54ASM-0359 | Cytotoxicity of potassium salts of terpenic acids conifer oleoresins

A. Lyubina; S. Gumerova; N. Sharonova; A. Ermakova; D. Terenzhev; E. Shatalina; K. Bushmeleva
Federal State Budgetary Institution of Science Federal Research Center "Kazan Scientific Center of Russian Academy of Sciences", Laboratory of Plant Raw Materials Processing for Organic Agriculture, Kazan, Russia C.I.S.

Background: Terpenes are the largest and the most diverse class of natural plant products with a wide range of biological activity. A number of studies provide data on the antitumor activity of terpenes, their effectiveness in chemoprophylaxis and cancer chemotherapy. Given the high potential of terpenes as drug components, a comprehensive study of the toxicity of different terpenes and their derivatives in respect to normal and tumor cell lines is needed.
Materials and Methods: Norway spruce (*Picea abies L.*), Siberian stone pine (*Pinus sibírica Du Tour*), Siberian fir (*Abies sibirica Ledeb.*) and Scots pine (*Pinus sylvestris L.*) were used as starting materials. Samples of oleoresin were taken using the sedimentation method in the Zmeinogorsky District of Altai Krai (Russia). Depending on the oleoresin used, odourless crystalline products ranging from light yellow to light brown were obtained. The salts obtained were hydrolytically stable.
Results: According to GC-MS analysis, the main component of oleoresin in the studied plants was abiotic acid: its content was 50% or more of the total number of identified compounds.
Toxicity of potassium salts of terpenic acids was investigated using the Cell Viability BioApp protocol of the Cytell cell imaging system in relation to conditionally normal cell line Wi38 VA 13 subline 2RA (cells of a human lung embryo) and tumor lines - MCF-7 (human breast adenocarcinoma cell line), M-Hela - (human cervical carcinoma cell line). In a wide range of studied concentrations of 0.000225-0.125% potassium salts of terpenic acids of oleoresin showed high cytotoxicity against conditionally normal cell line and relatively low cytotoxicity against tumor lines. Thus, the viability of cells of the lung embryo, after treatment with a solution of Siberian fir potassium salt at a concentration of 0.0019% was more than 4 times lower than the studied tumor cells.
Conclusions
Potassium salts of terpenic acids of oleoresin of a number of coniferous plants did not show specific cytotoxicity in relation to the investigated tumor cell lines. It is advisable to continue research on the biological activity of drugs and the prospects for their use as disinfectants for external use.

S8 – CLINICAL ULTRASONOGRAPHY: TIPS & TRICKS

54ASM-0405 | Rat prostate: practical tips for ultrasonographic monitoring

A. Faustino[1]; R. Ferreira[2]; M.J. Pires[3]; M. Fardilha[4]; P.A. Oliveira[3]; M. Ginja[3]
[1]*CITAB, Veterinary Medicine, Vila Real, Portugal;*
[2]*University of Aveiro, Chemistry, Aveiro, Portugal;*
[3]*UTAD, Veterinary Sciences, Vila Real, Portugal;*
[4]*University of Aveiro, Medical Sciences, Aveiro, Portugal*

Background: Prostate is the largest accessory gland of the male reproductive tract. The prostate of men over 40 years-old is frequently affected by several pathologies, like benign prostate hyperplasia and cancer. Rats have been used as model to study prostate cancer. This study intended to address the usefulness of ultrasonography for rat prostate monitoring.
Materials and Methods: Eight male Wistar Unilever rats were acquired from Charles River Laboratories and maintained under controlled conditions of temperature, humidity, air system filtration and light/dark cycle. The prostate was evaluated by ultrasonography in awake animals. The animals were restrained by a researcher and placed in supine position. The skin of the inguinal region was shaved using a machine clipper (AESCULAP® GT420 Isis, USA). A real-time scanner (Logic P6®, GE, USA) and a 12 MHz linear transducer were used. Acoustic gel (Parker Laboratories Inc., USA) was applied. A complete transverse scan using B mode was performed from the cranial to the caudal region of the prostate, and a sagittal scan was performed moving the probe from the right to the left side. Procedures were approved by the Portuguese Ethics Committee (no.021326).
Results: Prostate was easily evaluated by ultrasonography in all animals. In the transverse scan, the urinary bladder presents as a round to oval shape filled with urine (anechoic structure) and the prostate lobes were visible around it. The ventral prostate lobes appear as hypoechoic elongated structures (one right and one left) with a hyperechoic capsule, placed ventrally to the urinary bladder. In this scan, the dorsal prostate was observed close to the urinary bladder neck, as a round hypoechoic structure with a hyperechoic capsule, dorsally to the urinary bladder. In the sagittal scan, the urinary bladder was observed as an elongated structure filled with urine (anechoic content). The ventral prostate lobes were occasionally observed ventrally to the neck of the urinary bladder, as previously described. The dorsal prostate was observed dorsally to the neck of the urinary bladder, presenting as a round to elongated shape, with a hypoechoic appearance and a hyperechoic capsule.