AMPC

SNAPSHOT

AUSTRALIAN MEAT PROCESSOR CORPORATION

Value Adding

Project Report Reference: 2016.1037 **Date: 2 June 2016**

Project Description

Milestone 1: Briefing document summarizing technical and economic review of previous works. A desk-based review of previous technical and economic works. Case studies of potential products were presented. Survey results of stake holders were analyzed and to determine technical interest. An "Expression of Interest" briefing document was generated for potential meat processing companies.

Milestone 2: encompassed release of an Expression of Interest with associated case studies. Management of responses including interviews. Short listing of businesses willing to engage in the process. An analysis of the supply chain stake holders was completed to understand drivers and to start framing communications with businesses up and down the supply chain.

Milestone 3: independent cost-benefit analysis (CBA) which required definition of a high level, basis of design to clarify key assumptions of the work such as scale, product purity and quality requirements, and discussion of the suuply chain from a specific site, sent to a specific value then to a specific retailer. From a meat processors perspective, completion of a more detailed CBA taking into account what would be required at a meat processing facility to capture, segregate, document and transport the feedstock to meet the value adders and retailers requirements. Sensitivity analysis to determine the variables and scenario assumptions that have the greatest impact on the overall economics.

Project Content

Barriers exist at all stages in the supply chain for the development of new, bovine derived value added products. By speaking with stakeholders at all stages in the supply chain, an understanding of current opportunities for new products and how these could be brought to market was developed. Investigations completed by All Energy Pty Ltd (AMPC project 2016.1037) have aggregated input from:

- Survey responses representing 31 meat processing facilities (refer table and figure below).
- Manufacturing / value adding companies spanning a range of products.
- A range of end users and topic matter experts have been contacted including health supplement, nutraceutical, research, industry, university and policy groups.

Project Outcome

The short list of biomolecules for which there is interest at the raw product manufacturing and/or retail level are, in approximate order of interest:

[1] Chondroitin Sulfate (CS) - strong existing demand and clear development pathway.

[2] Collagen - suffers from marketing / labelling ambiguity i.e. collagen versus soluble collagen versus hydrolyzed collagen versus gelatin.

[3] IgG protein crude extract as a food supplement and for immunity boosting - earlier stages of efficacy / product development; longer term opportunity; by-product from other serum products.

[4] Crude enzyme protein fractions (e.g. pancreatin) – strong international demand for Halal pancreatin, however bovine derived pancreatin is expensive to manufacture and has lower enzymatic activity than porcine and an Australian based manufacturer was not found.

[5] Pure enzymes from pancreas tissue (e.g. trypsin, amylase, lipase) – same limitations as [4] above.

Benefit for Industry

Unlocking avenues to develop new and commercially viable value added products for the Australian red meat industry.

Taking chondroitin sulfate (CS) as an example: CS has been considered a commodity and hence not able to be produced from Australian bovine tissue in Australia. This project has uncovered a premium market for Australian derived and manufactured CS where a higher price for the CS can be paid, thereby improving the potential for the manufacture of CS in Australia from Australian bovine tissue. The CS content of trachea depends on the quality of the trachea trimming completed at the abattoir (i.e. meat, membrane and other non-cartilage material). Assuming a clean trachea, the expected CS content is approximately 3-5% on a wet mass basis, at an assumed wet trachea weight of 250 g (the dry content of trachea varies between 25-30%). 100 kg of wet trachea is expected to yield 3 – 5 kg of CS at >80% purity. At an assumed recovery rate of 80% during the value adding stages, 2.4 to 4 kg of CS is expected to be produced (from 100 kg of wet trachea).

In addition to CS, collagen hydrolysate can be produced by this process. Collagen hydrolysate is a soluble, non-gelling collagen ranging in size from 500 to 10,000 Da and averaging 3000 Da.

Contact Information

Australian Meat Processor Corporation Ltd
Suite 1, Level 5, 110 Walker Street
North Sydney NSW 2060
Phone: 02 8908 5500
Email: admin@ampc.com.au
Website: www.ampc.com.au