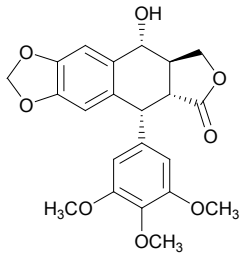
Zbigniew Czarnocki, Med chem 2016, 6:7(Suppl)
http://dx.doi.org/10.4172/2161-0444.C1.020

Zbigniew Czarnocki

University of Warsaw, Poland

Stereoselective synthesis of (-)-Podophyllotoxin and related lignans through the photocyclization of an axially chiral 3,4-bisbenzylidene succinate amide esters

We have developed a strategy for the stereoselective synthesis of cyclolignans related to podophyllotoxin and its derivatives. The crucial step of the synthesis is the photocyclization of a chiral atropoisomeric 3,2-bisbenzylidene succinate amide ester, which can be prepared from the suitable aromatic aldehydes, diethyl succinate and L-prolinol. The photocyclization was found to be more efficient when the irradiation was performed in a home-built continuous flow photochemical reactor. The in-flow irradiation also allowed us to perform the reaction on a multigram scale. The chiral auxiliary was removed by reductive cleavage with the Schwartz's reagent to give the cytotoxic 1R,2R-cis-podophyllic aldehyde, which in turn could be easily reduced to the corresponding alcohol, completing the formal synthesis of (-)-podophyllotoxin.



Podophyllotoxin

Biography

Zbigniew Czarnocki obtained his PhD degree from the University of Warsaw (Poland) in 1983. He obtained his habilitation degree (summa cum laude) in 1993 and in 2002 he became a full Professor. From 1996, he is a Leader of the Laboratory of Natural Products Chemistry. His research interest focuses on stereoselective synthesis of natural products, modern catalytic reactions and pharmacochemistry of various heterocyclic compounds. He supervised 17 PhD students and has authored over 120 publications, 6 review articles, 2 book chapters and 6 patents. In 2012, he was appointed as Dean of the Inter-Faculty Studies in Environmental Protection at the University of Warsaw.

czarnoz@chem.uw.edu.pl

Notes: