Editorial

Crystallization for Pharmaceutical and Food Science

Crystallization is defined as the process in which solid crystal is precipitated from a fluid media (i.e. vapor, solution or melt). It has been widely applied in many areas including pharmaceuticals, fine chemicals, functional materials, agrochemicals and foods. Generally, it can be used to prepare high quality crystal substance by crystallizing it from a fluid media or to concentrate substance in fluid media by precipitating unwanted crystals.

In recent years, crystallization science and technology have received a lot of attention, especially in the field of development of new drugs and foods. The crystallization technology of drug products is common with that of food products (food additives, functional foods, etc) in many aspects. The works mainly focus on the molecular mechanisms of crystallization, new crystallization methods of active pharmaceutical ingredients and food ingredients, development of novel characterization technology of crystals and crystallization process, application of crystallization in the field of pharmaceutical and food science and industry.

Thematic Issue “Crystallization for Pharmaceutical and Food Science” of Current Pharmaceutical Design is a platform to discuss the development and application of crystallization for pharmaceutical and food science. Marco Stoller et al. discuss process intensification techniques for the production of nano- and submicronic particles for food and medical applications [1]. Na Wang et al. introduce cocrystal and its application in the field of active pharmaceutical ingredients and food ingredients [2]. Nandi Chen et al. summarize the properties and the applications of existing soft biomaterial-based nanocrystal in pharmaceutical [3]. Hyerim Yang et al. review the pharmaceutical strategies for stabilizing drug nanocrystals [4]. Yanan Zhou et al. analyze the effects of polymorphism on physicochemical properties and pharmacodynamics of solid drugs [5]. Lek Wantha summarizes the kinetics of the solution-mediated polymorphic transformation of organic compounds [6]. Leming Sun et al. summarize the recent trends in nanocrystals for pharmaceutical applications [7]. Daisy Arora et al. introduce recent advances in nanosuspension technology for drug delivery [8]. Mingxue Fan et al. review nanocrystal technology as a strategy to improve drug bioavailability and antitumor efficacy for the cancer treatment [9]. Cao Wu et al. summarize the preparation, precise control, and application of nanocrystals toward the pharmaceutics and foods industry [10]. Qi Zhang et al. summarize recent advances in magnetic nanoparticle-based molecular probes for hepatocellular carcinoma diagnosis and therapy [11]. Preshita P. Desai et al. summarize crystal engineering approaches for the design of pulmonary delivery systems [12]. Chandrakant R. Malwade et al. introduce process analytical technology for crystallization of active pharmaceutical ingredients [13]. Jaleh Varshosaz et al. review crystal engineering techniques for enhanced solubility and bioavailability of poorly soluble drugs [14]. Zhongyao Cheng et al. provide a comprehensive review on nanocrystals technology in the field of pharmaceutical science and biochemical engineering [15]. J. R. Campos et al. analyze the phase behavior of polymorphic fats in drug delivery systems [16].

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REFERENCES


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