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Influence of process parameters on supercritical carbon dioxide extraction of cannabidiol from *Cannabis sativa* L. aerial parts

Zorica Drinić, Senka Vidović

University of Novi Sad - Faculty of Technology, Novi Sad, Serbia

Hemp (*Cannabis Sativa* L.) has multiple applications in the industry for the production of fabrics, paper and construction materials. Today, there is an increasing interest in its application for medical purposes, as opposed to its opiate activity. Hemp has more than 480 compounds: cannabinoids, terpenoids, flavonoids, noncannabinoid phenols, hydrocarbons, nitrogen-containing compounds, carbohydrates [1].

The influence of pressure (100 - 300 bar) and temperature (40 ^{o}C - 60 ^{o}C) on supercritical carbon dioxide extraction of aerial parts of hemp in terms of cannabidiol (CBD) was examined. The CBD content was in the range from 0.0071 to 0.0896 g/extract for the pressure of 100 bar, from 0.1341 to 0.2587 g/extract for the pressure of 200 bara and from 0.1797 to 0.3103 g/extract for the pressure of 300 bar. Depending on the pressure used, the temperature had a different effect. At the pressure of 100 bar increasing the temperature leads to decrease in the extraction of CBD. At pressures of 200 and 300 bar increasing the temperature to 50 °C amount of extracted CBD decreased, while further increasing the temperature to 60 °C amount of extracted CBD results in a slight increase. The highest content of CBD was in the extract obtained at a pressure of 300 bar and temperature of 40 °C.

References

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Supervisor(s): Senka Vidović, PhD, Associate Professor