Preparation and characterization of high quality gelatin from different poultry sources

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OBJECTIVE

This project is aimed at extraction of high quality gelatin from underutilized poultry sources. The project is the continuation of larger program which aims to scale up a platform of technologies to extract valuable compounds from low value poultry meat (i.e. mechanically deboned poultry meat; MDPM and poultry biomass).

WHY

Gelatin is a widely used biopolymer derived from collagen from animal skin and bones; which is commonly used as gelling agent in food, pharmaceuticals and other cosmetic industries. In food industry it has been used as clarification agent, stabilizer, and protective coating material (Adler-Nissen, 1985). Gelatin is a fat-free ingredient with high protein and almost calorie free. Over the years the global demand for gelatin has been increasing. The annual world production of gelatin is nearly 326,000 tons. The main sources of gelatin are pig skin, bovine hides and bones (Figure 1, GME, 2009).

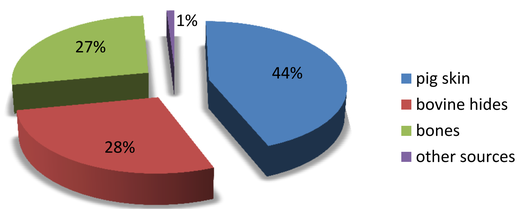

Fig. 1 Sources of gelatin

Even though the most popular and widely used gelatins are from porcine and bovine origin; its use is limited due to dietary and religious customs. The perceptions of possible contamination of bovine extracts with BSE prions have made these sources less attractive to both processors and the consumers.

The mechanical deboned poultry carcass contains great amounts of bones and cartilage, which are rich source of collagen. These parts are usually underutilized.

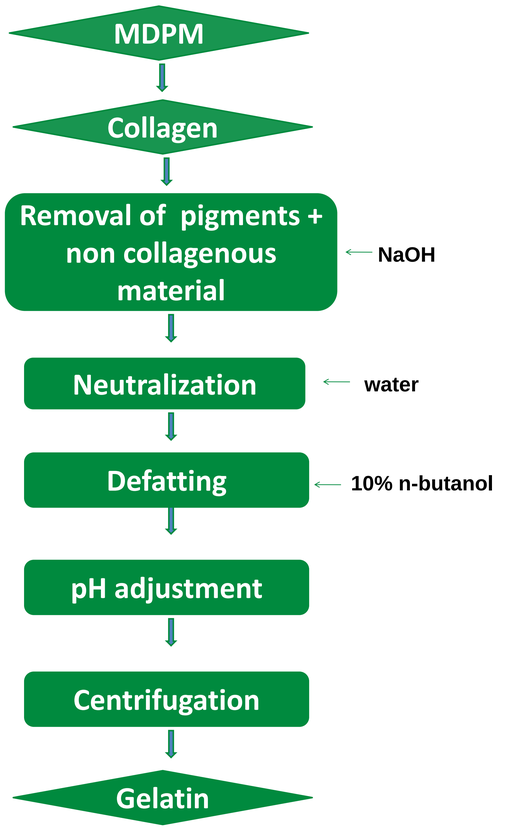

Fig. 2 Flow chart of gelatin preparation

HOW

Collagenous material will be obtained during the extraction process using pH-shift technology which has been established by Hrynets *et al*. (2010) for isolation of proteins from mechanically deboned poultry meat.

Collagen will be purified by alcali treatment, defatted and then hydrolyzed to gelatin using different methods. Figure 1 shows one of the methods considered.

Physico-chemical, rheological and functional properties of the prepared gelatin will be evaluated and compared to those of traditional gelatin.

EXPECTATIONS

✓Obtaining a new product allowing to overcome the problems due to the use of traditional gelatin.

✓High consumer acceptability of poultry gelatin

✓Valorization of by-products of poultry processing.

REFERENCES

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