

## FoSTAT Award-Winning Pork Knuckle Trio redefines healthy Thai cuisine for seniors

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In Thailand, few dishes evoke as much comfort and nostalgia as braised pork leg. But for older adults, the high sodium, fat, and sugar content often makes this beloved dish off-limits. Seeking to bridge that gap between tradition and health, a team from Chulalongkorn University's Department of Food Technology has developed the "Pork Knuckle Trio" a reimagined version of the classic recipe tailored to meet the nutritional needs of the elderly while preserving its signature flavour and texture.

The innovation, which earned recognition at the FoSTAT Food Innovation Contest 2025, showcases how science and culinary heritage can come together to support healthier ageing. In this interview with NUFFOODS Spectrum, Assoc. Prof. Kanitha Tananuwong discusses the inspiration behind the project, the technical challenges of reformulating a comfort food, and the team's vision for bringing this prototype to the commercial market.

**What inspired your team to reinvent a traditional Thai dish like braised pork leg for the elderly population? Was there a specific moment or personal experience that sparked the idea for 'Pork Knuckle Trio'?**

The idea arose from our student, Ms. Chettidaporn Mahaboonpachai. Her grandmother and great-grandmother love braised pork leg. But the dish is not nutritionally suitable for seniors. She brought this issue to the brainstorming session, resulting in the idea generation to create a healthier version of this traditional dish.

**Could you walk us through the R&D journey behind developing 'Pork Knuckle Trio'? What were some of the biggest challenges you faced in reducing sodium, fat, and sugar while maintaining authentic taste and texture?**

Here are some challenges during the development of 'Pork Knuckle Trio':

**Pork meat:** the invention of restructured meat with low sodium. Generally, sodium chloride is required to extract actin and myosin, which help bind the chopped meat in this product. The challenge was to replace sodium chloride with an appropriate enzyme and determine its working conditions (concentration, incubation time and temperature).

**Pork fat:** the creation of a cholesterol-free emulsion gel from vegetable fat. The team needed to find the suitable composition of the fat & oil, and the suitable 'gel' formation ingredients, to create a lard-like smooth texture with less saturated fat.

**Broth:** the formulation with natural umami and kokumi, less sugar and sodium, and without MSG. Team had to select the ingredient combination to provide the flavorful broth with milder taste.

**Your product achieves significant reductions in sodium, fat, and sugar while maintaining high protein content. What techniques or ingredients were key to achieving this balance between health and flavour?**

Here are some key ingredients:

The vegetable fat/oil was used to reduce the saturated fat content.

The leaner pork meat was used in the restructured meat portion.

Natural umami and kokumi were used to provide savory taste with less sodium.

**How does 'Pork Knuckle Trio' specifically address the nutritional and sensory needs of older adults, and how do you see such innovations contributing to healthier ageing in Thailand?**

Elderly people require high-protein foods to prevent muscle loss, with lower fat, sugar and sodium. However, they still prefer traditional dishes. An innovative product like 'Pork Knuckle Trio' is thus tailored to meet their specific health needs, and still maintain the flavor, taste and texture of this specific all-time-favorite dish.

**Do you see potential for commercialisation or collaboration with food industry partners to bring 'Pork Knuckle Trio' to market? What are your plans for scaling or further developing this innovation?**

Since this product can be prepared with the production line used in meat processing industries, it has high potential for commercialization. We are still seeking collaboration to scale-up this prototype.

**Winning recognition at the FoSTAT Food Innovation Contest 2025 is a great achievement. How does this motivate your team, and what future innovations are you most excited to explore in the functional or elderly nutrition space?**

The award will provide inspiration for the team members to further their careers in food industry, or to pursue their graduate studies in food technology-related area. Future initiatives will be matched with the theme of this contest next year, which will be the functional foods for patients with cardiovascular diseases.

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