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COMPARISON OF THE ANTINEOPLASTIC ACTIVITY OF THE FREE *CANNABIS SATIVA L* EXTRACTS AND *CANNABIDIOL* (CBD)

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Background: The unfavorable side-effect profiles of most chemotherapeutics create incentive toward finding active substances with less toxicity. We compared the anti-neoplastic activity of different botanical substances (BDS) from *Cannabis Sativa L* (hemp) made using different manufacturing technologies by PBG Global in lymphoma, mammary gland adenocarcinoma and urinary bladder cancer. We also aimed to determine the benefits of different *Cannabis Sativa L* extracts compared to pure CBD reference in normalized doses.

Materials & methods: Cytotoxicity was measured by the MTT assay. Used preparations - BDS#1 THC-free 30% CBD *Cannabis Sativa L* extract (Hemp), BDS#2 THC-free 60% CBD hemp extract, BDS#3 99% CBD isolate, all produced by PBG Global and BDS#4 99% CBD isolate analytical standard as reference compound was sourced from Sigma-Aldrich. We used following cell lines: T-24 (urinary bladder transitional cell carcinoma), MDA-MB-231 (mammary gland adenocarcinoma), HuT-78 (Sézary syndrome CTCL), and MJ (mycosis fungoides CTCL).

Results: All concentrations were normalized to equal amount of active ingredient CBD. There was significant difference between tested extracts compared to pure CBD. THC-free 30% CBD *Cannabis Sativa L* extract demonstrate stronger antineoplastic efficacy against HuT-78 (IC₅₀ of 7, 78 µmol/L) and MDA-MB-231 (IC₅₀ of 5,32 µmol/L) cells as compared to BDS#2. In contrast, THC-free 60% CBD *Cannabis Sativa L* extract was more active in T-24 (IC₅₀ of 0, 12 µmol/L) and MJ (IC₅₀ of 2, 45 µmol/L) cells. Taken together our data indicate that all tested natural products have varying antitumor effects and the method of manufacturing influences the final composition and activity. All studied plant extracts and pure CBD appear to exert beneficial effects thus making them perspective Ingredients of the complex treatment of some human malignant diseases.

BIOGRAPHY

Ervin Ivanov from Bulgaria holds master degree in general medicine from Medical University of Sofia. He is a onco chest surgeon in Military Medical Hospital, Sofia and curenly he is working as a managing director in Pobeltsch Gle, Romania.

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