

**ปกปิด**  
**งานบริหารโปรแกรมเทคโนโลยีฐาน**  
**ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ**

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<https://www.biotec.or.th/home/en/food-biotechnology-research-team/>

#### **Education**

1996 – 2000      **B.Sc. (Microbiology)**, Khonkaen University, Thailand  
2000 – 2003      **M.Sc. (Biotechnology)**, Mahidol University, Thailand  
2007 – 2012      **Ph.D. (Food Science)**, University of Massachusetts, Amherst, USA

#### **Professional experience**

2012-Present      Researcher at Food Biotechnology Laboratory, National Center for Genetic Engineering and Biotechnology (BIOTEC), National Science and Technology Development Agency (NSTDA)

#### **Research Expertise**

Food Chemistry, Food Lipids, Food Colloids, Lipid oxidation, Antioxidant application, Lipid modification, Food and Flavor analysis using GC-MS and LC-MS

#### **Publications (2013-2022)**

1. Lee, J., **Panya, A.**, Villeneuve, P and Decker. E. A. (2013) Antioxidant capacities of rosmarinic alkyl esters in riboflavin photosensitized oil-in-water emulsion systems. J. Am. Oil Chem. Soc. 90 (2): 225-232.
2. Laguerre, M., Bayrasy, C., **Panya, A.**, Weiss, J., McClements, D.J., Lecomte, J. Decker, E.A., Villeneuve, P. (2013) What makes good antioxidants in lipid-based systems? The next theories beyond the polar paradox. Crit. Rev. Food Sci. Nutr. 55 (2): 183-201.

## ปกปิด

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3. **Panya, A.**, Kittipongpittaya, K., Laguerre, M., B. christelle, Lecomte, J., Villeneuve, P., McClements, D. and Decker, E. A. (2013) Mechanisms of antioxidant interactions in oil-in-water emulsions: the influence of their physical locations and environmental ph. Inform (International news on fats, oils and related materials) September, 4-6.
4. Kittipongpittaya, K.; **Panya, A.**; McClements, D.; Decker, E. A. (2014) Impact of Free Fatty Acids and Phospholipids on Reverse Micelles Formation and Lipid Oxidation in Bulk Oil. J. Am. Oil Chem. Soc. 91(2): 453-462.
5. Xu. D., Fang, Y., Yanxiang, G., Panya, A., McClements, D. J., Decker, E. A., (2014) Influence of whey protein-beet pectin conjugate on the properties and digestibility of  $\beta$ -carotene emulsion during in vitro digestion. Food Chem. 156: 374-379.
6. Kittipongpittaya, K.; **Panya, A.**; Cui, L., McClements, D.; Decker, E. A. (2014) Association colloids formed by multiple surface active minor components and their effect on lipid oxidation in bulk oil, J. Am. Oil Chem. Soc. 91(11): 1955-1965.
7. Kongsin, J., Gamonpilas, C., Methacanon, P., **Panya, A.**, Meng Goh, S., (2015) On the stabilization of calcium-fortified acidified soy milks by pomelo pectin. Food hydrocolloids (Manuscript accepted)
8. Grajeda-Iglesias, Salas, E., Borouh, N., Berea, B., **Panya, A.** and Figueroa-Espinoza, M. C. (2015) Antioxidant activity of protocatechuates evaluated by DPPH, ORAC, and CAT methods. Food Chem. 194: 749-757.
9. **Panya, A.**, Temthawee, W., Phonsatta, N., Deetae, P., Visessanguan, W., Decker, E. A. (2015) Apolar Radical Initiated Conjugated Autoxidizable Triene Assay: Effects of Oxidant Locations on Antioxidant Capacities and Interactions. J. Agric. Food Chem. 63 (34): 546-7555.
10. Kittipongpittaya, K., **Panya, A.**, Decker, E. A. (2016) Role of Water and Selected Minor Components on Association Colloid Formation and Lipid Oxidation in Bulk Oil. J. Am. Oil Chem. Soc. 93(1): 83-91.
11. Kittipongpittaya, K., **Panya, A.**, Phonsarra, N., and Decker, E. A. (2016) Effects of Environmental pH on Antioxidant Interactions between Rosmarinic Acid and tocopherol in Oil-inWater (O/W) emulsions. J. Agric. Food Chem. 64 (34): 6575-6583.
12. Deetae, P., Tseng, K., Pasuphan, C., **Panya, A.**, Methacanon, P., Temthawee, W. and Suphantharika, M. (2017) Ultrasonic extraction, antioxidant and anti-glycation activities of polysaccharides from *Gynura divaricata* leaves. Chiang Mai J. Sci. 44(1): 144-156.
13. Xu, D., Qi, Y., Li, X., Wang, S., Yanping, C., Wang, C., Sun, B. and **Panya, A.** (2017) The influence of flaxseed gum on the microrheological properties and physicochemical stability of whey protein stabilized  $\beta$ -carotene emulsions, Food Funct. 8: 415-423.
14. Phonsatta, N., Deetae, P., Luangpituksa, P., Grajeda-Iglesias, C., Figueroa-Espinoza, M. C., Lecomte, J., Villeneuve, P., Decker, E. A. Visessanguan, W. and **Panya, A.** 2017. Comparison of Antioxidant Evaluation Assays for Investigating Antioxidative Activity of Gallic Acid and Its Alkyl Esters in Different Food Matrices, Journal of Agricultural and Food Chemistry, 65: 7509-7518.

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### งานบริหารโปรแกรมเทคโนโลยีฐาน ศูนย์พันธุวิศวกรรมและเทคโนโลยีชีวภาพแห่งชาติ

15. Phonsatta, N., Deetae, P., Luangpituksa, P., Grajeda-Iglesias, C., Figueroa-Espinoza, M. C., Lecomte, J., Erwann Durand, E Villeneuve, P., Visessanguan, W., Deetae, P., Uawisetwathana, U., Pongprayoon, W. and **Panya, A.** 2018. Conjugated Autoxidizable Triene-Based (CAT and ApoCAT) Assays: Their Practical Application for Screening of Crude Plant Extracts with Antioxidant Functions in Relevant to Oil-in-Water Emulsions. *European journal of lipid science and technology.* 121:1
16. Charoen. R., Tipkanon. S., Savedboworn. W., Phonsatta. P., **Panya. A.** (2018) Functionality and Application of Rice Bran Protein Hydrolysates in Oil in Water Emulsions: Their Stabilities to Environmental Stresses. 12:8. 240-246.
17. Aungkuldee. W., Kim. SR., Manochai. B., Komkhuntod. R., **Panya. A.** (2018) Physicochemical and Antioxidant Properties of Different Tamarind-water Ratios and Its Application in Mousse. *Kasetsart University Annual Conference, Bangkok (Thailand).*
18. Kittipongpittaya. K., **Panya. A.**, Prasomsri. T., Sueaphet. P. (2019) Tropical Oils Blending and Their Effects on Nutritional Contents and Physicochemical Properties During Deep Fat Frying. *Annals of Nutrition and Metabolism.* 75:181-182.
18. Xu. D., Hou. Z., Liu. G., Cao. Y., **Panya. A.**, Xiao. H., Dixon. W. (2020) Influence of Rosemary Extract Addition in Different Phases on the Oxidation of Lutein and WPI in WPI-Stabilized Lutein Emulsions. *Journal of Food Quality.*
19. Temthawee. W., **Panya. A.**, Cadwallader. KR., Suppavorasatit. I. (2020) Flavor binding property of coconut protein affected by protein-glutaminase: Vanillin-coconut protein model. *LWT.* 109676
20. Chaijan. S., Panpipat. W., **Panya. A.**, Cheong. LZ., Chaijan. M. (2020) Preservation of chilled Asian sea bass (*Lates calcarifer*) steak by whey protein isolate coating containing polyphenol extract from ginger, lemongrass, or green tea. *Food Control.* 107400
21. Phonsatta. N., Grajeda-Iglesias. C, Figueroa-Espinoza. M.C., Barea. B., Lecomte. J., Visessanguan. W., Durand. E., Villeneuve. P., Tapingka. W., and **Panya. A.** (2020) Investigation on the Double CutOff Phenomenon Observed in Protocatechuic Acid and Its Alkyl Esters under Various CAT-Based Assays. *Journal of Agricultural and food chemistry.* <https://doi.org/10.1021/acs.jafc.0c03825>
22. Thanatsang. V., K. Mailila. Y., Arayamethakorn. S., Srimarut. Y., Tatiyaborworntam. N., Uengwetwanit. T., **Panya. A.**, Rungrassamee. W., Visessanguan. W. (2020) Nutritional Properties and Oxidative Indices of Broiler Breast Meat Affected by Wooden Breast Abnormality. *Animals.* 10:12. 2272
23. Jariyasopit. N., Khamsaeng. S., **Panya. A.**, Vinaisuratarn. P., Metem. P., Asawalertpanich. W., Visessanguan. W., Sirivatanauksorn. V., Khoomrung. S. (2021) Quantitative Analysis of Nutrient Metabolite Compositions of Retail Cow's Milk and Milk Alternatives in Thailand Using GC-MS. *Journal of Food Composition and Analysis.* 97, 103785
24. Uawisetwathana. U., Situmorang. M. L., Arayamethakorn. S., Suantika. G., **Panya. A.**, Karoonuthaisiri. N. and Rungrassamee. W. (2021) Supplementation of Ex-Situ Biofloc to Improve Growth Performance and Enhance Nutritional Values of the Pacific White Shrimp Rearing at Low Salinity Conditions. *Journal of Applied Science (MDPI),* 11:10, 4598

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25. Chinarak. K., Panpipat. W., Summpunn. P., **Panya. A.**, Phonsatta. N., Cheong. L. and Chaijan. M. (2021) Insights into the effects of dietary supplements on the nutritional composition and growth performance of sago palm weevil (*Rhynchophorus ferrugineus*) larvae. *Food chemistry*, 363: 130279
26. Phetsang. H., Panpipat. W., **Panya. A.**, Phonsatta. N. and Chaijan. M. (2021) Occurrence and Development of Off-Odor Compounds in Farmed Hybrid Catfish (*Clarias macrocephalus* × *Clarias gariepinus*) Muscle during Refrigerated Storage: Chemical and Volatilomic Analysis. *Foods*, MDPI, 10:8, 1841
27. Phetsang. H., Panpipat. W., **Panya. A.**, Phonsatta. N. and Chaijan. M. (2021) Comparative quality and volatilomic characterisation of unwashed mince, surimi, and pH-shift-processed protein isolates from farm-raised hybrid catfish (*Clarias macrocephalus* × *Clarias gariepinus*). *Food chemistry*, 364, 130365
28. Chaijan. M., Chumthong. K., Kongchoosi. N, Chinarak. K., **Panya. A.**, Phonsatta. N., Cheong. L. Z., Panpipat. W. (2021) Characterisation of pH-shift-produced protein isolates from sago palm weevil (*Rhynchophorus ferrugineus*) larvae. *Journal of Insects as Food and Feed*. <https://doi.org/10.3920/JIFF2021.0085>
29. Praseartkul. P., Taota. K., Tisarum. R., Sakulleerungroj. K., Sotesaritkul. T., **Panya. A.**, Phonsatta. N. and Cha-um. S. (2021) Foliar Silicon Application Regulates 2-Acetyl-1-Pyrroline Enrichment and Improves Physio-morphological Responses and Yield Attributes in Thai Jasmine Rice. *Silicon* (<https://doi.org/10.1007/s12633-021-01488-4>)
30. Chanted J., Panpipat W., **Panya A.**, Phonsatta N., Cheong LZ., Chaijan M. (2022) Compositional Features and Nutritional Value of Pig Brain: Potential and Challenges as a Sustainable Source of Nutrients. *Foods*. 10(12): 2943
31. Chaijan M., Rodsamai T., Charoenlappanit S., Roytrakul S., **Panya A.**, Phonsatta N., Cheong LZ., Panpipat W. (2022) Characterization of Antioxidant Peptides from Thai Traditional Semi-Dried Fermented Catfish
32. Chaijan M., Rodsamai T., Charoenlappanit S., Roytrakul S., **Panya A.**, Phonsatta N., Cheong LZ., Panpipat W. (2022) Antioxidant activity and stability of endogenous peptides from farmed hybrid catfish (*Clarias macrocephalus* × *Clarias gariepinus*) muscle. *International Journal of Food Science & Technology*.
33. Chaijan M., Chaijan S., **Panya A.**, Nisoa M., Cheong LZ., Panpipat W. (2022) High hydrogen peroxide concentration-low exposure time of plasma-activated water (PAW): A novel approach for shelf-life extension of Asian sea bass (*Lates calcarifer*) steak. *Innovative Food Science & Emerging Technologies*. 74: 102861
34. Anekthanakul K., Manochewee S., Chienwichai K., Pungsombat P., Limjiasahapong S., Wanichthanarak S., Jariyasopit N., Mathema VB., Kuhakarn C, Reutrakul V., Phetcharaburanin J., **Panya A.**, Phonsatta N., Visessanguan W., Pomyen Y., Sirivatanauksorn Y., Worawichawong S., Sathirapongsasuti N., Kitiyakara S., Khoomrung S.. (2021) Predicting lupus membranous nephritis using reduced picolinic acid to tryptophan ratio as a urinary biomarker. *Iscience*. 24(11): 103355
35. Pongprayoon. W., Siringam. T., **Panya. A.**, and Roytraku. S. (2022) Application of Chitosan in Plant Defense Responses to Biotic and Abiotic Stresses. *Applied Science and Engineering Progress*. 15 (1)

## ปกปิด

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36. Laosam P., Panpipat W., Chaijan M., Roytrakul S., Charoenlappanit S., **Panya A.**, Phonsatta N, Cheong, LZ., Yusakul G. (2022) Molecular Structures and In Vitro Bioactivities of Enzymatically Produced Porcine Placenta Peptides Fractionated by Ultrafiltration. Food and Bioprocess Technology. 1-14
37. Phetsang H., Panpipat W., **Panya A.**, Phonsatta N., Cheong LZ., Chaijan M. (2022) Chemical characteristics and volatile compounds profiles in different muscle part of the farmed hybrid catfish (*Clarias macrocephalus* × *Clarias gariepinus*). International Journal of Food Science & Technology. 57 (1):310-322
38. Laosam P., Panpipat W., Chaijan M., Roytrakul S., Charoenlappanit S., **Panya A.**, Phonsatta N., Cheong LZ., Yusakul G. (2022) Molecular Structures and In Vitro Bioactivities of Enzymatically Produced Porcine Placenta Peptides Fractionated by Ultrafiltration. Food and Bioprocess Technology. P1-4
39. **Chaijan M., S Chaijan S., Panya A., Nisoa M., Cheong LZ., Panpipat. W. (2022)** Combined effects of prior plasma-activated water soaking and whey protein isolate-ginger extract coating on the cold storage stability of Asian sea bass (*Lates calcarifer*) steak. Food Control. 135 (108787)
40. Chantaraskha K., Asawapanumas T., Suntivich R., **Panya A.**, Phonsatta N., Thiennimitr P., Laoteng K., Tapaamorndech S. (2022) Hatakabb, a herbal extract, contains pyrogallol as the novel mediator inhibiting LPS-induced TNF- $\alpha$  production by NF- $\kappa$ B inactivation and HMOX-1 upregulation. Journal of Functional Foods. 90 (104992)
41. Chaijan, M., Chumthong, K., Kongchoosi, N., Chinarak, K., **Panya, A.**, Phonsatta, N., Cheong, LZ. Panpipat, W. (2022) Characterisation of pH-shift-produced protein isolates from sago palm weevil (*Rhynchophorus ferrugineus*) larvae. Journal of Insects as Food and Feed, 8: 3, 313-324
42. Chaijan, M., Chaijan, S., **Panya, A.**, Nisoa. M., Cheong, LZ. Panpipat, W. (2022) Combined effects of prior plasma-activated water soaking and whey protein isolate-ginger extract coating on the cold storage stability of Asian sea bass (*Lates calcarifer*) steak. Food Control. 135, 108787
43. Indrati, N., Sumpavapol, P., Samakradhamrongthai, S.R., Phonsatta, A., Pungsombat, P., Khoomrung, S., **Panya. A.** (2022) Volatile and non-volatile compound profiles of commercial sweet pickled mango and its correlation with consumer preference. International Journal of Food Science & Technology.
44. Chinarak. K., Panpipat . W., **Panya. A.**, Phonsatta. N., Cheong, LZ., Chaijan, M Improved long-chain omega-3 polyunsaturated fatty acids in sago palm weevil (*Rhynchophorus ferrugineus*) larvae by dietary fish oil supplementation. Food Chemistry. 133354

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**Oral presentations**

1. **Panya A.**, Kittipongpittaya, K., Laguerre M., Bayrasy, C., Lecomte J., Villeneuve P., McClements D.J., Decker E.A.2013. Interactions between tocopherol and rosmarinic acid and its alkyl esters in emulsions. In Lipid oxidation and quality, 104st AOCS annual meeting and expo, April 28-May 1.
2. **Panya A.** (Invited Speaker) 2016. Investigating Lipid Oxidation and Antioxidant Dynamics in Food Emulsions Using CAT and ApoCAT Assays. Food Science Singapore, November 15-17.
3. **Panya A.** (Invited Speaker) 2017. Investigating lipid oxidation and antioxidant dynamics in food emulsions using polar and apolar radical initiated conjugated autoxidizable triene (CAT and ApoCAT) assays, 2017 KoSFoST International Symposium and Annual Meeting, June 21-23
4. **Panya A.** 2020 Investigation of different oxidation patterns impacting antioxidant performances in food emulsions using conjugated autoxidizable triene (CAT)-based assays. World Congress on Oils & Fats, Sydney, Australia, 9-12 February.
5. **Panya A.** (Invited Speaker) 2021. What if you only get GC-MS for Food Research? Exploring the use of GC-TQ and GC/Q-TOF from Food Analysis to Foodomics. Agilent Mass Spec Symposium, December 2<sup>nd</sup>

**Award:**

1. The AOCS Edwin N. Frankel Award for Best Paper of 2014 (2014)
2. Franco-Thai Young Scientist Award (2014)
3. The AOCS Edwin N. Frankel Award for Best Paper of 2014 (2015)
4. The Leaders in Innovation Fellowship (LIF), Newton Fund Program (2017)
5. NSTDA Chair Professor Program (Co-researcher) (2021)
6. 7 innovation Awards 2021: Inventor Awards, NOW! RTD. Whey Protein (Principal Inventor)