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## Abstract

In the last year, FT-IR spectroscopy has been introduced as a very efficient and non-destructive analytical tool for the reliable identification of principal components of samples. The biological activity and the pharmaceutical properties of plants are strongly dependent on their structure. Nuts of beech and pine are tasty nutrient-dense nuts produced in the fall by beech and pine trees (*Fagus S.*, *Pinus S.*). The vibrational fundamentals from the IR spectrum, were analyzed and assigned according to the available literature. In the present research work the seed beech and pine is selected because it is famous in world as medicine.

## Introduction

Beech (*Fagus sylvatica*) and pine trees (*Pinus sylvestris*) species are largely represented in the European, Asia and North America flora and various parts of the tree are used in traditional medicine. The non-extractable components in bark include polysaccharides (cellulose, hemicellulose and pectic substances), phenolic polymers (lignin and high-molecular-weight tannins) and cross-linked polyesters (cutin and suberin) [1]. Some of the most important health benefits of beech include its ability to stimulate hair growth, protect the immune system, improve the health of the skin, boost newborn health, reduce respiratory distress, prevent infections, relieve pain, detoxify the kidneys, and protect against chronic diseases. The seeds of forest trees contains omega 6 and omega 3 which have been shown to have medicinal properties.

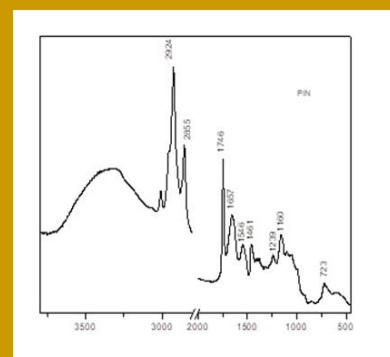


Fig. 1. FT – IR spectra of seeds pine (power)

In this work was investigated a principal components from powder of beech and pine seeds using FT-IR technique.

## Aims

## Experimental

The sample from FT-IR spectrum was obtained from 0, 2 mg powder of beech and pine seeds from *Fagus sylvatica* and *Pinus sylvestris* (Romania site). Fourier Transform Infrared (FT-IR) spectra were performed in the absorbance with a spectrophotometer FT-IR-4100 Jasco, using KBr pellet technique. Spectral resolution was set at 4 cm<sup>-1</sup> and all spectra were acquired over 256 scans. The spectral data were analyzed using Origin 6.0 software.

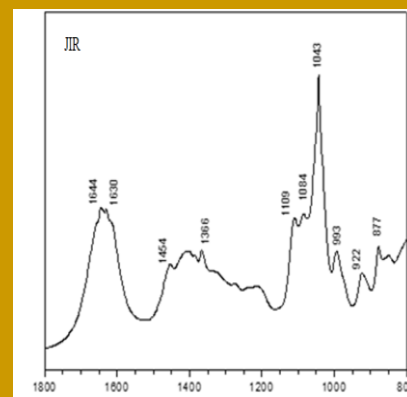
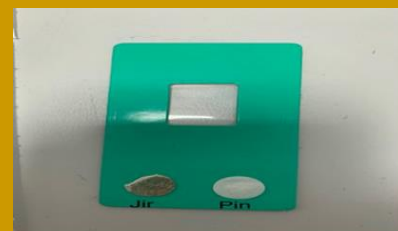


Fig. 2. FT – IR spectra of seeds beech (power)

## Results

Analyzing the spectra obtained from the seeds of two species of forest trees, beech seed and pine seeds we can observe a difference between the spectrum. The band characteristic for the lignin is located at 1508-1510, 1603-1608 cm<sup>-1</sup> and these bands are present in all the extraction products. The band attributable to the hemicellulose is showed at 11736 cm<sup>-1</sup> assigned to the C=O stretch of acetyl and carbonyl groups.

## Conclusions

FT-IR spectroscopy could provide quantitative information concerning the functional groups of tree components.