P-282 *Caenorhabditis elegans* as model to study natural products affecting metabolism and lifespan

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DOI 10.1055/s-0039-3400009

Current drug discovery efforts are mainly focused on target directed approaches, which have certain limitations owing to the complexities of biological systems and disease pathophysiology. Still a major part of new drug entities is discovered by phenotype directed approaches in cells and animals [1]. The screening of natural products in phenotypic rodent models is however hampered by several disadvantages, e.g. financial efforts, legal and ethical considerations, large quantities of test materials, in particular pure isolates and a challenging target deconvolution afterwards. Many of these problems can be avoided by using the simple roundworm *Caenorhabditis elegans* which serves as a convenient and proficient addition to the set of current preclinical model organisms [2]. We recently established a robust *C. elegans* screening platform using 96-well plates for medium throughput screening of extracts and constituents thereof for the discovery of natural products beneficial to the metabolic syndrome. Herein we present approaches and methods for *C. elegans* based preclinical screening using a combination of (i) optimized extract preparation, (ii) lifespan assay and (iii) fat accumulation assay.

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P-283 *Camelina sativa* glucosinolate fraction: NMR characterization and effect on human colon cell lines

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DOI 10.1055/s-0039-3400010

Glucosinolates (GLs) are trending molecules in vegetable-based supplements and in recent years they gained importance in diet due to their antioxidant and anticarcinogenic properties. Usually species belonging to Brassicaceae contain high concentrations of one or a few GLs; among these plants *Camelina sativa* is known for its specific GLs, namely glucocamelinin and glucoarabinin. The aim of this work was to valorize oil-cakes, a by-product derived from the pressing process of *C. sativa* seeds for food applications, given the presence of GLs, a class of metabolites known to be active against tumor cells. Selective extraction for GLs was performed by methanolic and aqueous extractions through maceration processes. After purification through Solid Phase Extraction columns, HPLC analysis was performed on all samples. GLs were the most abundant molecules in the extracts (1.5 mg/mL) as shown by NMR analysis, with small traces of residual lipids; proteins were not found by Bradford assay. Human colon cell lines (healthy CCD841, cancer E705 and CaCo2) were chosen to test the effects of GLs on viability through the MTT assay. First results did not show a considerable effect, but a higher concentration of GLs induced a noticeable selective effect on viability between healthy and cancer cells. Activity of enzymes involved in glutathione metabolism such as glutathione *S*-transferase, glutathione peroxidase, glutathione reductase and enzymes responsible for reactive oxygen species detoxification, such as catalase and superoxide dismutase will be performed through spectrophotometric assays, to evaluate cellular changes in response to a stress that does not induce significant alteration in the cellular viability.

P-284 Cannabidiol-enriched *Cannabis sativa* L. extract modulates inflammatory-induced human peripheral mononuclear cells response

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DOI 10.1055/s-0039-3400011

Recent studies propose non-psychotropic *Cannabis sativa* L. as a candidate drug having a role in the pathogenic mechanisms involved in inflammation [1]. In order to evaluate the biological effect of a chemically standardized extract of *C. sativa* var. *carmagnola* dried female inflorescences (CSE) and its main constituents, the purpose of this study was to investigate the modulation of cannabinoid receptors (CBr) and pro-inflammatory cytokines in an acute inflammatory stress *in vitro* model. CSE was chemically characterized by HPLC-DAD and GC. The CSE biological effect was investigated on human peripheral blood mononuclear cells (PBMC) firstly exposed to the endotoxin LPS (2, 6, 24 hours) in order to evaluate CBr and cytokines regulation. Then, cells were pre-treated with CSE and its main components at the concentration of 1 µg/ml, followed by a 2 hours stimulation with the endotoxin LPS.
CSE was found to contain cannabidiol (CBD) >20%, THC <0.6% and β-caryophyllene as principal sesquiterpene; flavonoids were found only <0.1%. Short term exposure to LPS significantly downregulated CB1r and CB2r gene expression and induced IL-1β, IL-6 and TNF-α release. CBr transcription resulted attenuat by pre-treatment with CSE, and more with CBD. Moreover, the LPS-induced release of the pro-inflammatory cytokine IL-6 was attenuated by CSE and CBD treatment.
C. sativa extract and its main constituent CBD were able to regulate the LPS-induced inflammatory PBMC response through the modulation of CBr expression. These results contribute to support the role of the non-psychotropic cannabis compounds in the management of the inflammatory mechanisms.

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P-285 CBD-A and THC-A content in different hemp varieties

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DOI 10.1055/s-0039-3400012

Hemp (*Cannabis sativa* L.) is one of the oldest cultivated plants that has been used mostly as a source of fibre, oil, food and medicine. It contains many secondary metabolites. The most studied are cannabinoids, especially THC (delta-9-tetrahydrocannabinol) which is psychoactive and CBD (cannabidiol) which is non-psychoactive [1]. Hemp varieties have