Gold nanoparticles produced by ultrasonic spray pyrolysis
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Main aims
1. New process for gold recovery from the jewellery scrap
2. Synthesis of gold nanoparticles using an ultrasonic spray pyrolysis method
3. Control of particle morphology

Experimental method
Parameters:
- Temperature (°C): 300-800
- Time (hour): 2
- Ultrasonic frequency (MHz): 2.5
- Atmosphere: H₂ and N₂
- Flow rate (L/min): 3-5
- Au-concentration (3-5 g/l)

Nanogold particles and its application

NASA: Nanogold rods against cancer
Goldparticles as Nanoresonator

Mechanism of USP- synthesis

Results
Different shapes (rods, sphere, and round forms) of Au nanoparticles were obtained in H₂- and N₂-atmosphere

Conclusion
Spherical and rod nanosized particles of gold were synthesized by ultrasonic atomization of chloride-nitrate solutions based on gold and alloying elements (Cu, Ag, Zn and Ni) and a subsequent decomposition of obtained solution at temperatures 300°C and 800°C in hydrogen and nitrogen atmosphere.

Future research steps
Synthesis of nanoparticles from water solution based on gold in the absence of any impurities.
Testing of biocompatibility and an application of nanogold in medicine and catalysis

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