

## Research project IZS VE 01/11

### Antibacterial activity of nanoparticles in food packaging: efficacy and potential consumers' exposure

Project coordinator: **Antonia Ricci**

The objective of this project is to evaluate the antimicrobial effect of different nanoparticles (NPs) against bacteria potentially present in food of animal origin and the effectiveness of silver nanoparticles (AgNPs) as antimicrobic when present in food contact materials (FCMs) intended both for single use or re-usable. Furthermore, the transfer of NPs from packaging material to food will be evaluated for the potential impact on the consumers' health. Due to the risk concerns posed by AgNPs, we will compare the antibacterial activity of different NPs and/or polymers containing different NPs, such as ZnO and Chitosan or other, to the results obtained with AgNPs, because of their advantages in terms of affordability and safety.

Moreover AgNPs single use materials will be tested to assess the efficacy in prolonging food shelf life in different packaging conditions, in order to simulate the potential marketing scenarios, while coated re-usable containers will be tested in household conditions to evaluate their activity in preserving food hygiene and/or safety. In order to assess consumers' NPs exposure, we will also test the differences of migration into different food matrices, simulating different packaging conditions and different house managing (conservation and use) practices.