Asian Journal of Pharmaceutical Sciences 13 (2018) 395–397

Available online at www.sciencedirect.com

ScienceDirect

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

Editorial comment

Special issue: Pharmaceutical innovation

Pornsak Sriamornsak[a,b,*], *Duangratana Shuwisitkul*[a,b]

[a] *Faculty of Pharmacy, Silpakorn University, Nakhon Pathom 73000, Thailand*
[b] *Faculty of Pharmacy, Srinakharinwirot University, Nakhon Nayok 26120, Thailand*

ARTICLE INFO

Article history:
Available online 31 July 2018

Keywords:
Pharmaceutical innovation
Dosage form design
Pharmaceutics

ABSTRACT

"Pharmaceutical innovation" is an interdisciplinary area of the pharmaceutical sciences including drug development with a focus on manufacturing, process control, and technology, among many other subfields of research. In this special issue, we have invited all participants attended the International Conference and Exhibition on Pharmaceutical Sciences and Technology 2018 under the theme of pharmaceutical innovation and translational research for human health, held in Bangkok during January 24–25, 2018, to submit the research papers and after peer-review process, 10 of them were selected.

© 2018 Shenyang Pharmaceutical University. Published by Elsevier B.V.
This is an open access article under the CC BY-NC-ND license.
(http://creativecommons.org/licenses/by-nc-nd/4.0/)

Editorial

The special issue "Pharmaceutical innovation" collects contributions from the participants of the International Conference and Exhibition on Pharmaceutical Sciences and Technology 2018 (PST 2018) held in Bangkok, Thailand, during January 24–25, 2018. The contributions include the pharmaceutical product innovations from natural sources, and design of topical dosage forms. The collective efforts reported here in reflect a pharmaceutical innovation and translational research for human health, leading to the promise of better health and well-being.

The first five papers in this special issue focus on pharmaceutical product innovations from natural sources. In the paper by Kampanart Huanbutta and Wancheng Sittikijyothin, "Use of seed gums from *Tamarindus indica* and *Cassia fistula* as controlled release agents" (in this issue, Ref. [1]), the chemical structure modification and characterization of seed gum from *Tamarindus indica* and *Cassia fistula* was reported. The controlled release tablets using these modified seed gums were formulated and their *in vitro* drug release and drug release mechanism of the tablets were studied. The paper by Sirikarn Pengon and coworkers, "The effect of surfactant on the physical properties of coconut oil nanoemulsions" (in this issue, Ref. [2]), reported the development of water compatible form of coconut oil through nanoemulsification with the aid of surfactants. The fabrication of stable coconut oil nanoemulsions with small particle size could be easily achieved by using 5% (w/w) polyethylene glycol hydrogenated castor oil as a surfactant. The knowledge gained from the study might provide the basic guideline for the fabrication of stable nanoemulsions for food, cosmetic and pharmaceutical fields in the future. Wantanwa Krongrawa and coworkers reported the innovation from coconut kernel extract, "Formulation and evaluation of gels containing coconut kernel

* Corresponding author. Department of Pharmaceutical Technology, Faculty of Pharmacy, Silpakorn University, Nakhon Pathom 73000, Thailand.
E-mail address: sriamornsak_p@su.ac.th (P. Sriamornsak).
Peer review under responsibility of Shenyang Pharmaceutical University.

https://doi.org/10.1016/j.ajps.2018.07.001
1818-0876/© 2018 Shenyang Pharmaceutical University. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license. (http://creativecommons.org/licenses/by-nc-nd/4.0/)

extract for topical application" (in this issue, Ref. [3]). They studied the biological activities, e.g., antioxidant activities, and then formulated gels containing coconut kernel extract.

Sukannika Tubtimsri and colleagues reported the paper "Fabrication and characterization of spearmint oil loaded nanoemulsions as cytotoxic agents against oral cancer cell" (in this issue, Ref. [4]). In this paper, they overcome the water insolubility of spearmint oil by preparing nanoemulsions so the oil can be used easily for oral care products. The transparent nanoemulsions were successfully fabricated by specific combination of spearmint oil and virgin coconut oil. The obtained nanoemulsions demonstrated good feasibility as carrier for targeting to oral carcinoma cell line. The paper by Sai Myo Thurein and colleagues, "Physicochemical properties of β-cyclodextrin solutions and precipitates prepared from injectable vehicles" (in this issue, Ref. [5]), demonstrated that the highly concentrated β-cyclodextrin could be used as injectable solvents with low viscosity and Newtonian flow. It can form complex with solvents and thus could be used as matrix former in the *in situ* forming gel for periodontitis treatment.

The last five papers concerning the design of topical dosage forms are included in this special issue. The paper by Tanikan Sangnim and coworkers, "Design and characterization of clindamycin-loaded nanofiber patches composed of polyvinyl alcohol and tamarind seed gum and fabricated by electrohydrodynamic atomization" (in this issue, Ref. [6]), described the development of a polymeric nanofiber patch for topical disease treatment based on polyvinyl alcohol and tamarind seed gum, using electrohydrodynamic atomization. The prepared nanofiber patches with a good skin adherence, translucence, and ventilation properties were obtained. They also found that the nanofiber patches loaded with clindamycin can prohibit the growth of *Staphylococcus aureus* more effectively than a commercially available clindamycin gel. Nawinda Chinatangkul and colleagues present a paper, "Design and characterization of monolaurin loaded electrospun shellac nanofibers with antimicrobial activity" (in this issue, Ref. [7]), which reported the development of shellac nanofibers loaded with an antimicrobial monolaurin. They elucidated the optimized fabrication factors influencing the formation and properties of shellac nanofibers using a full factorial design. In addition, the results of the kill-kinetic studies showed that shellac nanofibers loaded with monolaurin exhibited an excellent antibacterial activity against *Staphylococcus aureus*, while *Escherichia coli* was less affected due to the hydrophilic structure of the its outer membrane. Monolaurin also exerted an antifungal activity by reducing the number of *Candida albicans* colonies.

In the paper by Thanaporn Amnuaikit and colleagues, "Vesicular carriers containing phenylethyl resorcinol for topical delivery system; liposomes, transfersomes and invasomes" (in this issue, Ref. [8]), the topical dosage form of phenylethyl resorcinol was designed for skin lightening purpose. They studied two novel types of elastic carriers, i.e., transfersomes and invasomes and compared with liposomes. The carriers can be used to increase the solubility, increase stability and decrease skin irritation, when compared to conventional liposomes. Transfersomes and invasomes showed higher tyrosinase inhibition activity and melanin content reduction when compared to liposomes in B16 melanoma cells. Acute irritation test in rabbits also confirmed that these formulations are safe for skin application. Mya Thet Htar Swe and Panida Asavapichayont reported the paper, "Effect of silicone oil on the microstructure, gelation and rheological properties of sorbitan monostearate-sesame oil oleogels" (in this issue, Ref. [9]). They evaluated the effect of silicone oil addition to the gelation process and to the properties of sorbitan monosterate-sesame oil oleogel. The oleogels with a mixture of oil phases showed the longer and thicker three-dimensional gel network than that of oleogels with sesame oil and silicone oil, mainly due to hydrogen bonding. The results suggested that the addition of silicone oil can improve the physical, thermal properties and stability of sorbitan monostearate-sesame oil oleogel, provide greater sensory profile and better product aesthetics. In the last paper by Mayuree Kanlayavattanakul and colleagues, "Preparation and characterization of nanoparticles from quaternized cyclodextrin-grafted chitosan associated with hyaluronic acid for cosmetics" (in this issue, Ref. [10]), the nanoparticles containing hyaluronic acid was developed. The high molecular weight of hyaluronic acid prevents it from penetrating into the deeper layers of the skin and, thus, limits its benefits to topical effects. Thus, in this study, they prepared nanoparticles of quaternized cyclodextrin-grafted chitosan associated with hyaluronic acid to overcome those limitations. The nanoparticles were also found to be safe via tests on human skin fibroblasts.

REFERENCES

[1] Huanbutta K, Sittikijyothin W. Use of seed gums from Tamarindus indica and Cassia fistula as controlled-release agents. Asian J Pharm Sci 2018;13:398–408.
[2] Pengon S, Chinatangkul N, Limmatvapirat C, Limmatvapirat S. The effect of surfactant on the physical properties of coconut oil nanoemulsions. Asian J Pharm Sci 2018;13:409–14.
[3] Krongrawa W, Limmatvapirat S, Pongnimitprasert N, Meetam P, Limmatvapirat C. Formulation and evaluation of gels containing coconut kernel extract for topical application. Asian J Pharm Sci 2018;13:415–24.
[4] Tubtimsri S, Limmatvapirat C, Limsirichaikul S, Akkaramongkolporn P, Inoue Y, Limmatvapirat S. Fabrication and characterization of spearmint oil loaded nanoemulsions as cytotoxic agents against oral cancer cell. Asian J Pharm Sci 2018;13:425–37.
[5] Thurein SM, Lertsuphotvanit N, Phaechamud T. Physicochemical properties of β-cyclodextrin solutions and precipitates prepared from injectable vehicles. Asian J Pharm Sci 2018;13:438–49.
[6] Sangnim T, Limmatvapirat S, Nunthanid J, et al. Design and characterization of clindamycin-loaded nanofiber patches composed of polyvinyl alcohol and tamarind seed gum and fabricated by electrohydrodynamic atomization. Asian J Pharm Sci 2018;13:450–8.
[7] Chinatangkul N, Limmatvapirat C, Nunthanid J, Luangtana-Anan M, Sriamornsak P, Limmatvapirat S. Design and characterization of monolaurin loaded electrospun shellac nanofibers with antimicrobial activity. Asian J Pharm Sci 2018;13:459–71.
[8] Amnuaikit T, Limsuwan T, Khongkow P, Boonme P. Vesicular carriers containing phenylethyl resorcinol for topical

delivery system; liposomes, transfersomes and invasomes. Asian J Pharm Sci 2018;13:472–84.
[9] Swe MTH, Asavapichayont P. Effect of silicone oil on the microstructure, gelation and rheological properties of sorbitan monostearate–sesame oil oleogels. Asian J Pharm Sci 2018;13:485–97.
[10] Sakulwech S, Lourith N, Ruktanonchai U, Kanlayavattanakul M. Preparation and characterization of nanoparticles from quaternized cyclodextrin-grafted chitosan associated with hyaluronic acid for cosmetics. Asian J Pharm Sci 2018;13:498–504.