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ПЪРВА НАЦИОНАЛНА ДОКТОРАНТСКА КОНФЕРЕНЦИЯ ПО БИОЛОГИЯ

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КОНЦЕРТНА ЗАЛА НА АМТИИ И АУДИТОРИИ НА БИОЛОГИЧЕСКИ ФАКУЛТЕТ, ул „Тодор Самодумов" № 2 (до Амфитеатъра)

P18

Cytotoxicity of Flavonoid Glycosides, Flavonoids and Phenolic Acids from Inula oculus christi on Mammalian Cell Lines

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Abstract. Herbs of the genus Inula are well known in traditional medicine. Their extracts are used as expectorants, antitussives, bactericides as well as for the treatment of lung inflammation and have shown to possess anti-inflammatory and secretolytic activity. Experimental research findings indicate the anti-tumor effect of certain components of extracts from Inula cappa and Inula britannica and those from Inula racemosa have antimicrobial and antidiabetic activity.

We have directed our efforts on investigating the effects of different extracts from Inula oculus christi, enriched with certain groups of biologically active substances – flavonoid glycosides (VG 40-9), phenolic acids (VG 40-11), flavonoid glycosides and phenolic acids (VG 40-3), flavonoids and phenolic acids (VG 40-4). The effect of these extracts on normal (MDCK and RPE1) and carcinoma cell lines (A549 and HepG2) was evaluated. We have performed cytotoxicity study (crystal violet assay) as well as morphological analysis of changes induced by the extracts. Among the tumor cell lines HepG2 show greater sensitivity. Surprisingly VG 40-3 extract has no significant influence on both cancer cell lines.

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Transforming Growth Factor Beta (TGF-B)-Mediated Autocrine/Paracrine Loop in Senescent Cells Supports the Inflammatory Joint Environment In a Mouse Model of Rheumatoid Arthritis

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Abstract. Cellular senescence is a steady state of cell cycle arrest which promotes tissue remodeling during normal embryonic development and upon tissue damage. However, senescence-associated secretory phenotype (SASP) is characterized by abundant release of various proteins such as IL-1, IL-6, TGF-β, which reinforce senescence in an autocrine and paracrine manner and activate immune cells creating a favorable milieu for malignant cell growth.

Here we demonstrate that zymosan-induced arthritis (ZIA) in mice leads to premature cell senescence, in vivo and in vitro, which most likely depends on TGF-β action via cytoplasmic signal transducers Smad molecules.

Bone marrow cells isolated from mice with ZIA exhibit a classical senescence phenotype within 13 days culture. The presence of senescent like cells were determined in paraffin embedded arthritis joint sections after Sudan Black B staining. TGF-β and Smad expression was immunolocalized in synovial tissue.

This study shows that the intraarticular injection of zymosan in mice induces senescence of fibroblast-like synoviocytes and bone marrow-derived fibroblasts and that this immunosenescence might assist the development of arthritis.