

A Greener Gelatin? New Technology Is Changing the Game

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

Granted European patent and Czech patent No. 307665

Partnering strategy

Collaboration, licensing

Institution

Tomas Bata University in Zlín

Vlastník

Univerzita Tomáše Bati ve Zlíně

Challenge

As sustainability and food waste reduction gain importance, the food industry is introducing an innovation: chicken gelatin. Made from parts of chickens that would otherwise be discarded—such as skin, bones, and cartilage — it's rich in collagen, a protein essential for healthy joints, skin, and hair. It's produced by slow cooking, which releases collagen into the liquid that solidifies when cooled. While these parts were once used mainly in animal feed, they are now the basis for new products — from protein supplements to alternatives to traditional gelatin. This trend fits into the “nose-to-tail” philosophy, which promotes full animal utilization and waste reduction. Chicken gelatin may thus be a step toward more sustainable eating.

Description

Traditional gelatin production often relies on chemicals like acids or alkalis, which can harm the environment. But a new approach is turning things around — using biotechnology and special enzymes that naturally break down proteins. The result is a more eco-friendly and nearly zero-waste process. This method is not only better for the planet, but also more efficient. It extracts more gelatin from the same amount of raw material — and in high quality. Chicken gelatin produced this way has a strong gel strength (up to 300 Bloom) and very low ash content (under 2%), meeting strict pharmaceutical and food industry standards. The technology also allows for fractionated processing — at lower temperatures, it yields premium gelatin, and at higher temperatures, it extracts the rest. This means nearly all of the raw material is used, minimizing waste.

Commercial opportunity

Chicken gelatin is finding wide application across various industries. In the food sector, it's used in confectionery, meat products, and nutritional supplements. In pharmaceuticals, it's essential for tablets and gelatin capsules, while in cosmetics, it's valued for its firming and

moisturizing properties. It holds particular significance in countries requiring Halal and Kosher certifications, where it can replace pork-based gelatin. It's also a suitable alternative for consumers who avoid beef products for religious reasons, such as in Hindu communities. Global gelatin consumption continues to rise—by about 20% over the past six years. With that comes growing demand for non-mammalian sources. Consumers from Islamic, Jewish, and Hindu-majority countries represent a significant market segment, directly influencing production volumes. At the same time, producers are seeking ways to better utilize by-products from the meat industry—not only for economic reasons but also for environmental sustainability. Despite this, chicken gelatin still represents only a small fraction of the global market, which is dominated by bovine, porcine, and fish-based gelatins. But that may soon change.