



Purification of Aglain Natural Products with the Gilson PLC 2020 Personal Purification System

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Figure 1. Gilson PLC 2020 Personal Purification System

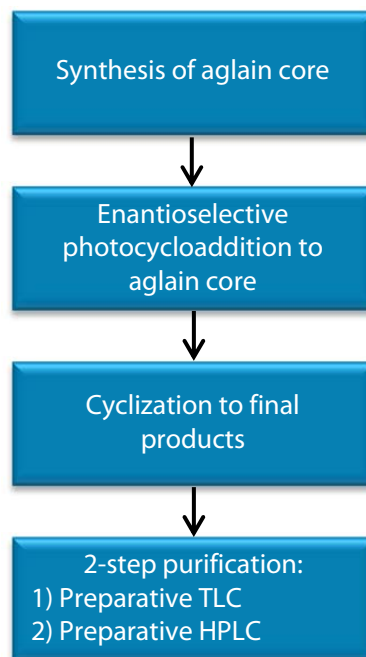


Figure 2. General procedure for aglain natural product synthesis

Conditions

Column: Waters SunFire™ Prep C18 OBD™
(19 x 50 mm, 5 µm)

Mobile phase:

- A: 30:70 ACN/H₂O
- B: 80:20 ACN/H₂O
- Flow rate: 20 mL/min

Natural Products:

- (+)-ponapensin (Figure 3A)
- (+)-elliptifoline (Figure 3B)

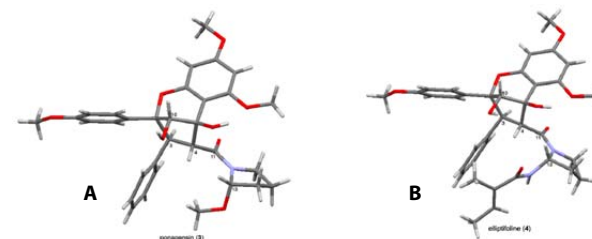


Figure 3. X-ray crystal structures of aglain natural products; A) (+)-ponapensin, B) (+)-elliptifoline.

Plants belonging to the *Aglaia* genus produce a set of secondary metabolites categorized as aglains, or cyclopenta[*b,c*]benzopyrans. This group includes the anti-tumor agents (-)-ponapensin and (-)-elliptifoline. By way of an enantioselective [3 + 2] photocycloaddition reaction (Figure 2), the optical antipodes of these natural products were fully synthesized and assigned absolute configurations. The final products of these syntheses, (+)-ponapensin and (+)-elliptifoline, were purified via reverse phase preparative HPLC using the Gilson PLC 2020 Personal Purification System (Figure 1). Successful synthesis and purification of these compounds will likely assist future drug development efforts.

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Reference Paper : Lajkiewicz, N.J., Roche, S.P., Gerard, B., Porco Jr., J.A. (2012) Enantioselective Photocycloaddition of 3-Hydroxyflavones : Total Syntheses and Absolute Configuration Assignments of (+)-Ponapensin and (+)-Elliptifoline. J. Am. Chem. Soc. 134: 13108-13113.

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