



Isolation of Synthetic Pleiomaltinine Using the Gilson PLC 2020 Personal Purification System

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Overview

Pyrones comprise a class of biologically significant compounds. Pyrone annulation can result in the formation of uncommon natural products, including alkaloid-pyrone structures. One such natural product of particular interest is the alkaloid-pyrone pleiomaltinine, which exhibits the remarkable and sought-after capacity to reverse multidrug resistance in certain human cancer cell lines¹.

This technical note highlights a study in which a novel pyrone annulation was developed and applied to a plant-derived indole-alkaloid pleiocarpamine to synthesize pleiomaltinine (Figure 1). Following synthesis, this compound was isolated and purified via preparative HPLC on the Gilson PLC 2020 Personal Purification System.

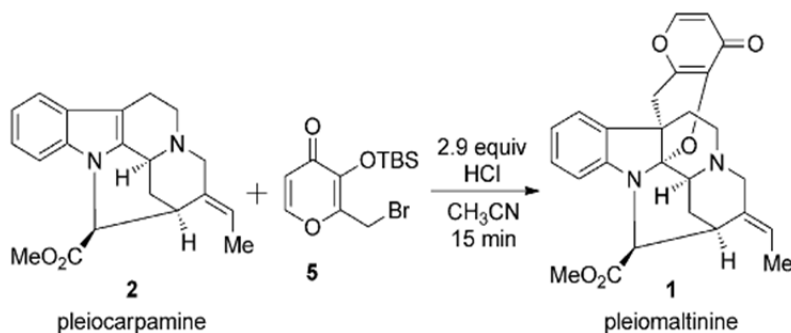


Figure 1. Synthesis of pleiomaltinine

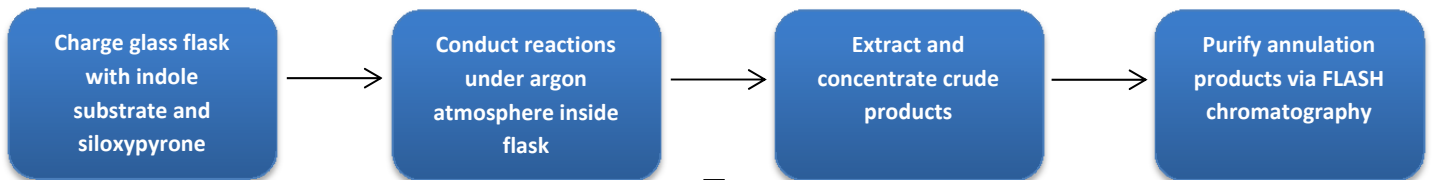


Materials & Methods

Gilson Purification System for Preparative HPLC of Pleiomaltinine

System: PLC 2020 Personal Purification System
Column: Waters SunFire™ Prep C18 OBD™

General Pyrone Annulation Procedure



Pleiomaltinine Synthesis

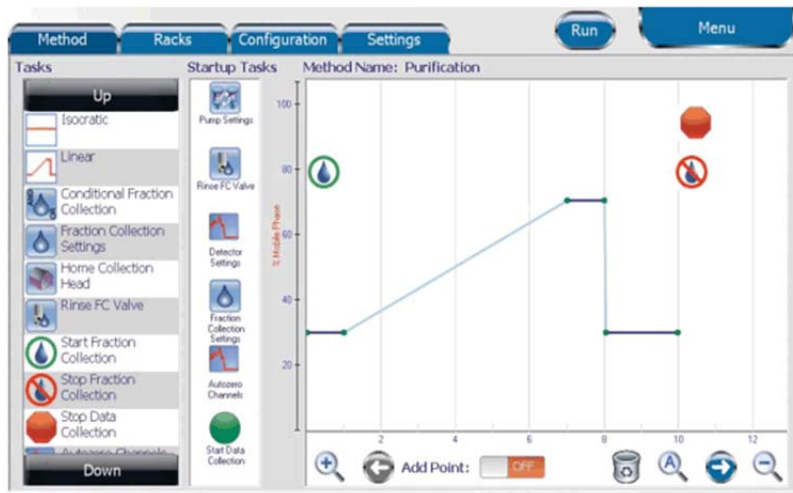
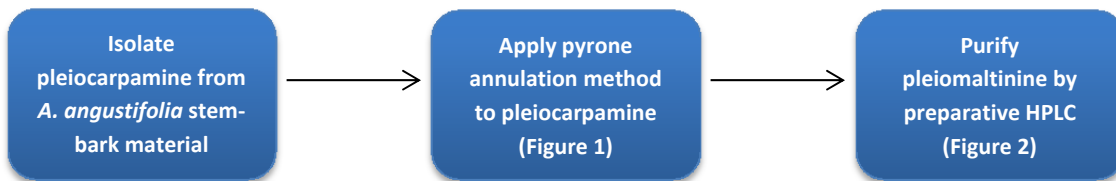


Figure 2. Example purification method setup on the PLC 2020 software interface



Technical Summary

The ability to isolate and purify natural products is essential in the pharmaceutical industry. Many compounds with potential pharmaceutical value, including pleiomaltinine, occur rarely in nature. As such, the development of novel pathways to systematically synthesize these valuable natural products in the laboratory is imperative. During the developmental stages, synthesis reactions are not typically performed on a high-throughput scale, thus the capacity to rapidly purify products on a small, personalized system is advantageous. With the Gilson PLC 2020 Personal Purification System, efficient purification of natural products synthesized in the laboratory is readily achieved, thereby streamlining the drug development process.

References

1. Ziegler, R.E., Tan, S.-J., Kam, T.-S., Porco Jr., J.A. Development of an Alkaloid-Pyrone Annulation: Synthesis of Pleiomaltinine. 2012. *Angew. Chem. Int. Ed.* 51: 9348-9351.

Questions? Please Contact Us

If you have application questions related to this technical note or if you are interested in further information on the Gilson system configurations discussed, please feel free to contact us:

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