



Name : Asst. Prof. Dr.Punnanee Sumpavapol

Education :

2009	Ph.D. (Pharmaceutical Chemistry and Natural Products)	Chulalongkorn University
2004	M.Sc. (Food and Nutritional Toxicology)	Mahidol University
2001	B.Sc. (Food and Nutrition) (Second-Class Honors)	Mahidol University

Present employment :

Department of Food Technology,
Faculty of Agro-Industry
Prince of Songkla University
Hat Yai, Songkhla 90112 Thailand
Tel: +66 74286366
Fax:+66 74558866
E-mail: punnanee.s@psu.ac.th

Field of interest : Food Safety / Food Microbiology

Current researches :

1. Spoilage bacteria: identification and application in product shelf-life extension
2. Microbial enzymes: production, purification and application in food production
3. Natural antimicrobial agents: extraction and its application in food model

Research projects :

1. Development of thermophilic spore-forming bacteria detection method in thermal processed seafood (2016) (Principal investigator)
2. Analysis of spoilage microorganisms of chilli paste products in Songkhla and Trang Provinces area (2016) (Principal investigator)
3. Study on reduction method of histamine-producing microorganism during tuna steaming process in canned tuna processing plant and the efficiency evaluation of developed tuna steaming process to inhibit those microorganism (2016) (Principal investigator)
4. Food Security and Food Safety along the Food Supply Chain of Chili in Songkhla, Phatthalung and Nakhonsrithammarat Provinces Area (2016) (Project coordinator)
5. Development of rice seasoning from five color vegetables (2016) (Co-investigator)
6. Prototype development of salted duck egg yolk in soybean oil (2016) (Co-investigator)
7. Formation of biogenic amines in tuna and its prevention by using electrolyzed oxidizing water (2015-2016) (Principal investigator)

8. Assessment and analysis of biofilm problem in seafood industry and define the guideline of troubleshooting (2014-2015) (Co-investigator)
9. Opportunity and prevention of histamine forming in dried salt fish (2014-2015) (Principal investigator)
10. Microbiological and chemical changes of squid (*Loligo formosana*) preserved by combined methods during refrigerated storage (2012-2014) (Principle investigator)
11. Extending shelf-life of fresh fish cracker (*Keropok*) by using smoking process (2012-2013) (Co-investigator)
12. Screening of protease producing *Bacillus* sp., optimization of enzyme production and characterization of purified enzyme (2012-2013) (Principal investigator)
13. Extraction, composition, some properties and application of tannin extract from plant by-product (2011-2013) (Principal investigator)
14. Study on chemical composition, functional properties and biological activities of protein hydrolysate from Bambara groundnut (*Vigna subterranean*) (2011-2012) (Principal investigator)
15. Development of microbial Strains for over expression of Transglutaminase encoding genes with growing in fishery by-products media and its application in food processing (2010-2013) (Co-investigator)
16. Selection of lactic acid bacteria for use as starter culture for *Kung-Som* production (2010-2013) (Co-investigator)
17. Selection of probiotic lactic acid bacteria for use as starter culture for *Poo-Khem* production (2010-2012) (Principal investigator)

Publication :

- Tirawat, D., Phongpaichi, S., Benjakul, S. and **Sumpavapol, P.** 2016. Microbial load reduction of sweet basil using acidic electrolyzed water and lactic acid in combination with mild heat. *Food Control*. 64: 29-36. (ISI, Impact Factor 2.806)
- Pongsetkul, J., Benjakul, S., Sumpavapol, P., Osako, K. and Faithong, N. 2016. Effect of post-mortem storage prior to salting on quality of salted shrimp paste (*Kapi*) produced from *Macrobrachium lanchesteri*. *Carpathian Journal of Food Science and Technology*. 8(2): 93-106.
- Pongsetkul, J., Benjakul, S., Sumpavapol, P., Osako, K. and Faithong, N. 2016. Properties of salted shrimp paste (*Kapi*) from *Acetes vulgaris* as affected by postmortem storage prior to salting. *Journal of Food Processing and Preservation*. 40(4): 636-646.
- Arfat, Y.A., Benjakul, S., Prodpran, T., **Sumpavapol, P.** and Songtipya, P. 2016. Physico-mechanical characterization and antimicrobial properties of fish protein isolate/fish skin gelatin-zinc oxide (ZnO) nanocomposite films. *Food and Bioprocess Technology*. 9(1): 101-112. (ISI, Impact Factor 2.691)
- Pongsetkul, J., Benjakul, S., **Sumpavapol, P.**, Osako, K. and Faithong, N. 2016. Characterization of endogenous protease and the changes in proteolytic activity of *Acetes vulgaris* and *Macrobrachium lanchesteri* during *Kapi* production. *Journal of Food Biochemistry*. (Article in press).
- Kaewmanee, T., Nagfar, L., **Sumpavapol, P.** and Benjakul, S. 2015. Functional and antioxidative properties of bambara groundnut (*Voandzeia subterranea*) protein hydrolysates. *International Food Research Journal*. 22(4): 1584-1595.
- Pongsetkul, J., Benjakul, S., **Sumpavapol, P.**, Osako, K. and Faithong, N. 2015. Chemical compositions, sensory and antioxidative properties of salted shrimp paste (*Ka-pi*) in Thailand. *International Food Research Journal*. 22(4): 1454-1465.
- Maqsood, S., Kittiphattanabawon, P., Benjakul, S., **Sumpavapol, P.** and Abushelaibi, A. 2015. Antioxidant activity of date (*Phoenix dactylifera* var. *Khalas*) seed and its preventive effect on lipid oxidation in lipid model systems. *International Food Research Journal*. 22(3): 1180-1188. (SCOPUS)

- Arfat, Y.A., Benjakul, S., Vongkamjan, K., **Sumpavapol, P.** and Yarnpakdee, S. 2015. Shelf-life extension of refrigerated sea bass slices wrapped with fish protein isolate/fish skin gelatin/ZnO nanocomposite film incorporated with basil leaf essential oil. *Journal of Food Science and Technology*. 52(10): 6182-6193. (ISI, Impact Factor 2.02)
- Sai-Ut, S., Benjakul, S., **Sumpavapol, P.** and Kishimura, H. 2015. Antioxidant activity of gelatin hydrolysate produced from fish skin gelatin using extracellular protease from *Bacillus amyloliquefaciens* H11. *Journal of Food Processing and Preservation*. 39(4): 394-403. (ISI, Impact Factor 0.45)
- Sai-Ut, S., Benjakul, S., **Sumpavapol, P.** and Kishimura, H. 2015. Purification and characterization of extracellular gelatinolytic protease from *Bacillus amyloliquefaciens* H11. *Journal of Food Biochemistry*. 39(1): 119-128. (ISI, Impact Factor 0.85)
- Pongsetkul, J., Benjakul, S., **Sumpavapol, P.**, Osako, K. and Faithong, N. 2014. Chemical composition and physical properties of salted shrimp paste (*Kapi*) produced in Thailand. *International Aquatic Research*. 6:155-166.
- Sai-Ut, S., Benjakul, S., **Sumpavapol, P.** and Kishimura, H. 2014. Effect of drying methods on odorous compounds and antioxidative activity of gelatin hydrolysate produced by protease from *B. amyloliquefaciens* H11. *Drying Technology*. 32(13): 1552-1559. (ISI, Impact Factor 1.77)
- Arfat, Y.A., Benjakul, S., Prodpran, T., **Sumpavapol, P.** and Songtipya, P. 2014. Properties and antimicrobial activity of fish protein isolate/fish skin gelatin film containing basil leaf essential oil and zinc oxide nanoparticles. *Food Hydrocolloids*. 41: 265-273. (ISI, Impact Factor 4.28)
- Sai-Ut, S., Benjakul, S., **Sumpavapol, P.** and Kishimura, H. 2014. Optimization of gelatinolytic enzyme production by *B. amyloliquefaciens* sp. H11 through Plackett-Burman design and response surface methodology. *International Aquatic Research*. 6 (1): 10p (SCOPUS)
- Wonghirundecha, S., Benjakul, S. and **Sumpavapol, P.** 2014. Total phenolic content, antioxidant and antimicrobial activities of stink bean (*Parkia speciosa* Hassk.) pod extracts. *Songklanakarin Journal of Science and Technology*. 36(3): 301-308. (SCOPUS)
- Ayama, H., **Sumpavapol, P.** and Chanthachum, S. 2014. Effect of encapsulation of selected probiotic cell on survival in simulated gastrointestinal tract condition. *Songklanakarin Journal of Science and Technology*. 36(3): 291-300. (SCOPUS)
- Sai-Ut, S., Benjakul, S. and **Sumpavapol, P.** 2013. Gelatinolytic enzymes from *Bacillus amyloliquefaciens* isolated from fish docks: characteristics and hydrolytic activity. *Journal of Food Science and Biotechnology*. 22(4): 1015-1021. (ISI, Impact Factor 0.66)
- Khunthongpan, S., **Sumpavapol, P.**, Tanasupawat, S., Benjakul, S. and H-Kittikun, A. 2013. *Providencia thailandensis* sp. nov., isolated from seafood processing wastewater. *The Journal of General and Applied Microbiology*. 59(3): 185-190. (ISI, Impact Factor 0.74)
- Khunthongpan, S., Bourneow, C., H-Kittikun, A., Tanasupawat, S., Benjakul, S. and **Sumpavapol, P.** 2013. *Enterobacter siamensis* sp. nov., a transglutaminase-producing bacterium isolated from seafood processing wastewater in Thailand. *The Journal of General and Applied Microbiology*. 59(2): 135-140. (ISI, Impact Factor 0.74)
- Benjakul, S., Kittiphanattanabawon, P., **Sumpavapol, P.** and Maqsood, S. 2012. Antioxidant activities of lead (*Leucaena leucocephala*) seed as affected by extraction solvent, prior dechlorophyllisation and drying methods. *Journal of Food Science and Technology-Mysore*. 51(11): 3026-3037. (SCOPUS, Impact Factor 2.02)
- Bourneow, C., Benjakul, S., **Sumpavapol, P.** and H-Kittikun, A. 2012. Isolation and cultivation of transglutaminase-producing bacteria from seafood processing factories. *Innovative Romanian Food Biotechnology*. 10: 28-39.

- Ahmad, M., Benjakul, S., **Sumpavapol, P.** and Nirmal, N.P. 2012. Quality changes of sea bass slices wrapped with gelatin film incorporated with lemongrass essential oil. *International Journal of Food Microbiology*. 155(3): 171-178. (ISI, Impact Factor 3.01)
- Aderibigbe, E.Y., Visessanguan, W., **Sumpavapol, P.** and Kongtong, K. 2011. Sourcing starter cultures for *Parkia biglobosa* fermentation I: Phylogenetic grouping of *Bacillus* species from commercial 'iru' samples. *International Journal for Biotechnology and Molecular Biology Research*. 2(7): 121-127.
- Sumpavapol, P.**, Tongyongk, L., Tanasupawat, S., Chokesajawatee, N., Luxananil, P. and Visessanguan, W. 2010. *Bacillus siamensis* sp. nov. isolated from salted crab (*poo-khem*) in Thailand. *International Journal of Systematic and Evolutionary Microbiology*. 60(10): 23642370. (ISI, Impact Factor 2.79)

Conferences/Meeting and Proceeding :

- Sumpavapol, P.** and Rakmai, J. 2016. Development of thermophilic spore-forming bacteria detection method for thermal processed food. 1st International Conference on Biodiversity, Food Security and Health. November 22-23, 2016. Gadjah Mada, Indonesia.
- Sumpavapol, P.** and Tirawat, D. 2016. Biofilm-forming ability and resistance to disinfectants of samples collected from seafood processing plants. 1st International Conference on Biodiversity, Food Security and Health. November 22-23, 2016. Gadjah Mada, Indonesia.
- Kasaw, W., **Sumpavapol, P.** and Hiranvarachat, B. 2016. Comparison between conventional, ultrasonic-assisted, microwave-assisted and combination methods for extraction of bioactive compounds from stink bean (*Parkia speciosa* Hassk.) pod. The proceeding of The 18th Food Innovation Asia Conference 2016. June 16-18, 2016, Bangkok, Thailand.
- Pongsetkul, J., **Sumpavapol, P.** and Benjakul, S. 2016. Effect of post-mortem storage prior to salting on quality of salted shrimp paste (*Kapi*) produced from *Acetes vulgaris*. International Conference on Food and Applied Bioscience 2016. February 4-5, 2016, Chiang Mai, Thailand.
- Maha, R., Kaewmanee, T., **Sumpavapol, P.** and Karrila, T.T. 2015. Effect of smoking materials on quality of fish cracker. The proceeding of The 17th Food Innovation Asia Conference 2015. June 18-19, 2015, Bangkok, Thailand.
- Khunthongpan, S., H-Kittikun, A., Tanasupawat, S., Benjakul, S. and **Sumpavapol, P.** 2014. Phenotypic and genotypic characterization of a transglutaminase-producing bacterium isolated from seafood processing wastewater in Thailand. The proceeding of 2014 The 1st ASEAN Microbial Biotechnology Conference (AMBC 2014), February 19-21, 2014, Thailand.
- Sai-Ut S., **Sumpavapol, P.** and Benjakul, S. 2013. Optimization of gelatinolytic enzyme production by *Bacillus amyloliquefaciens* H11 through statistical design approach. 13th ASEAN Food Conference (AFC2013), September 9-11, 2013. Singapore.
- Sai-Ut, S., Benjakul, S. and **Sumpavapol, P.** 2013. Screening of gelatinolytic enzyme producing bacteria for production of hydrolysate with antioxidative activity. The proceeding of 2013 2nd International Confernece on Nutritional and Food Sciences (ICNFS 2013), July 27-28, 2013. Moscow, Russia.
- Wonghirundecha, S. and **Sumpavapol, P.** 2013. Study on optimal condition for the extraction of phenolic compounds and antimicrobial agent from *Parkia speciosa* Hassk. pods. The 15th Food Innovation Asia Conference 2013. June 13-14, 2013, Bangkok, Thailand.
- Wonghirundecha, S. and **Sumpavapol, P.** 2013. Total phenolic content and antimicrobial activity of stink bean (*Parkia speciosa* Hassk.) pods. The 15th Food Innovation Asia Conference 2013. June 13-14, 2013, Bangkok, Thailand.
- Senthong, R. and **Sumpavapol, P.** 2013. Effect of growth phase and cryoprotectant on survival of selected probiotic strains subjected to freeze-drying. The 15th Food Innovation Asia Conference 2013. June 13-14, 2013, Bangkok, Thailand.

- Dangkhaw, N., Maneerat, S. and **Sumpavapol, P.** 2013. Effect of growth phase and cryoprotectants on viability of *Enterococcus hirae* K34 and *Lactobacillus pentosus* K39 subjected to freeze-drying. The 15th Food Innovation Asia Conference 2013. June 13-14, 2013, Bangkok, Thailand.
- Ayama, H., **Sumpavapol, P.** and Chanthachum, S. 2013. Effect of encapsulation of selected probiotic lactic acid bacteria on survival in simulated gastrointestinal tract condition. The 15th Food Innovation Asia Conference 2013. June 13-14, 2013, Bangkok, Thailand.
- Sumpavapol, P.** 2012. Antibacterial activity of selected Thai indigenous plants against food-borne pathogenic bacteria. The proceeding of 2012 International Conference on Nutrition and Food Science (ICNFS 2012), July 23-24, 2012, Singapore.
- Khunthongpan, S., H-Kittikun, A., Bourneow, C., Tanasupawat, S. and **Sumpavapol, P.** 2012. Identification of transglutaminase-producing bacterium isolated from seafood processing wastewater. The proceeding of 2012 International Conference on Nutrition and Food Science (ICNFS 2012), July 23-24, 2012, Singapore.
- Wonghirundecha, S. and **Sumpavapol, P.** 2012. Antibacterial activity of selected plant by-products against food-borne pathogenic bacteria. The proceeding of 2012 International Conference on Nutrition and Food Science (ICNFS 2012), July 23-24, 2012, Singapore.
- Senthong, R., Chanthachum, S. and **Sumpavapol, P.** 2012. Screening and identification of probiotic lactic acid bacteria isolated from *Poo-Khem*, a traditional slated crab. The proceeding of 2012 International Conference on Nutrition and Food Science (ICNFS 2012), July 23-24, 2012, Singapore.
- Dangkhaw, N., Maneerat, S. and **Sumpavapol, P.** 2012. Characterization of lactic acid bacteria isolated from *Kung-Som*, a traditional fermented shrimp, in respect of their probiotic properties. The proceeding of 2012 International Conference on Nutrition and Food Science (ICNFS 2012), July 23-24, 2012, Singapore.
- Ngafa, L., Kaewmanee, T. and **Sumpavapol, P.** 2012. Functionality and antioxidant properties of protein hydrolysate from Bambara groundnut (*Voandzeia subterranean*) protein concentrate treated with alcalase. The 14th Food Innovation Asia Conference 2012. June 14-15, 2012, Bangkok, Thailand.
- Sumpavapol, P.**, Benjakul, S., Tanasupawat, S. and Visessanguan, W. 2011. Phenotypic and genotypic characterization of *Bacillus* strains isolated from soy sauce fermentation. The 4th International Conference on Fermentation Technology for Value Added Agricultural Products, August 29-31, 2011, Kosa Hotel, Khon kaen, Thailand.
- Sumpavapol, P.**, Sirichote, A., Chanthachum, S., Benjakul, S., Tanasupawat, S., and Visessanguan, W. 2010. Antioxidant and antimicrobial activities of longkong seed extract. International Conference on Food Innovation (FoodINNOVA 2010), October 25-29, 2010, Valencia, Spain.
- Visessanguan, W., Benjakul, S., Kingcha, Y., Tapingkae, W., Lertprakobkit, W., **Sumpavapol, P.**, Punjaisee, C., Tanasupawat, S. and Valyasevi, R. 2010. Technological development of traditional fermented foods in Thailand: Quality, Safety and Health Benefits. Jeonju International Symposium on Fermented Foods –Fermentation, Source of Vitality -, October 22-23, 2010. Jeonbuk, Korea.
- Saru, S., **Sumpavapol, P.**, Benjakul, S., Visessanguan, W. 2010. Microbial quality of salted crab sold in local markets in Songkhla province. BioScience for the Future 2010, October 7-8, 2010, Prince of Songkla University, Thailand.
- Sumpavapol, P.**, Tongyonk, L., Tanasupawat, S., Visessanguan, W. 2008. Optimization of Fibrinolytic Enzyme Production by *Bacillus* sp. THY-C1. TSB 19th Annual Meeting: Biotechnology for Global care, October 14-17, 2008, Takasila Hotel, Maha sarakhem, Thailand.
- Sumpavapol, P.**, Tongyonk, L., Tanasupawat, S., Visessanguan, W. 2007. Isolation and Screening of Fibrinolytic Enzyme-Producing Bacteria from Thai Fermented Foods. Thai Journal of Pharmaceutical Sciences, 31 (Suppl), Chulalongkorn University, Thailand.

Sumpavapol, P., Tongyonk, L., Tanasupawat, S., Visessanguan, W. 2007. Screening and Identification of Fibrinolytic Enzyme-Producing Bacteria from Thai Fermented Foods. The 19th Annual Meeting of the Thai Society for Biotechnology “TSB2007: Biotechnology for Gross National Happiness”, October 9-12, 2007, Thammasat University, Pathum Thani, Thailand.

Supportive experience :

1. Mutagenicity of *In vitro* and *In vivo* Nitrosation of Instant Noodle Seasonings Using the Somatic Mutation and Recombination Test (2002-2004)
2. Construction of the Expression Vector of SR5-3 Gene from *Halobacillus* sp. SR5-3 and Its Expression in *Escherichia coli* (Kyoto, Japan: 2006-2007)
3. Fibrinolytic Proteases from Bacteria Isolated from Fermented Foods (2005-2009)
4. Metagenomic Analysis of Japanese Environment and Constructing Biomap to Characterize Taxonomic and Functional Diversity of the Earth (Tokyo, Japan: 2014)

Scholarships:

1. Government Research Grant, Chulalongkorn University (2006)
2. Japan Student Services Organization (JASSO) Scholarship 2006 at Kyoto Institute of Technology, Kyoto, Japan (2006-2007)
3. Thailand Graduate Institute of Science and Technology (TGIST), National Science and Technology Development Agency (NSTDA) (2006-2008)
4. The Supporting Scholarship from Faculty of Graduate Studies, Chulalongkorn University (2008)
5. MRG-Research Grant for New Scholar from The Thailand Research Fund (TRF) and The Commission on Higher Education (CHE) (2012-2013)
6. Excellent Research Laboratory Scholarship from Research and Development Office (RDO), Prince of Songkla University (PSU) (2013-2015)