

Curriculum Vitae

Name: Suchada Chanprateep NAPATHORN (Suchada CHANPRATEEP)
Position: Associate Professor
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Education:

1989 - 1993 B.Sc.(Genetics), Department of Genetics, Faculty of Science,
Kasetsart University, Bangkok, Thailand
1993 - 1996 M.Sc. (Industrial Microbiology), Department of Microbiology,
Faculty of Science, Chulalongkorn University, Bangkok, Thailand
1997 - 1998 Diploma (Microbial Technology) UNESCO International Post-Graduate
University in Microbiology and Biotechnology, Osaka University, Japan
1999 - 2002 Ph.D. (Biotechnology Engineering), Department of Biotechnology,
Graduate School of Engineering, Osaka University, Japan
2004 - 2005 Postdoctoral Fellow at Cornell/Ludwig Institute for Cancer Research (LICR)
Department of Food Science and Technology, Cornell University, Ithaca, NY, USA

Training experiences:

2004 – 2005 LICR/CORNELL Fellowship, Cornell University, Ithaca, USA
2006 - 2010 Short-term visiting researcher under NRCT/NSTDA/JST at Department of
Biotechnology, Graduate School of Engineering, Osaka University, JAPAN

Grants, Awards and Recognition:

1997 – 1998 UNESCO Fellowship, ICBiotec, Osaka University, Japan
1999 – 2002 MONBUSHO scholarship, Japanese Government, Japan
2003 The ASAHI Oversea Research Grant Award, The Asahi Glass Foundation, Japan
2004 – 2005 LICR/CORNELL Fellowship, Cornell University, Ithaca, USA
2006 – 2010 Research grant "Joint Program in the Field of Biotechnology" NRCT/NSTDA/JST
2006 – 2007 Ratchadaphi-seksomphot Endowment Fund, Chulalongkorn University
2007 THE EXCELLENT PAPER AWARD, The Society for Biotechnology, Japan
2008 The HITACHI TROPHY AWARD in Biological Science, Faculty of Science,
Chulalongkorn University, Thailand (Ms. Ketsunee Bausri)
2009 THE YOUNG ASIAN BIOTECHNOLOGIST PRIZE,
The Society for Biotechnology, Japan
2009 – 2010 Research grants "TRF-MAG window I and II", TRF and "Ratchadaphi-seksomphot
Endowment Fund", Chulalongkorn University
2010 (1) OUTSTANDING YOUNG SCIENTIST AWARD, The Science Forum 2010,
Faculty of Science, Chulalongkorn University
(2) CHULA-MONGKUT AWARD, Faculty of Science, Chulalongkorn University
(3) BEST PRESENTATION AWARD, The International Conference TISD 2010
(Ms. Amtiga Maungwong)
2011 – 2013 Research grant "The Higher Education Research Promotion and National Research
University Project of Thailand"
2011 – 2013 Joined research project between Faculty of Science and LION Corp. (Thailand) Ltd.
2013 – 2015 Research Cluster Ratchadaphi-seksomphot Endowment Fund, Chulalongkorn Univ.

2015	Sci Super II (Ratchadapiseksomphot Endowment under Outstanding Research Performance Program) Chulalongkorn Univ.
2019	Research grants from Bangchak Corporation Public Company Limited
2019 – 2021	Research grant from Agriculture and Biotechnology Industry Coordination Office, Industry Division and Bangchak Corporation Public Company Limited
2019 – 2020	Specially Appointed Associate Professor (Full-Time) at International Center for Biotechnology, Osaka University, Japan from 1 December 2019 to 31 May 2020
2022	Guest Associate Profess at Osaka University, Japan from 1 April 2022 to 30 September 2022

Research Expertise:

Bioprocess Engineering: on-line monitoring and control system, process development and optimization

Research Interest:

1. On-line monitoring and control system for microbial bioprocess
2. Biochemical engineering approaches toward bioprocess operation and optimization.
3. Process optimization for the production of biodegradable polymers
4. Biopolymer characterization, biodegradation testing and biocompatibility testing
5. Process optimization for production of therapeutic agents in *Pichia pastoris* and *E.coli*
6. Preparation of biocomposite films between PHAs and microcrystalline cellulose
7. High-throughput screening of PHAs producing microorganisms
8. Microencapsulation techniques in polyhydroxyalkanoates

Books:

1. Napathorn, S. Chanprateep "Principle of Bioprocess Technology", Chulalongkorn University Press, 2016. (ISBN 978-974-03-3474-3) สพจ. 2044
2. Napathorn, S. Chanprateep "Advances in Bioprocess Technology", Chulalongkorn University Press, 2017. (ISBN 978-974-03-3613-6) สพจ. 2144
3. Sultan, M.T.H., Abd-Aziz, S. and Napathorn, S.C. "Pineapple and its wastes utilization towards circular bioeconomy and sustainability", Universiti Putra Malaysia Press, Serdang, 2022.

Patent

1. Thailand Patent 1801004181. Napathorn, S.C. Methods for extraction and purification of polyhydroxybutyrate from bacterial cells using green solvents 1,3-dioxolane. Chulalongkorn University (submitted on 13 July 2018)
2. Thailand Patent 2201003643. Napathorn, S.C. Process for carrying cosmetic active ingredients in biopolymer using microencapsulation techniques. Bangchak Corporation Plc. (submitted on 14 June 2022)

Petty Patent

1. Thailand Petty Patent 1803001571. Napathorn, S.C. Method for hydrolysate preparation of agro-industrial residue from canned pineapple industry for polyhydroxybutyrate production. Chulalongkorn University (submitted on 13 July 2018)
2. Thailand Petty Patent 1803001572. Napathorn, S.C. Method for crude aqueous extract preparation of agro-industrial residue from canned pineapple industry for polyhydroxybutyrate production. Chulalongkorn University (submitted on 13 July 2018)
3. Thailand Petty Patent 2003002051. Napathorn, S.C. Method for high-throughput screening of PHAs producing microorganisms. Bangchak Corporation Plc. (submitted on 24 Aug 2020)

4. Thailand Petty Patent 2103001243. Napathorn, S.C. Process for polyhydroxyalkanoates production from crude glycerin by newly isolated bacterial strain. Bangchak Corporation Plc. (submitted on 6 May 2021)

List of publications:

25. Boontip, T., Waditee-Sirisattha, R., Honda, K. and **Napathorn, S.C.*** (2021) Strategies for poly(3-hydroxybutyrate) production using a cold-shock promoter in *Escherichia coli*, *Frontiers in Bioengineering and Biotechnology* 9, 666036. doi: 10.3389/fbioe.2021.666036 [**Impact Factor 5.89**]
24. **Napathorn, S.C.***, Visetkoop, S., Pinyakong, O., Okano, K. and Honda, K. (2021) Polyhydroxybutyrate (PHB) production using an arabinose-inducible expression system in comparison with cold shock inducible expression system in *Escherichia coli*, *Frontiers in Bioengineering and Biotechnology* 9, 661096. doi: 10.3389/fbioe.2021.661096 [**Impact Factor 5.89**]
23. Unrean, P, **Napathorn, S.C.**, Tee, K.L., Wong, T.S. and Champreda, V. (2021) Lignin to polyhydroxyalkanoate bioprocessing by novel strain of *Pseudomonas monteilii*, *Biomass Conversion and Biorefinery*, <https://doi.org/10.1007/s13399-021-01525-7> [**Impact Factor 2.602**]
22. Khomlaem, C., Aloui, H., Deshmukh, A.R., Yun, J.-H., Kim, H.-S., **Napathorn, S.C.** and Kim, B.S. (2020) Defatted Chlorella biomass as a renewable carbon source for polyhydroxyalkanoates and carotenoids co-production, *Algal Research* 51, 102068. [**Impact Factor 4.008**]
21. Punrata, T., Thaniyavarna, J.*, **Napathorn, S.C.**, Anuntagoolb, J. and Thaniyavarn, S. (2020) Production of a sophorolipid biosurfactant by *Wickerhamomyces anomalus* MUE24 and its use for modification of rice flour properties, *Science Asia* 46, 11-18. [**Impact Factor 0.425**]
20. Sukruansuwan, V. and **Napathorn, S. Chanprateep*** (2018) Use of agro-industrial residue from the canned pineapple industry for polyhydroxybutyrate production by *Cupriavidus necator* strain A-04, *Biotechnology for Biofuels* 11, 202. [**Impact Factor 5.498**]
19. Yabueng, N. and **Napathorn, S. Chanprateep*** (2018) Toward non-toxic and simple recovery process of poly(3-hydroxybutyrate) using the green solvent 1,3-dioxolane, *Process Biochemistry* 69, 197-207. [**Impact Factor 2.952**]
18. Muangwong, A., Boontip, T, Pachimsawat, J and **Napathorn, S. Chanprateep*** (2016) Medium chain length polyhydroxyalkanoates consisting primarily of unsaturated 3-hydroxy-5-cis-dodecanoate synthesized by newly isolated bacteria using crude glycerol, *Microbial Cell Factories* 15, 55. [**Impact Factor 4.221**]
17. Wisuthiphaet, N. and **Napathorn, S. Chanprateep*** (2016) Optimisation of the use of products from the cane sugar industry for poly(3-hydroxybutyrate) production by *Azohydromonas lata* DSM 1123 in fed-batch cultivation, *Process Biochemistry* 51, 352-361. [**Impact Factor 2.521**]
16. **Napathorn, S. Chanprateep*** (2014) Biocompatibilities and biodegradation of poly(3-hydroxybutyrate-co-3-hydroxyvalerate)s produced by a model metabolic reaction-based system, *BMC Microbiology* 14, 285. [**Impact Factor 2.98**]
15. Khumvanit, P., **Napathorn, S. Chanprateep** and Suwannasilp, B. Boonchayaanant* (2014) Polyhydroxyalkanoate production with a feast/famine feeding regime using sludge from

wastewater treatment plants of the food and beverage industry, Journal of Biobased Materials and Bioenergy 8(6), 641-647 [**Impact Factor = 0.975**]

14. Jaturapaktrarak, C., **Napathorn, S. Chaprateep***, Cheng, M., Okano, K., Ohtake, H. and Honda, K.* (2014) *In vitro* conversion of glycerol to lactate with thermophilic enzymes. Bioresources and Bioprocessing 1(1), 18. [**Impact Factor = 4.578**]
13. Anuleejun, S., Palaga, T., Katakura, Y., Kuroki, M., Kuroki, M. and **Napathorn, S. Chaprateep*** (2014) Optimal production of a fusion protein consisting of a single-chain variable fragment antibody against a tumor-associated antigen and interleukin-2 in fed-batch culture of *Pichia pastoris*, Anticancer Research 34(8), 3925-3936. [**Impact Factor = 2.48**]
12. **Napathorn, S. Chaprateep.***, Kuroki, M. and Kuroki, M. (2014) High expression of fusion proteins consisting of a single-chain variable fragment antibody against a tumor-associated antigen and interleukin-2 in *Escherichia coli*, Anticancer Research 34(8), 3937-3946. [**Impact Factor = 2.48**]
11. **Chanprateep, S.*** (2010) Current trends in biodegradable polyhydroxyalkanoates, J. Bioscience and Bioengineering 110(6), 621-632. [**Impact Factor = 2.24**]
10. **Chanprateep, S.***, Buasri, K., Muangwong, A. and Utiswannakul, P. (2010) Biosynthesis and biocompatibility of biodegradable poly(3-hydroxybutyrate-co-4-hydroxybutyrate). Polymer Degradation and Stability 95(10), 2003-2012. [**Impact Factor = 3.386**]
9. **Chanprateep, S.***, Katakura, Y., Shimizu, H., Visetkoop, S., Kulpreecha, S., and Shioya, S. (2008) Characterization of new isolated *Ralstonia eutropha* strain A-04 and kinetic study of biodegradable copolyester poly(3-hydroxybutyrate-co-4-hydroxybutyrate) production. Journal of Industrial Microbiology & Biotechnology 35(11), 1205-1215. [**Impact Factor = 2.81**]
8. **Chanprateep, S.***, Shimizu, H. and Shioya, S. (2006) Characterization and enzymatic degradation of microbial copolyester P(3HB-co-3HV)s produced by metabolic reaction model based system. Polymer Degradation and Stability 91(12), 2941-2950. [**Impact Factor = 3.386**]
7. **Chanprateep, S.** and Kulpreecha, S. (2006) Production and characterization of biodegradable terpolymer poly(3-hydroxybutyrate-co-3-hydroxyvalerate-co-4-hydroxybutyrate) by *Alcaligenes* sp. A-04. Journal of Bioscience and Bioengineering 101(1), 51-56. [**Impact Factor = 2.24**] * THE EXCELLENT PAPER AWARD 2007, The Society for Biotechnology, Japan
6. Shimizu, H., **Chanprateep, S.**, Kulpreecha, S., Boonruangthavorn, A., and Shioya, S. (2005) Development of production processes of a biodegradable polymer, poly(3-hydroxybutyrate-co-3-hydroxyvalerate): Metabolic pathway analysis, quality control of polymer, and use of starch. Biotechnology for sustainable utilization of biological resources in the tropics. (ed. T. Seki) 17, 78-83.
5. **Chanprateep, S.**, Kikuya, K., Seki, S, Takawa, S., Shimizu, H., and Shioya, S. (2003) Non-isothermal crystallization kinetics of biodegradable random poly(3-hydroxybutyrate-co-3-hydroxyvalerate) and block one. Journal of Chemical Engineering Japan 36 (6), 639-646. [**Impact Factor = 0.629**]
4. **Chanprateep, S.**, Kikuya, K., Shimizu, H., and Shioya, S. (2002) Model predictive control for biodegradable polyhydroxyalkanoates production in fed-batch culture. Journal of Biotechnology 95 (2), 157 - 169. [**Impact Factor = 2.88**]

3. **Chanprateep, S.**, Abe, N., Shimizu, H., and Shioya, S. (2001) Multivariable control of alcohol concentrations in the production of polyhydroxyalkanoates (PHAs) by *Paracoccus denitrificans*. *Biotechnology and Bioengineering* 74, 116-124. [**Impact Factor = 4.481**] (
2. Shimizu, H., **Chanprateep, S.**, Hirunrattanakorn, A., Kikuya, K., Shioya, S. (2001) Quality control of polyhydroxyalkanoates in fed-batch culture based on a metabolic reaction model. Eighth International Conference on Computer Applications in Biotechnology pp. 207-212.
1. **Chanprateep, S.**, Shimizu, H., and Shioya, S. (1998) Optimal production of biodegradable copolymer poly(3-hydroxybutyrate-co-4-hydroxybutyrate), P(3HB-co-4HB), by *Alcaligenes* sp. A-04. (ed. T. Yoshida) 21, 281–292.