Nanotechnology

Applications in fisheries and aquaculture: global and Norwegian opportunities and challenges

This is an ongoing pilot-project aimed at searching of areas in fisheries and aquaculture where Nanotechnology could be applied in the short and long term.

The possible areas where Nanotechnology could be applied including are:

- Production of more effective fish feed for aquaculture species. Improving of the physical, chemical and nutritional quality of feed and their respective ingredients by application of Nanotechnology in the different steps of their manufacturing.

- New materials in the different aspects of fisheries and aquaculture. These include: antifouling in fishing and aquaculture nets, antibacterial substances for aquaculture tanks and new packaging materials for seafood products transports, new devices for detection of shelf life of sea products, etc.

The Nanofood Market

Only in food nanotechnology an estimated market is about 22 billions USD for 2010 and this figure is expected to grow. The applications to aquatic products are still under development and SINTEF Fisheries and aquaculture has an intention to be a pioneer in these applications.
Research on the health effect of Nanotechnology

SINTEF Fisheries and aquaculture is interested to evaluate possible risks associated with introduction of Nanotechnology to understand the processes involved in the applications of new technologies. In every new application where nanotechnology will be used we will evaluate environmental impacts of this new technology and at the same time we will protect the health of people. Some of our concerns are:

We need to study many possible processes that will alter the properties of nanoparticles once they are released in nature.

Although remediation with the help of free nanoparticles is one of the most promising environmental nanotechnologies, it might also be the one raising most concerns.

The size of nanoparticles and our current lack of metrological methods to detect them is a huge potential problem in relation to identification and remediation both in relation to their fate in the human body and in the environment.

Even with these challenges Nanotechnology is opening new ways of solving problems in our life and many new applications are constantly invented.

Health effects of Nanotechnology

Environmental impacts of nanotechnology have become an increasingly active area of research.

Some types of nanoparticles are expected to be benign and are FDA approved and used for making paints and sunscreen lotion etc. However, there are also dangerous nanosized particles and chemicals that are known to accumulate in the food chain and have been known for many years.

New applications of Nanotechnology will imply that we need to be aware of health effects to people, animals in the impact to the environment.

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