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(Day 1)

Mário José Politi, Med chem 2016, 6:7(Suppl)
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Mário José Politi

University of Sao Paulo, Brazil

Effect of urea on ion pair formation: The hydrophilic urea effect

We recently focused that urea produces a higher solution polarity and directly affects liophilic colloidal aggregates. Using ^{79}Br NMR line broadening and solubility data of bis(tri-methyl)-α,ω-alkanediammonium, (1-n-1)Br_2 (n=2-4) (bolaform) and tetramethylammonium bromide and perchlorate salts the effect of urea in weakening ion pair association are investigated. The high association constant of perchlorate with ammonium salts was used to titrate the ammonium-bromide interactions. Bromide counter ion in bolaform salts derivative having two, three, and four methylene spacers or in tetramethyl ammonium salts were replaced by perchlorate. Addition of urea leads to the loss of anion selectivity and the new pairs binds unspecific both anions.

Biography

Mário José Politi is currently a Professor of Biochemistry for under-graduates and Colloid Chemistry for graduates at the Biochemistry department of the Chemistry Institute at the University of Sao Paulo. He received a Pharmaceutical degree from USP in 1974, a Master's degree from USP in 1978, and a PhD from Clarkson University in 1983. After that, he became a full Professor at the Biochemistry department in 2002. He has over 100 publications in international journals in the areas of Colloids and Photochemistry. His current interests are in new materials, colloid polymers, silanes, siloxanes and nanostructured colloids, colloids, e-surfaces and surfactants, photo chemistry and photo physics and organic physical chemistry.

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Zbigniew Czarnocki, Med chem 2016, 6:7(Suppl)
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Zbigniew Czarnocki

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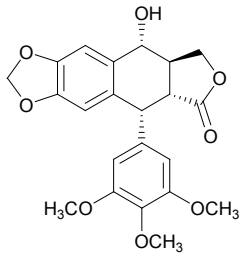
Stereoselective synthesis of (-)-Podophyllotoxin and related lignans through the photocyclization of an axially chiral 3,4-bisbenzylidene succinate amide esters

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.

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