



農業科技產學合作計畫提案及執行經驗分享

財團法人農業科技研究院 動物科技研究所
主講人：許宗賢 正研究員

以「計畫執行者」來提醒提案團隊如何準備產學合作計畫書

- 一.產學合作動機及目的 (想做的事情很多，是否非產學合作不可?透過業界的加入希望達成的目的為何?)
- 二.夥伴關係建立及深化 (神隊友 or 豬隊友，計畫執行團隊該如何與合作業者互動，有助計畫得以順利運作並增加成功機會?)
- 三.商品化成功關鍵 (政府補助計畫的初衷，都是希望能創造更多產品或產值，執行團隊及合作業者該如何突破研發過程的障礙、商品化盲點?交出漂亮的成績單)
- 四.其他注意事項 (依據過往自身經驗提供潛力提案團隊注意或參考)

一. 產學合作動機及目的

(想做的事情很多，是否非產學合作不可?透過業界的加入希望達成的目的為何?)

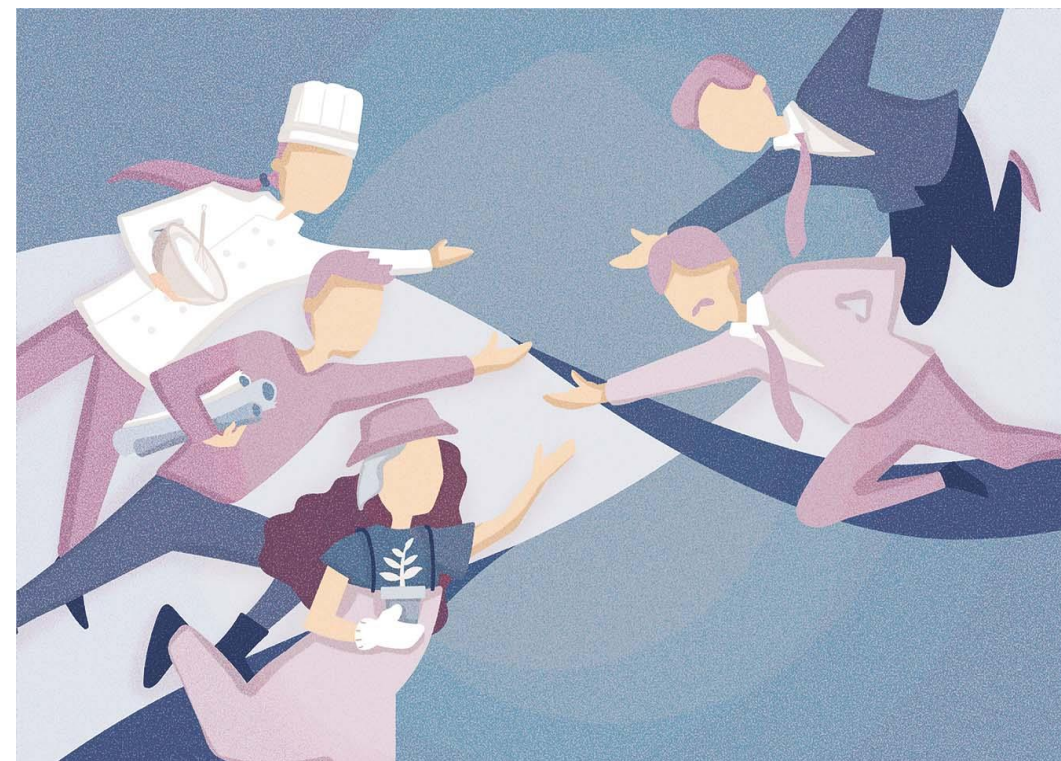
一般科技計畫

VS

產學合作計畫



天馬行空
(從外太空聊到內子宮)



產業需求
(產品的最後一哩路)

新大陆
新大陆
新大陆

新大陆
新大陆



二. 夥伴關係建立及深化


(神隊友 or 豬隊友，計畫執行團隊該如何與合作業者互動，有助計畫得以順利運作並增加成功機會?)



在肉牛產業打滾了10多年的人



充分瞭解產業需求

- 
- A man with glasses and a dark shirt is sitting in a metal cage, likely in a farm or slaughterhouse. A cow is visible in the foreground, partially obscured by the cage bars. The background shows more of the cage structure and some light coming from a window.
- ✓ 建立長期合作基礎關係
 - ✓ 秉持互信、互賴與互惠原則
 - ✓ 創造效益與價值

三. 商品化成功關鍵

(政府補助計畫的初衷，都是希望能創造更多產品或產值，執行團隊及合作業者該如何突破研發過程的障礙、商品化盲點?交出漂亮的成績單)

案例1



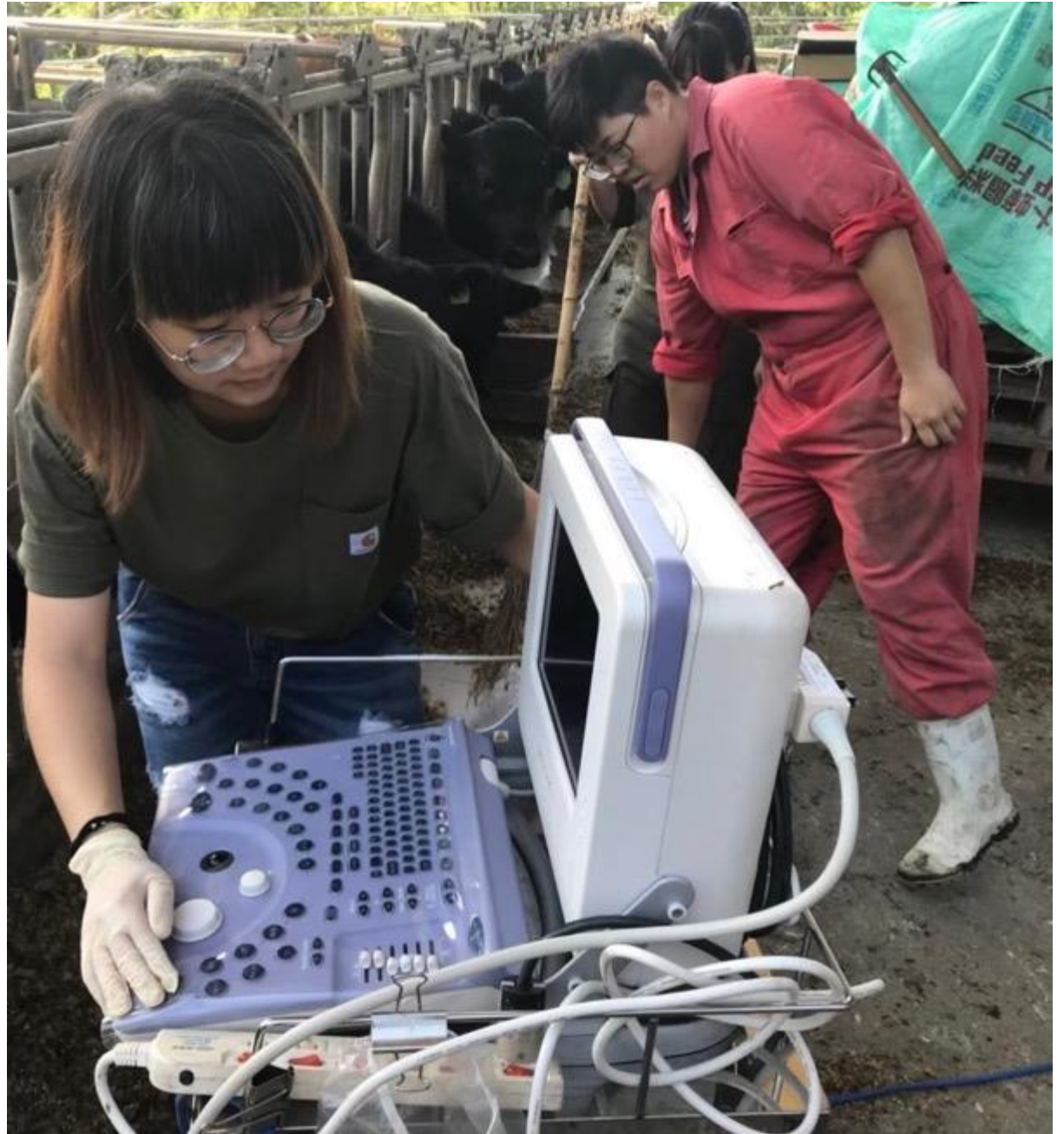
研究單位：財團法人農業科技研究院
嘉義大學
畜試所

合作廠商：金翔生物科技股份有限公司
瓜瓜園



國內規格外甘藷待處理 (6萬噸/年)
問題：不耐貯存、易腐爛







甘藷青貯組
芸彰安格斯



甘藷青貯組
試驗牛



玉米青貯組
試驗牛

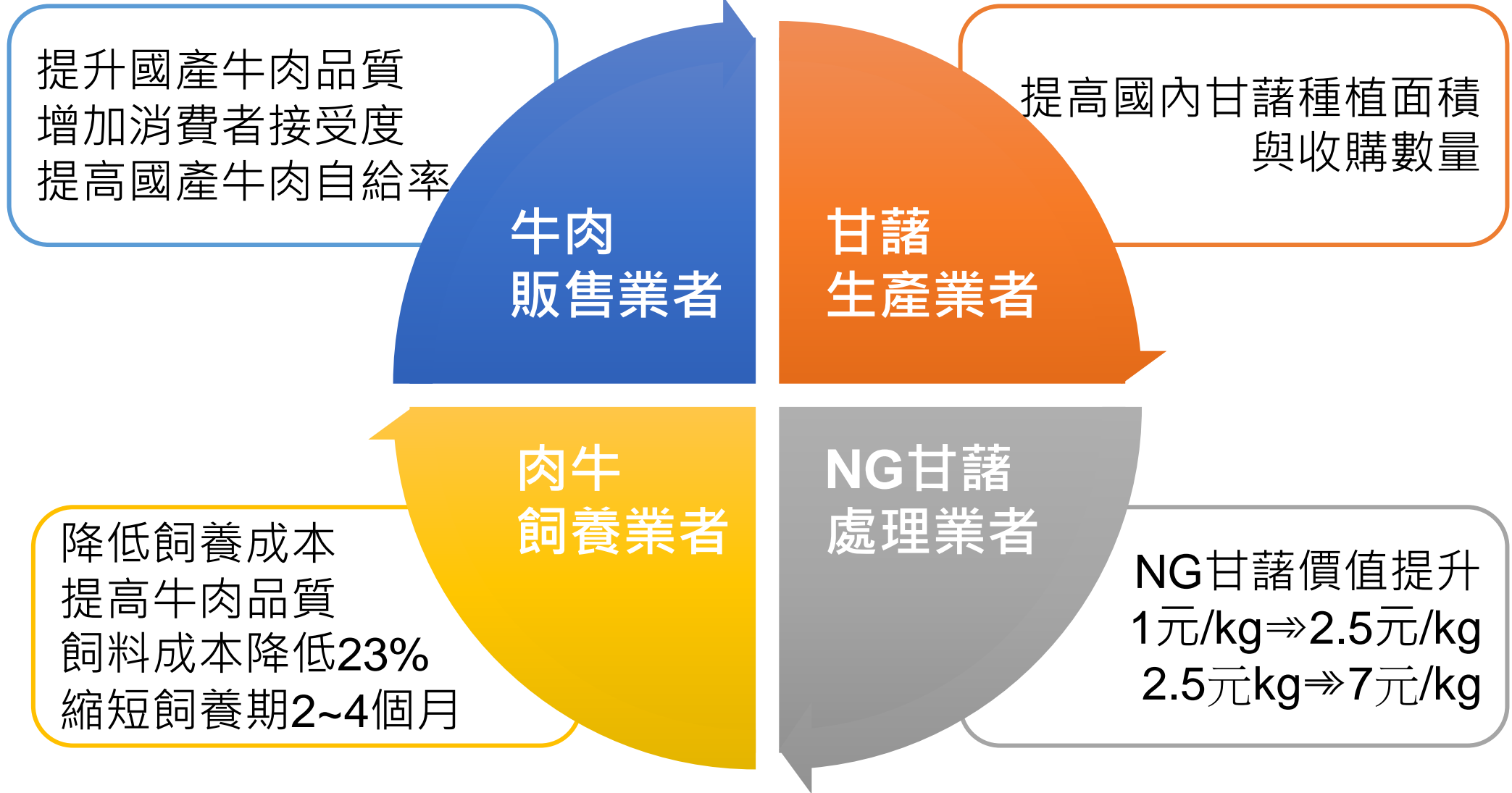
The diagram shows six cross-sections of beef steaks arranged in a row, illustrating the progression of marbling from left to right. Below each steak is a label indicating the marbling level and the corresponding USDA grade. The background is a dark brown color.

多量	次多量	中量	普通量	少量	微量
PRIME 極佳級		CHOICE 特選級			SELECT 可選級
安格斯CAB認證					

▲美國農業部提供之大理石紋油脂標準照片

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金翔生物科技
股份有限公司



財團法人
農業科技研究院



國立嘉義大學

產、官、學，成功合作開發
PROFESSIONAL ANIMAL PROBIOTICS
FIELD OF SWEET POTATTO
益生菌甘藷青貯飼料

GREEN
綠色無毒、環境永續
最新製程技術
最佳菌種配比



Efficient



Eco



「活性益生菌發酵甘藷」有助於：

動物營養品

- ✓ 增加飼料消化率
- ✓ 維持腸胃道健康
- ✓ 提升動物免疫力

Green

Nutritious

Eco

Efficient

綠色

營養

環保

高效

金翔生物科技(股)公司 TEL:06-5957688



➤提高國內格外甘藷之利用率與產品價值

1. 透過發酵米甘藷青貯飼料之開發，**有效解決國內格外甘藷品及飼料碎米之利用率**。預計格外甘藷與飼料碎米妥處量可達各10,000公噸/年。
2. 預計益生菌米甘藷青貯飼料**商品末端售價6.5-7元/kg**，有效提升**國內格外甘藷價格約4.5倍以上**。

三. 商品化成功關鍵

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案例2



羊肉萃取液產品開發

國內餐飲習慣多以冬天吃羊肉，受季節影響甚巨

羊肉無論是在消費習慣還是實質功效上，具有冬天進補的鮮明季節定位，因此，國人對羊肉有補品的觀念，故常有秋冬季始食用羊肉。



未來飲食除兼具健康及便利因子更需，要超越想像

智能科技發達

- ✓ 智能化讓料理過程變得更簡單、健康且快速

全球人口結構改變

- ✓ 消費者對食品需求以安全健康便利、即食性為主

加工技術創新

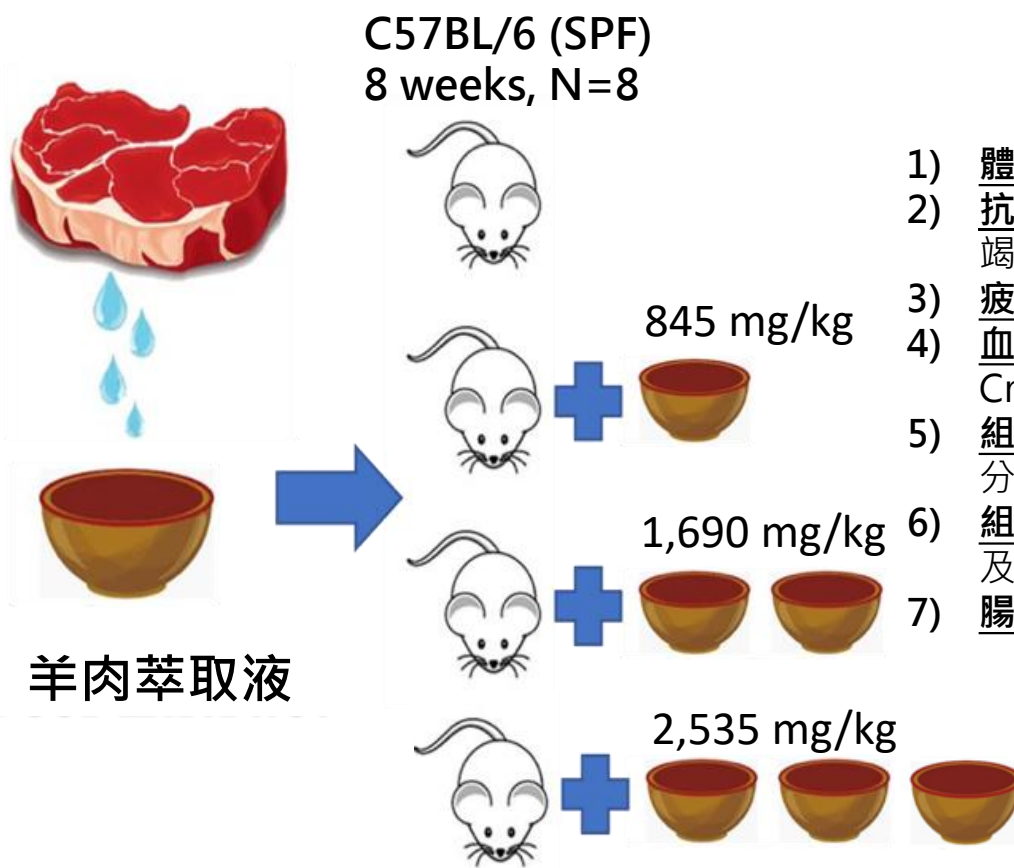
- ✓ 萃取技術讓羊肉有效成分成功萃出，並有效利用

三. 商品化成功關鍵

(政府補助計畫的初衷，都是希望能創造更多產品或產值，執行團隊及合作業者該如何突破研發過程的障礙、商品化盲點?交出漂亮的成績單)



國產羊肉萃取液減緩生理性疲勞動物試驗



- 1) 體重與器官重量
- 2) 抗疲勞挑戰：前肢抓力測試及負重游泳力竭測試
- 3) 疲勞指標分析：運動後乳酸濃度
- 4) 血清生化指標：LDH、BUN、AST、ALT及Creatine
- 5) 組織肝醣濃度分析：肌肉與肝臟肝醣濃度分析
- 6) 組織切片分析：肌肉、肝臟、腎臟、脾臟及心臟
- 7) 腸道菌相分析

Supplementation with goat meat extract improves exercise performance, reduces physiological fatigue, and modulates gut microbiota in mice

Tsung-Hsien Hsu^{a,b,1}, Hsin-Tai Hong^{b,1}, Guo-Chi Lee^c, Shao-Wen Hung^b, Chien-Chao Chiu^b, Chean-Ping Wu^{a,*}

^a Department of Animal Science, National Chiayi University, Chiayi 600, Taiwan
^b Division of Animal Industry, Animal Technology Research Center, Agricultural Technology Research Institute, Hsinchu 300, Taiwan
^c Department of Science and Technology, Council of Agriculture Executive Yuan, Taipei 100, Taiwan

ARTICLE INFO

ABSTRACT

Keywords:
 Goat meat extract
 Gut microbiota
 Anti-fatigue
 Glycogen contents

The goat meat extract (GME) is novel nutritional supplement and may be used to enhance exercise performance or prevent physiological fatigue in older or weak persons. The present study evaluated the potential beneficial effects of GME on exercise performance, anti-fatigue potency, and changes in microbiota composition. Our results showed that 2X to 3X-GME supplementation significantly improved forelimb grip strength and swimming time-to-exhaustion. Serum levels of lactate, AST and LDH were decreased as well as glycogen content of liver was higher in the 3X-GME group. The distinguished clusters of gut microbiota were dependent on different concentrations of the GME supplement. The gut microbiota including *Flavobacterium oxidoreducens*, *Neglecta timonensis*, *Raouibacter timonensis*, and *Rubisostella porcinus* were strongly correlated with GME supplementation. In summary, GME supplementation for could improve exercise endurance and did not cause any physiological or histopathological damage. These benefits potential might correlated with the gut microbiota composition alteration.

1. Introduction

Physiological fatigue is a feeling of extreme tiredness, resulting in a broad range of physical and mental unfitness, such as inattention, distraction, and emotion depress (Kellmann, 2010). This condition mean the depletion of energy sources, including the accumulation of end products of fatigue such as lactate, ammonia and a decrease in glycemic levels (Kim et al., 2002). Accompanied by exhausted of anti-oxidant systems and increased inflammatory related products were also reported. Moreover, fatigue is not the only symptom; it induces severe secondary problems, such as anxiety, depression, cognitive impairment, energy imbalance, and immune system dysregulation.

In many Asian countries, traditional foods such as chicken essence and broth made from fish are used to accelerate wound recovery after surgery in older adults, pregnant women, and breastfeeding mothers. Previous reports have shown that supplementation with meat-related foods, such as whey protein, beef extract, and micellar casein might enhance exercise performance (Hsu et al., 2019, 2020). Other studies have found that whey and fish protein hydrolysates exhibit a higher total antioxidant capacity to improve exercise performance (Huang et al., 2013; Chen et al., 2021). Our previous studies reported that beef extract supplementation could significantly reduce physiological fatigue by decreasing serum lactate, maintaining glucose levels, and preserving muscle glycogen. Moreover, beef extract supplementation may provide a novel strategy for managing 5-FU-induced fatigue and toxic effects (Hsu et al., 2020).

Goat meat extract (GME) is a supplement that is rich in protein and amino acids and is mainly constituted of taurine, branched-chain amino acids (BCAAs) and anserine by compound analysis. These contents might play a crucial role in tissue synthesis, energy supply, and health maintenance. On the other hand, changes in gut microbiota composition have been reported to correlation with chronic fatigue

Abbreviations: GEM, goat meat extract; AST, aspartate aminotransferase; ALT, alanine transaminase; LDH, lactate dehydrogenase; BUN, blood urea nitrogen; CRE, creatinine; GLU, glucose; ASV, amplicon-sequence-variant; LDA, linear discriminant 149 analysis; LEfSe, linear discriminant analysis effect size; EPP, epididymal fat pad; PLS-DA, partial least squares discriminant analysis.
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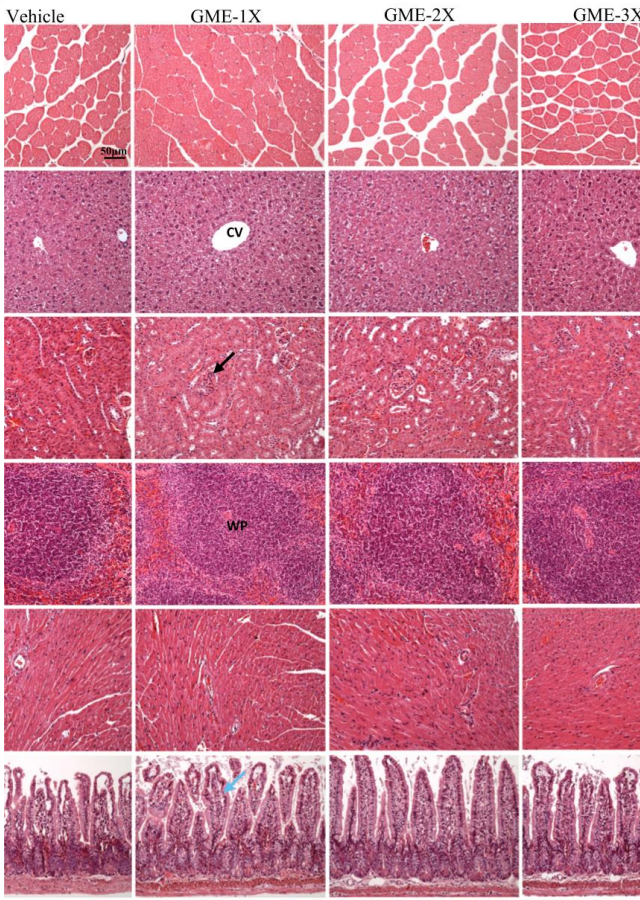


Figure 1. Effect of different concentration of GME on histological changes in (A) skeletal muscle, (B) liver, (C) kidney, (D) spleen, (E) heart and (F) gut. Black arrow (glomerulus) and Blue arrow (mucosa). Specimens were photographed using a light microscope.

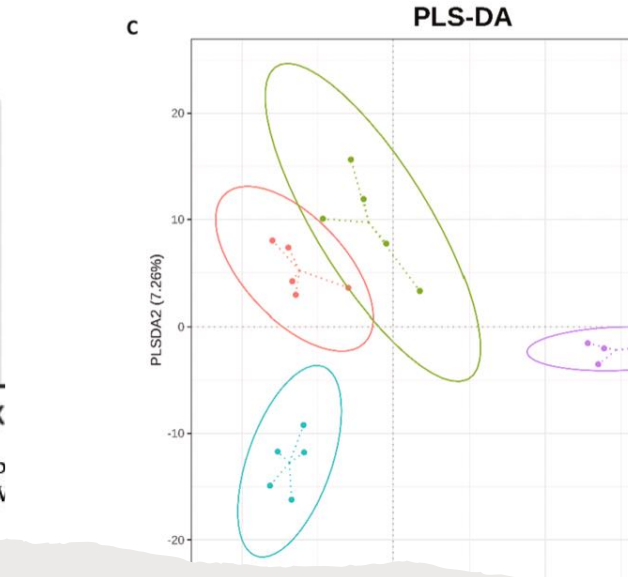
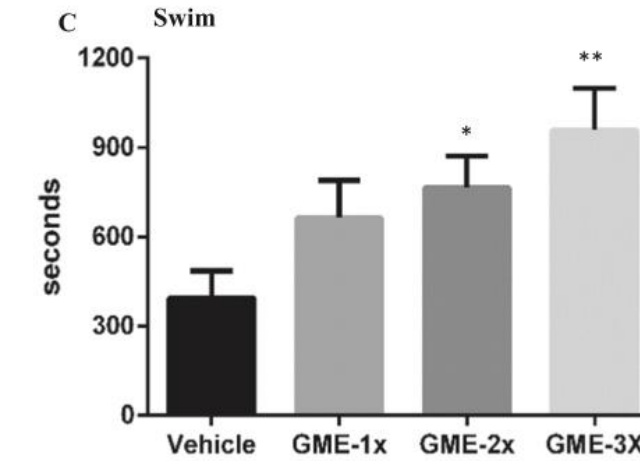
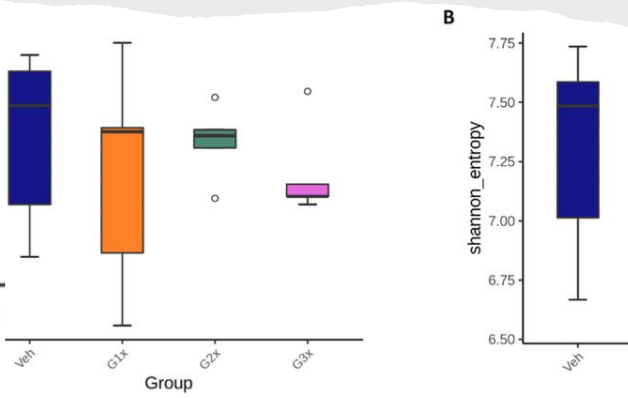
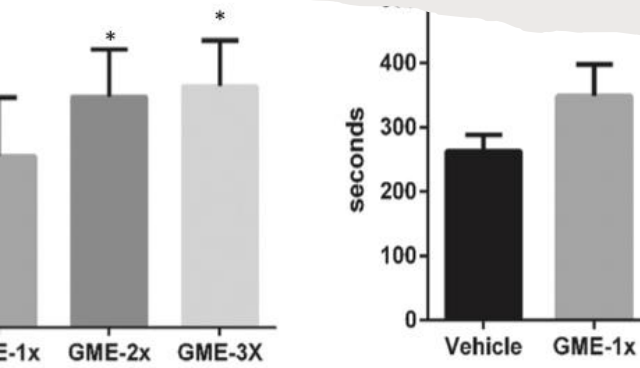


Figure 2. Effect of GME on exercise performance during (A) forelimb grip strength tests, (B) fourlimb swim test, and (C) swim test. * P < 0.05, ** P < 0.01 compared with the Vehicle group.

成果於國際期刊發表

Journal of Functional Foods



羊肉萃取液產品售價分析：

1. 國產羊肉(中等)零售價格 450 元/kg，每包代工費及包材費用約 40 元。
2. 羊肉萃取液製成率以 30%計算：
 - 1) 羊肉 $1,000\text{g} \times 30\% = 300\text{g}$ 。
 - 2) 羊肉萃取液 50cc/包： $300\text{g} / 50\text{cc} = 6$ 包。
 - 3) 每包羊肉萃取液售價 250 元： $6 \text{ 包} \times 250 \text{ 元} = 1,500$ 元。
3. 每公斤羊肉商品價值提升：1,500 元-450 元
(羊肉零售價)-200 元(代工及包材費用)=850 元。

四. 其他注意事項

(依據過往自身經驗提供潛力提案團隊注意或參考)

合作愉快呀~

成果如何展現？



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journal homepage: www.elsevier.com/locate/jff

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研究成果展現 (期刊投稿)

農科院訊息

2021.09.13

「米甘藷青貯料產品製程」非專屬授權受理申請相關注意事項(110.9.13公告)

技術說明

- 一、採用國內農會糧倉貯存過期公糧米磨碎成碎米粉、及甘藷加工過程所產生之下腳料或規格外甘藷切塊作為原料，將甘藷及碎米粉作為粉料開發之原料，亦透過青貯菌劑之添加、青貯製作存放後製成青貯料，有效降低胰蛋白酶抑制劑活性，增加副產物循環再利用性。
- 二、所開發之產品採用青貯處理方式進行，可大幅提升該青貯料之適口性，並可用於降低草食動物飼料精料使用量，有效降低草食動物之飼養成本。

授權方式

- 一、非專屬授權國內登記有案之公司。
- 二、授權期限為5年。
- 三、授權地區為台灣製造、販賣、使用。

申請期限

- 一、自公告日起2個月內(110年11月13日前)受理申請，郵寄資料者以郵戳為憑，逾申請期間始提出申請者，本院保有受理與否之決定權。
- 二、擬參與技術轉讓之廠商，請檢具：
(一)公司登記證明文件影本
(二)技術開發計畫書(格式如附件)

2022.06.10

「國產羊肉萃取液製程技術」非專屬授權受理申請相關注意事項(111.8.11公告)

技術說明

國產羊肉萃取液原料驗收允收標準建立：採用通過羊肉產銷履歷驗證之國產羊肉作為羊肉萃取液之原料，其肉品來源應檢附羊隻屠宰相驗資料，並透過目視與量測等兩種方式進行肉色、肉溫等項目檢測，進而訂定符合萃取液之原料肉允收標準。國產羊肉萃取液製程優化及常溫包裝開發：採用陶甕+高溫蒸氣進行羊肉萃取，並分析萃取液之有效成分(游離胺基酸)含量多寡，另將萃取液進行高溫高壓滅菌(121°C滅菌10分鐘)後進行熱穿過試驗，確認冷藏與常溫之萃取液最適保存條件，以利後續商品化之運輸與販售。

授權方式

- 一、非專屬授權國內登記有案之公司。
- 二、授權期限為5年。
- 三、授權地區為台灣製造、販賣、使用。

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(二)技術開發計畫書(格式如附件)

諮詢窗口

許宗賢 研究員

技術授權



商品化

敬請指教

~ 有業者的需求 才有我存在的價值 ~

