

26<sup>th</sup> International Conference on **Advanced Nanotechnology**  
&  
2<sup>nd</sup> Edition of International Conference on  
**Materials Technology and Manufacturing Innovations**

October 04-05, 2018 Moscow, Russia

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**Separation of medical nanopowder from the natural minerals by ScCO<sub>2</sub>**

The traditional methods, we experimented, have unique advantages keeping ScCO<sub>2</sub> in the primary material by simple, cost ineffective and high productive way, avoiding necessity of grinding a material to a smaller particles, using chemical salts. It is green, ecologically pure and ready to use for industrial production. In the world practice, in order to derive medical nanopowder ScCO<sub>2</sub> is usually added to the target material either in gas or liquid form. In contrast to this, in the Mongolian traditional technology the thermal processing of medical material does not loose CO<sub>2</sub> and keeps it in the target material. By this work, we aimed to prove that our experiment made on the basis of the traditional technology is performed at the current nanotechnological level and to explain it's scientific substantiation by modern scientific expressions. Nano-sized medical raw materials has been derived from the medical quality natural spar (CaCO<sub>3</sub>) without the use of chemical salt. The theoretical base of the method consists in the transferring and keeping CO<sub>2</sub> to a supercritical state during thermo-chemical processing of the spar at 900-9500C. The ScCO<sub>2</sub> has a form of solid solution that holds the properties of both gas and solid. Afterwards, with dissolving it in the cow milk, the solution is equalized by the solvents expansion with the decrease of temperature and creates amorphous crystal nanopowder. The size of the resultant product C<sub>3</sub>H<sub>3</sub>CaLuO<sub>6</sub> was determined both by XRD and TEM analysis as to be 13.51 nm(Lu>13.09 nm).

**Biography**

**Jambiin Oyun** is a Professor in Chemical Department of Technology Division at the Ulaanbaatar State University of Mongolia. She has completed her Graduation at Irkutsk State University named AA Zhdanov specializing in chemistry. She has completed her PhD and the thesis is entitled as "Concentration and determination of microquantities rare earth elements from minerals and rocks by polymeric chelating sorbents" and has completed her ScD on the topic "Scientific basis of traditional technology for the treatment of pharmaceutical minerals in Mongolia" at the Mongolian Academy of Sciences and Chemical Science in 2002. She has published 16 monographies, over 30 scientific papers, 213 popular-scientific articles and presented more than 30 reports at the foreign and Mongolian scientific conferences. She has received 10 patents, 9 utility model certificates, fulfilled 4 scientific projects and supervised 7 doctoral and 33 master's works.

**Munkhjargal Sharaviin** is currently working as a Senior lecturer in the School of Physics at National University of Mongolia, Mongolia.

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