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Pharmaceutics & Drug Delivery Research 2018, Volume 7
DOI: 10.4172/2325-9604-C3-033

International Conference and Exhibition on Joint Event

Pharmaceutics & Novel Drug Delivery Systems

21st International Conference on &

Advanced Nanoscience and Nanotechnology

June 21-22, 2018 | London, UK

Bioassay-guided isolation of new urease inhibitors from *Ferula narthex* Boiss

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The current study was designed to evaluate the urease inhibitory activities of fractions of *Ferula narthex* Boiss followed by bioassay guided isolation of new urease *Sesquiterpene coumarins*, as potential urease inhibitors. The chloroform and ethylacetate frictions were found significantly active against urease enzyme with IC50 values of 42.5 ± 1.72 and 169.3 ± 2.54 µg/ml, respectively. Upon fractionation of chloroform the compounds 2-5 were isolated and compound 1 was isolated from ethylacetate. The compounds 2, 3 and 5 demonstrated good urease inhibition with IC50 values in range of 116 ± 1.29-464.43 ± 5.50 µM. Molecular docking studies of active compounds (2, 3 and 5) were carried out, in order to know the binding mode of interaction and energy minimization in the active site of urease. In short, both the extract/fractions and isolated compounds showed marked urease inhibition and thus could a useful natural source of urease inhibition.

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In-vitro cell compatibility of prepared collagen-glycosaminoglycans–selenium substituted hydroxyapatite nanoparticles composite scaffolds

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Four types of scaffolds were successfully prepared by freeze-drying technique: collagen-chondroitin sulfate (Co-CS), collagen-sodium hyalurnate (Co-SH), collagen-chondroitin sulfate-selenium substituted hydroxyapatite nanoparticles (Co-CS-SeHA2) and collagen-sodium hyalurnate-selenium substituted hydroxyapatite nanoparticles (Co-SH-SeHA2) and using gluteraldehyde as cross-linker to increase the scaffolds strength. The formed scaffolds were characterized by SEM and the results showed porous structured with desirable pore sizes ranging from 73.7 to 103 nm, for hepatocytes culture. The cell compatibility was tested using MTT test on human bone marrow mesynchymal stem cells (BM-MSCs). The best results were displayed by the scaffold (Co-CS-SeHA2). Results of fluorescent microscopy of the scaffolds showed that the highest number of cells was on Co-CS-SeHA2 scaffold. The cells were distributed in groups which suggested they proliferated on this material. The Co-CS-SeHA2 prepared scaffold can be applied for further liver/hepatocytes studies.

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