



US005478943A

United States Patent [19][11] **Patent Number:** **5,478,943****Comins et al.**[45] **Date of Patent:** **Dec. 26, 1995**[54] **METHOD OF MAKING INTERMEDIATES FOR CAMPTOTHECIN AND ITS ANALOGS**[75] Inventors: **Daniel L. Comins**, Cary; **Matthew F. Baevsky**, Chapel Hill, both of N.C.[73] Assignee: **North Carolina State University**, Raleigh, N.C.[21] Appl. No.: **410,729**[22] Filed: **Mar. 27, 1995****Related U.S. Application Data**

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[51] **Int. Cl.⁶** **C07D 491/052**[52] **U.S. Cl.** **546/116**[58] **Field of Search** **546/116**[56] **References Cited****U.S. PATENT DOCUMENTS**

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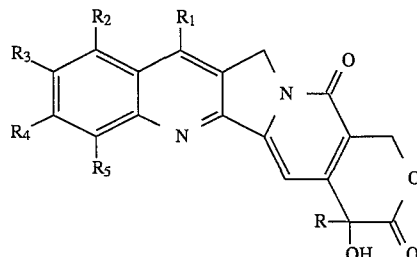
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Primary Examiner—Bernard Dentz

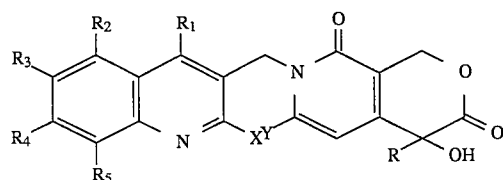
Attorney, Agent, or Firm—Bell, Seltzer, Park & Gibson

[57] **ABSTRACT**

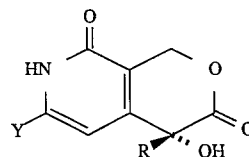
Disclosed are new methods of making camptothecin and camptothecin analogs defined by Formula I:



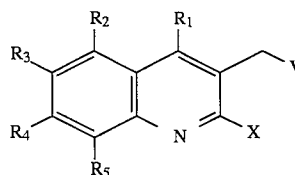
wherein R is loweralkyl; R₁ is H, loweralkyl, loweralkoxy, or halo; and R₂, R₃, R₄ and R₅ are each independently H, amino, hydroxy, loweralkyl, loweralkoxy, loweralkylthiol, di(loweralkyl)amino, cyano, methylenedioxy, formyl, nitro, halo, trifluoromethyl, aminomethyl, azido, amido, hydrazino, or any of the twenty standard amino acids bonded to the A ring via the amino-nitrogen atom. The methods comprise cyclizing a compound of Formula IV:



wherein X is Br or I, and Y is H, by an Aryl-to-Aryl free radical coupling reaction to yield a compound of Formula I. Compounds of Formula IV are made by alkylating a compound of Formula III:



wherein R is loweralkyl and Y is H with a compound of Formula II-x:



wherein X is a Br or I and V is hydroxy, by a Mitsunobu reaction to yield the compound of Formula IV.

7 Claims, No Drawings