

A natural cation exchanger, clinoptilolite effects on bones in an osteoporosis animal model and randomized human clinical trial

Sandra Kraljević Pavelić

University of Rijeka, Croatia



Abstract

Osteoporosis has been acknowledged as a substantial burden despite available pharmacological treatments, in particular related to the occurrence of fractures in this group of patients. Herein we present data on a natural cation exchanger, clinoptilolite effects on the bones obtained in the in vivo studies in an ovariectomized rat model and a randomized double blinded placebo controlled clinical study on humans. The intervention on animals and humans is based on a defined cation exchanged zeolite-clinoptilolite PMA (Panaceo Micro Activation). The intervention improved histomorphometric parameters of bones in ovariectomized animals. In addition, PMA-zeolite-clinoptilolite intervention increased BMD (bone mineral density) values, increased bone formation markers, significantly reduced level of pain and significantly better estimated health condition in PMA-zeolite-clinoptilolite patients in comparison with control group (placebo) within the first year of intervention.

Biography

Sandra Kraljević Pavelić is Head of the Doctoral School of the University of Rijeka. She leads or led 6 domestic and international projects, coordinated one EU project, leads the project of the Centre for Excellence for Bioprocessing of the Adriatic Sea in front of University of Rijeka, three projects with industry and one project with local administration. The scientific work of Sandra Kraljević Pavelić (ORCID: <https://orcid.org/0000-0003-0491-673X>) covers the area of drug/medical products development and research on pathogenesis of disease mechanisms. She mentored 3 final papers, 20 graduate theses, 11 doctoral dissertations and published 108 papers (WosCC), 15 book chapters and has 2 patents (citations: 1512; h-index-20; Scopus October, 2019.).

Publications

1. Novel thiosemicarbazone derivatives as potential antitumor agents: Synthesis, physicochemical and structural properties, DNA interactions and antiproliferative activity
2. Metastasis: new perspectives on an old problem
3. Biological and therapeutic effects of ortho-silicic acid and some ortho-silicic acid-releasing compounds: New perspectives for therapy
4. Synthesis, spectroscopic characterization and antiproliferative evaluation in vitro of novel Schiff bases related to benzimidazoles
5. Novel 1, 2, 4-triazole and imidazole derivatives of L-ascorbic and imino-ascorbic acid: Synthesis, anti-HCV and antitumor activity evaluations
6. Synthesis, in vitro anticancer and antibacterial activities and in silico studies of new 4-substituted 1, 2, 3-triazole-coumarin hybrids
7. The novel pyrimidine and purine derivatives of L-ascorbic acid: synthesis, one-and two-dimensional ¹H and ¹³C NMR study, cytostatic and antiviral evaluation
8. Synthesis, cytostatic and anti-HIV evaluations of the new unsaturated acyclic C-5 pyrimidine nucleoside analogues

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