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Research interests

Our major focus of research is environmental health and in particular the causal relationship between environmental pollutants and kidney diseases and cancer. For more than a decade we have investigated Balkan endemic nephropathy (BEN), as a disease model linking the environment to human health. Our current research project is studying the potential exposure pathways to aristolochic acid, a powerful nephrotoxin and carcinogen, claimed to be involved as a major etiological factor in BEN. Low level contamination with aristolochic acids was detected in certain environmental matrices, and the toxicological relevance of these findings is to be established.

For more information, please visit: www.medicalgeology.ro

Relevant publications

1. Orem WH, **Tatu CA**, Varonka M, Lerch HE, Bates AL, Engle M, Crosby LM, McIntosh J (2014) Organic substances in produced and formation water from unconventional natural gas extraction in coal and shale. *Int J Coal Geol, Volume 126, 1 June 2014, Pages 20-31.*
2. Paunescu V, Bojin FM, Gavriliuc OI, Taculescu EA, Ianos R, Ordodi VL, Iman VF, **Tatu CA**. (2014) Enucleation: a possible mechanism of cancer cell death. *J Cell Mol Med.* 2014 Mar 14. doi: 10.1111/jcmm.12271. [Epub ahead of print].
3. Maharaj SV, Orem WH, **Tatu CA**, Lerch HE 3rd, Szilagyi DN. (2013) Organic compounds in water extracts of coal: links to Balkan endemic nephropathy. *Environ Geochem Health.* 2013 Mar 21. [Epub ahead of print].
4. Pavlović NM, Maksimović V, Maksimović JD, Orem WH, **Tatu CA**, Lerch HE, Bunnell JE, Kostić EN, Szilagyi DN, Paunescu V. (2013) Possible health impacts of naturally occurring uptake of aristolochic acids by maize and cucumber roots: links to the etiology of endemic (Balkan) nephropathy. *Environ Geochem Health.* Apr;35(2):215-26.
5. Paunescu V, Bojin FM, **Tatu CA**, Gavriliuc OI, Rosca A, Gruia AT, Tanasie G, Bunu C, Crisnic D, Gherghiceanu M, Tatu FR, Tatu CS, Vermesan S. Tumour-associated fibroblasts and mesenchymal stem cells: more similarities than differences. *J Cell Mol Med.* Mar;15(3):635-46.

6. Haider R, Ghauri MA, SanFilipo JR, Jones EJ, Orem WH, **Tatu CA**, Akhtar K, Akhtar N (2013) Fungal degradation of coal as a pretreatment for methane production. *Fuel*, 104: 717-725.
7. Pavlovic NM, Orem WH, **Tatu CA**, Lerch HE, Bunnell JE, Feder GL, Kostic EN, Ordodi VL. (2008) The role of lecithin cholesterol acyltransferase and organic substances from coal in the etiology of Balkan endemic nephropathy: a new hypothesis. *Food Chem Toxicol.* 46(3):949-54.
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9. Paunescu V, Deak E, Herman D, Siska IR, Tanasie G, Bunu C, Anghel S, **Tatu CA**, Oprea TI, Henschler R, Ruster B, Bistriean R, Seifried E. (2007) In vitro Differentiation of Human Mesenchymal Stem Cells to Epithelial Lineage, *J Cell Mol Med.* 11(3):502-508
10. Orem WH, **Tatu CA**, Lerch HE, Rice CA, Bartos TT, Bates AL, Tewalt S, Corum MD. (2007) Organic compounds in produced waters from coalbed natural gas wells in the Powder River Basin, Wyoming, USA. *Applied Geochem.*, 22(10):2240-2256.
11. Hadaruga NG, Hadaruga DI, Paunescu V, **Tatu CA**, Ordodi VL, Bandur G and Lupea AX. (2006) Thermal stability of the linoleic acid/ α - and β -cyclodextrin complexes. *Food Chemistry* 99(3): 500-508
12. Orem WH, **Tatu CA**, Lerch III HE, Maharaj SVM, Pavlovic N, Paunescu V, Dumitrascu V. (2004) Identification and Environmental Significance of the Organic Compounds in Water Supplies associated with a Balkan Endemic Nephropathy Region in Romania. *J. Environ. Health Res.* 3(2): 53-61

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