

## A new trend in catering - chicken gelatin or a new way of using poultry slaughter waste

### Development status

#### Phase 3

**Technology validation and implementing it in real environment.** Testing the technology outside of the laboratory and its adjustment to external conditions.

### IP protection status

Czech patent granted 307665, European patent application pending

### Partnering strategy

*Collaboration, licensing*

### Institution



**Tomas Bata University in Zlín**

### Challenge

Globally, there is a growing demand for gelatin, which we are able to produce from chicken parts, which are currently considered offal and are rich in collagen. The main motivation was to use collagen-rich chicken parts, which today are only seen as slaughter waste, and to use them for the production of gelatin, for which demand is growing worldwide (it has increased by approx. 20% in the last 6 years alone). Due to increasing demand, manufacturers are becoming interested in alternative non-mammalian sources of collagen. Especially for consumers from Islamic, Jewish and Hindu countries, chicken gelatin is an interesting alternative. The use of gelatin is quite broad. It is used in cosmetics, in the food industry, in feed mixtures, etc. Gelatin and gelatin hydrolysates are used in cosmetics and in the food industry. They are part of biopolymer films, plant growth stimulators, in addition to food and feed mixtures. Chicken gelatin is an alternative to beef, pork and fish gelatins.

### Description

While existing raw material processing technologies used either acids or bases (which burdens the environment), the proposed technology processes the raw material in a newly developed biotechnological way (using a proteolytic enzyme). The method is economically and technologically more advantageous and at the same time more environmentally friendly - it is a practically waste-free technology. Poultry gelatin prepared by our technology has a high gel strength (up to 300 Bloom) and a very low ash content ( $\leq 2.0\%$ ), thus meeting the strictest pharmaceutical and food standards. Poultry gelatin production technology is optimized from the point of view of more effective evaluation of the input raw material - the yield of gelatin corresponds to more of the potential of the raw material than is the case with existing technologies and represents a practically waste-free technology. The technology is suitable for the fractionation method of

processing the initial protein substrate. At a lower extraction temperature, first high-quality gelatins are prepared at a relatively low degree of conversion ( $\approx 30\%$ ), and at increasing temperatures, gelatin with a lower gel strength is obtained with a better use of the starting raw material.

## Commercial opportunity

Gelatin can be used in the food industry (e.g. production of sweets, additives to meat products, production of nutritional products), in the pharmaceutical industry (production of tablets, soft and hard gelatin capsules), in cosmetics. Possible application in countries where Halal and Kosher certifications are required, when chicken gelatin replaces pork gelatin. Likewise for consumers rejecting beef products for religious reasons, e.g. Hinduism. Gelatin manufacturers are looking for alternative sources of collagen, as the global consumption of gelatin is constantly growing (it has increased by approx. 20% in the last 6 years alone). There is also a growing demand for gelatins made from non-mammalian sources, particularly among consumers in Islamic, Jewish and Hindu countries. With the size of the states and the population with this preference, the quantitative impact in the production volume of this gelatin is clear and possible. Economic and ecological reasons for the evaluation of the by-products of the meat processing industry force the producers of these wastes to look for ways of their further utilization. In the global market, poultry gelatins represent only a fraction of gelatins made from beef, pork and fish raw materials.