

Royal Institute of Technology in Sweden has demonstrated how manufacturers">



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## Breaking News on Food & Beverage Development - Europe

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# How to turn old garbage into brand new packaging

**10/05/2004- A scientist at the [Royal Institute of Technology](#) in Sweden has demonstrated how manufacturers can make environmentally-friendly packing out of garbage.**

Mikael Gällstedt has managed to make the bags impermeable to oxygen but so far not to all liquids. Gällstedt studied three organic materials – chitosan, wheat gluten and whey – to examine how they could be adapted to function as packaging material.

Chitosan is a substance extracted from the shells of insects and crustaceans while wheat gluten is attained after removing the starch in flour. Whey, of course, is a common by-product of cheese-making.

Mikael has managed to make the materials impermeable to oxygen but thus far not to all liquids. In that case, the structure of the materials must be able to withstand higher pressure, but he believes he will soon be able to solve this problem.

*"With a little more research, these three materials should be perfectly suitable for various types of packaging," he said, "It should be possible to make bags for chips, juice cartons and bags for powders and sauces. Many packages today use some form of aluminium layer."*

Mikael has carried part of his research at Korea University, and he says that there was a great deal of interest among Asians.

*"In several countries people live very close to each other and have major problems with waste disposal. These biological materials can be composted or burned for energy production, both environmentally friendly methods. We make use of garbage that otherwise would have simply been thrown away. It should even be possible to make them edible."*

Such innovations in packaging are becoming more and more apparent. Food manufacturers are waking up, not only to their ecological responsibilities but also to the fact that consumers want products that don't damage the environment. As a result, there is a discernible growing trend towards biodegradable packaging.

For example, edible wraps made of fruit and vegetables and plastic wrapping that incorporates basil are also being developed. The products are said to be water repellent, and according to the developers, contain the equivalent nutritional value of a fruit or a vegetable.

The wraps are made from a concentrated puree of fruit or vegetable. Vegetable oils are then added to ensure they are waterproof, and the film is then cut into pre-formed sheets or envelope shapes. Developer Tara McHugh, a food chemist at the department of agricultural research in California, says that an average pack size contains the equivalent nutritional value of a fruit or a vegetable.

*"The wraps could provide a glaze or a sauce for cooking – you can use a tomato or ketchup flavour for hamburgers when you freeze them and cook the whole thing, wrap and all," she told the Journal of the American Chemical Society.*

In addition, a recently published report in the Journal of Agricultural and Food Chemistry highlights how the herb basil, when incorporated into plastic wrapping can enhance food safety. The basil,

which has long been known to contain bacteria-fighting properties, is incorporated into the plastic wrapping to preserve foods.

Before these products get near the shelves however, they will have to pass stringent health and safety requirements. At present the situation is highly confused - the EU Directive (92/62/EC) has just been revised, and targets for packaging waste recovery and recycling have been increased. The definition of packaging has been amended and new prevention obligations have been introduced.

But the need for greater recycling in packaging has never been greater. The number of grocery packages is constantly growing, and most packages that are made of plastic only add to growing mountains of waste.

In addition, Datamonitor statistics show that more than one-third of European consumers live alone and are spending €140 billion a year on food, drinks and personal care products. In fact, single people spend 50 per cent more per person on consumer-packaged goods than a two adult household. This means that packaging is being used up faster than ever, and that therefore the need for biodegradable alternatives is ever more pressing.

Mikael Gällstedt is a doctoral student at the Royal Institute of Technology, Fibre and Polymer Technology. His research is commissioned by STFI-Packforsk, a centre for research and development of fibres, packaging, and printing, a research institute funded by the industry, Vinnova, IRECO, and the EU.

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