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Nanotechnology Turns Food Science on Its Head

It's food, but not as we know it... Advances in nanotechnology look set to shake up the foods of the future. Nanotechnology can be defined as the engineering of functional systems at the molecular scale. And in plain English? Nanoscience allows men in white coats and goggles to tweak the tiniest of substances. One nanometre is a billionth of a meter, or, perhaps easier to get your head around; a human hair is 80,000 nanometres wide.

Why the interest in nanotechnology? The properties of everyday substances like aluminium change remarkably at nano-level, opening up a previously unimaginable world of opportunity for advances in fields from health and beauty to manufacturing and electronics. Food science is one such area that looks set for a nano revolution. Foods containing nano materials are already on sale in America, and although they have yet to reach Europe, you can bet your bottom Euro that they will soon, because there is very little regulation in place to halt the progress of this emerging technology, and the commercial opportunities for the food industry are enormous.

Perhaps first on the shelf will be food packaging using nanotechnology that promises self-cleaning properties. But that is just the tip of the iceberg. Things get more Willy Wonka-esque when you consider the potential applications of nanoscience. Fancy white wine, not red? Nanotechnology could change the colour of your wine, or dissolve oil into water. Nano capsules would allow for almost any substance to be suspended in liquid without affecting flavour or appearance. Nano encapsulation could be used by caterers to allow chefs complete control over the strength of a smell, flavour or texture of a dish, or by domestic consumers to pick exactly what flavour they want their food to have. Nano filters could enable you to choose how much caffeine you want in your coffee. Food manufacturers are already planning to use nano encapsulation to reduce the fat and salt contents of processed foods without losing flavour and feel good texture. Nano sensors are already in the pipeline, to spot the growth of nasties like salmonella during food processing.

The future's not only looking bright for food science; it's also looking tiny.