (Adams, 2007), obtained by co-injection of a mixture of *n*-alkanes standards, and by comparison of their mass spectra. Helium was used as the carrier gas with 1 $mL.min^{-1}$ flow. The statistical treatment was conducted using factorial design, cluster analysis and principal component analysis (PCoA). As a result, 74 components were obtained and identified (80.68%). Eucalyptol wit minimum and maximum percentages equal to 47.70% and 72.25%, was found in all samples and was the major component in all cases. In addition to eucalyptol, in most samples other hydroxylated sesquiterpenes such as α-cadinol (0.25% to 0.91%) were found. Hydroxylated monoterpenes represented by *trans*-myrtenol (0.01% to 1.63%), and sesquiterpenes represented by 6,9-guaiadiene (0.39% to 1.52%) and *cis*-β-guaiene (0.66% to 1.27%) were also present. Regarding the acquisition of higher eucalyptol concentrations per sample (72.25%), the most favorable conditions were 48 hours of drying time for the leaves and branches, 3 hours of essential oil extraction and 40 g of biomass with an average of contact surface 8 cm, enabling the procurement of 0.5 mL of essential oil.

1. Poggiani, F. et al. IPEF, 1997, **37**, 21-29.

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