

CBD-RICH Cannabis sativa var. LIFTER: CHEMICAL COMPOSITION AND EDAPHOClimATIC ADAPTATION TO CERRADO CONDITIONS FOR MEDICAL APPLICATIONS

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The medicinal use of *Cannabis sativa* has been expanding due to its broad spectrum of pharmacological properties, primarily attributed to phytocannabinoids such as Δ^9 -tetrahydrocannabinol (THC) and cannabidiol (CBD). In Brazil, patient access remains limited by dependence on imported products, a gap that patient associations, supported by academia, are striving to mitigate through local cultivation initiatives. This study investigated the chemical composition and adaptation of *Cannabis sativa* var. Lifter (LF), a high-CBD chemotype (Oregon CBD Company, USA), cultivated under organic management in the Brazilian Cerrado, for medicinal purposes. The study was conducted under a collaboration agreement established between Associação Divina Flor—the first patient association dedicated to medicinal *Cannabis* production in Mato Grosso do Sul—and the Federal University of Mato Grosso do Sul (UFMS) [Partnership Term Nº 05/2023, Process Nº 23104.015596/2023-84]. Dried inflorescences of *C. sativa* plants were individually extracted using an ultrasound-assisted method with methanol and analyzed by high-performance liquid chromatography with diode array detector (HPLC-DAD), employing cannabinoid standards and optimized mobile phases to ensure reliable separation and quantification. The 134 analyzed LF plants exhibited consistently high CBD levels and a homogeneous chemical profile. Cannabidiol content ranged from 201.672 to 495.407 $\mu\text{g}/\text{mL}$, while mean THC content remained around 10 $\mu\text{g}/\text{mL}$, confirming its CBD-rich profile. This chemical uniformity suggests strong edaphoclimatic adaptation to Cerrado-specific abiotic factors, such as high solar incidence, elevated temperatures, and seasonal water fluctuations. These findings demonstrate the potential of locally cultivated LF for producing standardized, CBD-rich oils and underscore the importance of systematic chemical monitoring. This work provides scientific evidence supporting controlled *Cannabis* cultivation in Mato Grosso do Sul and contributes to advancing agricultural and analytical practices for cannabis-derived phytotherapeutics.

Keywords: cannabidiol, tetrahydrocannabinol, phytocannabinoids, phytochemical profile, HPLC.

