

AGRO-INDUSTRIAL POTENTIAL OF *CANNABIS SATIVA L.* SEEDS AS A SOURCE OF BIOLOGICAL ACTIVE SUBSTANCES

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Cannabis sativa L. is an anemophilous plant belonging to the Cannabaceae family, first botanically classified in 1753 by Carl Linnaeus. The industrial value of the plant is exceptional and very promising. This culture produces several types of raw materials with particular commercial applications. The functional properties of hemp seeds are due to its high nutritional value which provides important beneficial characteristics for human health, and also to the presence of various bioactive compounds, including unique phenolic compounds with antioxidant, anti-inflammatory, and neuroprotective actions; bioactive peptides, but also two of the main cannabinoids found in *Cannabis sativa*, Tetrahydrocannabinol and Cannabidiol [1].

Research has shown that phenolic amide with the highest antioxidant and arginase inhibitory activity is N-trans-caffeylthryamine, extracted from hemp seeds. Thus, inhibition of arginase could increase bioavailability which improves endothelial function and may reduce oxidative stress which plays an essential role in the onset and progression of endothelial dysfunction involved in multiple diseases, including cardiovascular. However, the most important biological effects attributed to phenylpropionamides in hemp are anti-inflammatory and neuroprotective activities. Unique bioactive hemp compounds called sativamides A and B are chemically non-lignanamide compounds derived from N-trans-caffeoilytyramine. Pre-treatment of human SH-SY5Y neuroblastoma cell line with 50 μ M sativamide A or B reduced cell death from endoplasmic reticulum stress [2].

Along with phenolic compounds, other functional compounds of hemp seeds are bioactive peptides. The existence of these peptides has been demonstrated by the bioactive characteristics of the products obtained by hydrolysis of hemp seed proteins. Indeed, it has been shown that although hemp seed proteins have limited bioactive properties, their hydrolysis provides hydrolyzates with higher bioactivity, including antioxidant, antihypertensive, antiproliferative, hypocholesterolemic, anti-inflammatory, and neuroprotective.

Keywords: antioxidant activity, bioactive peptides, functional properties, high nutritional value

References

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