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Combined toxic effects of irinotecan and delta-9-tetrahydrocannabinol in rat liver: An introductory study using DNA integrity and oxidative stress markers

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The use of cannabinoid-based preparations by cancer patients raises concern whether delta-9-tetrahydrocannabinol (THC) can modulate or even compromise the effectiveness of concurrently administered anticancer drugs. Irinotecan (IRI) is a type of drug that causes various severe adverse effects such as diarrhoea, gastrointestinal toxicity and myelosuppression. Newer reports point to hepatotoxicity being an underestimated but important IRI side effect as well. This study focused on the evaluation of potentially detrimental interactions of IRI and THC in the liver of Wistar rats. Male rats were concomitantly exposed to IRI (at 100 mg/kg b.w., administered once i.p.) and THC (administered repeatedly for 1, 3 and 7 days per os at 7 mg/kg b.w.). Single IRI-treated rats, followed by those given combined treatment. In contrast to 3-day, 7-day treatment with single THC slightly impaired hepatocyte DNA integrity. Rats given combined treatment demonstrated increased lipid peroxidation and higher CAT levels than those administered single IRI, at both time points, which may indicate that combined treatment induced more intense oxidative stress. Our findings provide evidence regarding a significant synergic enhancement of IRI toxicity caused by THC intake, which was confirmed using all of the applied biomarkers. Nevertheless, since we tested only one IRI and THC dose, further studies are required to further clarify their mutual interactions.

## **Biography**

Ana Lucić Vrdoljak has completed her PhD at University of Zagreb, Faculty of Pharmacy and Biochemistry. She is appointed as a Scientific Advisor at the Institute for Medical Research and Occupational Health, Zagreb, Croatia, and as a Lecturer in the Department of Biotechnology, University of Rijeka. Her research interest are focused on experiments dealing biochemical markers of drug and chemical toxicity *in vivo* and *in vitro*. Her work has been presented through 60 scientific papers.

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