

Making ice-cream more nutritious with meat left-overs

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Food industries are now turning meat left-over into high-protein content ingredients for food supplements, or to be added to processed food. But a EU-wide regulation covering them is still lacking.

Most of the animal proteins found in the meat industry waste have, until now, been underutilised. The challenge is to transform such waste into food of higher functionality and added value. Thanks to the findings of the EU funded [PROSPARE](#) project, it is possible to reuse the protein and lipid fraction of disused food, according to project co-ordinator Arnaldo Dossena, who is the head of the food science department at the

University of Parma, in Italy.

Up to 50% of the animal weight processed in the meat industry is discarded as left-overs and ends up composted or incinerated, despite being rich in proteins and lipids. Turning the lipid fraction of such waste into biodiesel has proven too expensive. So the focus is now on reusing proteins. Today, only 22% is converted by the food industry into feed and barely 3% is consumed as food. The problem is that recovery methods are energy intensive. They also convert the source proteins into meals with poorer digestibility and nutrient properties as well as a low commercial value.

Thanks to a process involving enzymes to digest food, poultry left-overs such as bone and meat trimmings can be converted into proteins dubbed functional animal proteins hydrolyzates. They differ from existing protein hydrolyzates, from eggs, buttermilk, or fish already on the market in that they have a higher content of nutritionally useful amino acids. They can be used as supplements for sports diet, to help build up [muscle tissue](#), and as additives in processed food, for example. So far, some of their properties—namely prebiotic, antimicrobiotic, antioxidant and hypotensive—have been demonstrated in vitro.

The technology developed under the project is now being tested by a Belgian food company, called [PROLIVER](#). It is hoping to enhance the nutritional quality of its protein hydrolysates, already sold in dietary, health and sports [food supplements](#). One of the project partners, Mobitek-M, which is a Russian company specialised in production of protein-enriched food stuffs, is also planning on including these products into ice-cream, under the follow-up Rosano Project. They have built a plant in the Belgorod region of the Russian Federation, which is about to start of transforming functional animal protein at a capacity of one hundred tonnes per day.

Some see a real advantage in this approach. "I think in Europe the most important part of such an approach is to reduce the impact of the [food] production on the environment," explains Vegard Segtnan, senior researcher at the Norwegian Institute of Food, Fishery and Aquaculture Nofima, located in Tromsø. He also believes that there is also a market for these specialised protein products that are easily assimilated by the body for sick people, the elderly and athletes. "The materials have a one up to two years shelf life," Dossena tells youris.com, "[they] can be used to increase the protein count where there is a protein deficit since they contain many free [amino acids](#) [which are therefore easily absorbed]."

These products aim to complete the gamut of protein-based products present on the market. However, there is currently no EU-wide specific regulations for them. Instead, they are approved on a case-by-case basis in individual EU countries. Protein hydrolyzates approved in national EU markets need to qualify as a specific food product category, according to Karin Verzijden, a food regulatory expert at law firm Axon lawyers, in Amsterdam, the Netherlands. For example, these products might qualify as dietary supplements. "It really depends on the emphasis that is put on their ability to be digested much quicker than regular proteins for instance," Verzijden tells youris.com.

In addition to qualifying as food dietary supplement, experts disagree as to whether they might either qualify as novel foods used as food ingredients, or as additives. It partly depends on whether they were not already used for human consumption within the EU market prior to 1997, when the EU novel food regulation entered into force. Until further clarity regarding the food category these applications would be considered under by the [food](#) regulator at EU-wide level, it may be a while before they reach their potential users.

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