

# Vegetarian alternative

TEXTURIZED WHEAT PROTEINS ARE AN ALTERNATIVE FOR SAVORY AND SWEET FILLINGS FOR VEGETARIAN PRODUCTS AND BAKED GOODS FOR HEALTH-CONSCIOUS CONSUMERS



**+** In May 2009, the City of Ghent in Belgium declared every Thursday to be “Veggie Day”. The residents are asked to abstain from meat and shellfish and eat only vegetarian food on that day. The Labour Party councillor, Tom Balthazar, supports this concept. He said, „There’s nothing compulsory. We just want to be a city that promotes sustainable and healthy living.“

Meat, in particular red meat such as beef, lamb or pork, is considered to be problematic not only for one’s health but also for the climate. The production of meat is responsible for almost one fifth of the man-made greenhouse gas emissions. Cattle farming consumes enormous amounts of water and plant raw materials which may contribute to human nutrition to a much larger extent than the meat quantity produced from them.

Nutritionists claim that red meat may be responsible for a number of diseases of civilization. They recommend cutting back consumption

drastically and considering red meat as a luxury food that is eaten only sometimes and in small amounts.

The consumption of meat is being put under pressure from several directions. People who enjoy their meal and even dare to take seconds or thirds are increasingly viewed as culturally, politically and socially handicapped.

The change in awareness has already begun amongst the younger, well educated and high earning groups within the society; others are about to follow.

With increasing demand, the spectrum of quality products also increases. Normal cheese or spinach-feta cheese fillings will not be able to satisfy the demand any longer. Soy products, once a popular protein source for vegetarians, have turned into the mother-of-all genetically engineered food ▶



**++ figure 1**  
Wheatmeat® granules



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(thanks to Monsanto and other companies) and therefore not an alternative any more.

One solution that has baking technology benefits and a high freeze-thaw stability are texturized wheat proteins as the ones offered by Kampffmeyer Food Innovation, Hamburg, for example.

The product branded as Wheatmeat® is a textured product made from high protein wheat flour fractions. The technological influences during the extrusion modify the hydrogen and disulfide bonds of the protein (figure 2).

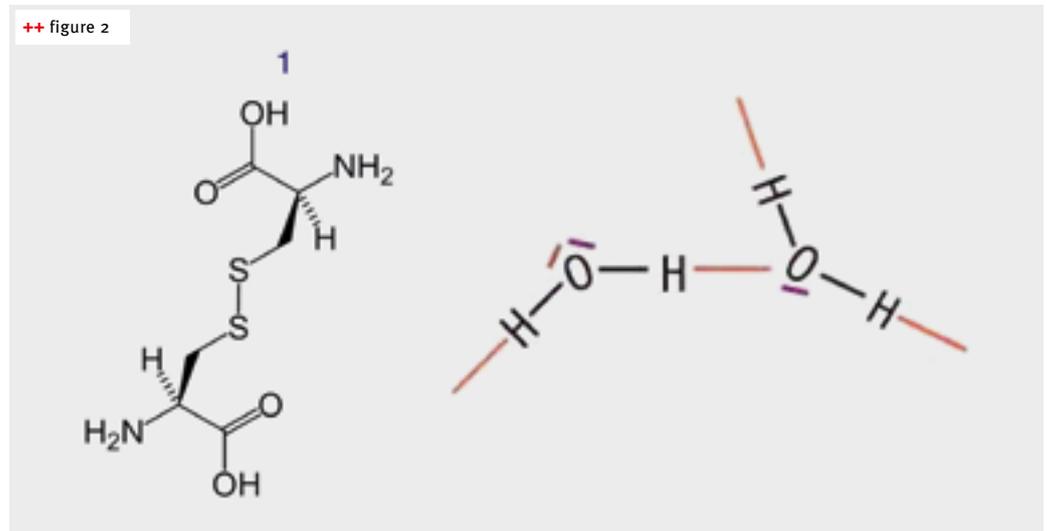
During extrusion, the protein is subjected to steam, temperature and shear over a defined period of time which causes the existing bonds to break. Due to the combination of parameters, the protein molecules stretch and align themselves again in laminar layers. The properties of these laminar layers are responsible for the bite, the texture and the swelling characteristics of the texturate. Such laminar structures are

characteristic for meat while plant proteins most often are clustered.

The product is offered in different granulation sizes from dusty middlings (particle size below 0.5 mm) to chunks (particle size 6-11 mm). Wheatmeat offers a high water binding capacity which is also resistant to cooking, baking, freezing and thawing processes. The taste is pleasantly “like grain”. Products made with Wheatmeat can be roasted like meat; they also turn brown and develop roasting flavors.

Prior to use, the ingredients have to be rehydrated. The mixing ratio is 1-3 parts Wheatmeat and 3.5 parts water; the mass must be allowed to swell for about 20 minutes before it can be mixed with vegetables and spices for savory snack fillings. These fillings will not develop any cavities after baking contrary to the well-known feta cheese-spinach fillings. When coextruded with softer masses, fried Falafel-type balls or patties can be created. The product can also be used for sweet fillings. +++

++ figure 2  
Disulfide and hydrogen bonds  
in a protein



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