

“My Heart, Your Heart”

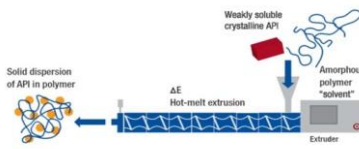
Hot melt enteric targeted therapeutic delivery platform

Enhancing drug solubility through advanced polymer extruded drug delivery system

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Introduction

Cardiovascular diseases (CVDs) are the number 1 cause of death globally. Fenofibrate has been shown an excellent treating effect on CVDs. However, Fenofibrate is a neutral, lipophilic compound that is practically insoluble in water, making it challenging to achieve therapeutic levels consistently. As a result, this project was using shellac material as the polymeric matrix to enhance the solubility of Fenofibrate by producing solid dispersion by hot melt extrusion.



Result and discussion

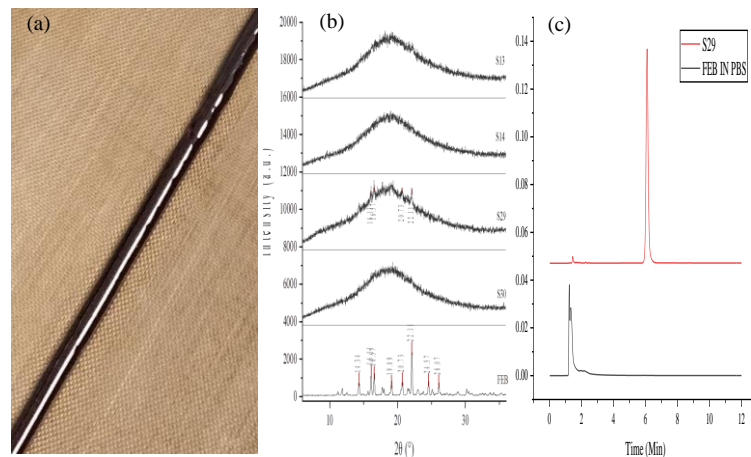


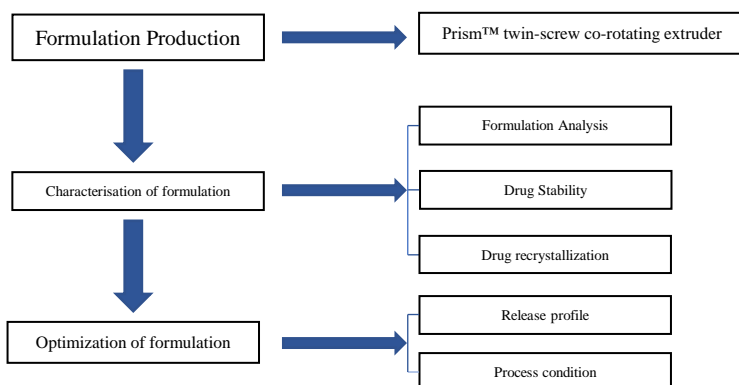
Fig. 1 (a) Formulation samples, (b) P-XRD result, (c) Overlay of HPLC response graph.

Aims

Enhance the solubility and bioavailability of Fenofibrate as an amorphous HME solid dispersion and develop a continuous downstream process to produce a finished, ready to package dosage form direct from the extruder.

The extrudate can keep its shape well during processing, and the process condition has a noticeable impact on the extrudate and the state of the drug substance. Moreover, compared to origin Fenofibrate substance, the drug in the shellac base solid dispersion formulation existing as amorphous state and have significant higher solubility in phosphate buffer solution.

Method



Future Work

Formulation Optimise and downstream process study

- Formulation optimise and produce the formulation
- Characterization of the optimised formulation
- Downstream process review
- Downstream process development
- Downstream process simulation

Acknowledgment: This research was funded by Irish Research Council (GOIPG/2018/2067) and Athlone Institute of Technology, Presidents Seed Fund.

Reference

- [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds))
<https://www.drugbank.ca/drugs/DB01039>

