United States Patent [19]

Spada et al.

[11] **Patent Number: 5,002,944**

[45] **Date of Patent: * Mar. 26, 1991**

[54] **COMPOUNDS HAVING CARDIOTONIC ACTIVITY**

[75] Inventors: **Alfred P. Spada**, Ambler; **Henry F. Campbell**, Lansdale; **Donald E. Kuhla**, Doylestown; **William L. Studt**, Harleysville; **William C. Faith**, Ambler; **Bruce F. Molino**, Hatfield, all of Pa.

[73] Assignee: **Rhone-Poulenc Rorer Pharmaceuticals Inc.**, Fort Washington, Pa.

[*] Notice: The portion of the term of this patent subsequent to Aug. 22, 2006 has been disclaimed.

[21] Appl. No.: **350,366**

[22] Filed: **May 11, 1989**

Related U.S. Application Data

[62] Division of Ser. No. 925,008, Oct. 29, 1986, Pat. No. 4,859,672.

[51] **Int. Cl.**[5] **C07D 487/04;** A61K 31/435; A61K 31/50; A61K 31/505

[52] **U.S. Cl.** **514/221;** 514/249; 514/254; 514/258; 514/269; 514/274; 514/293; 540/502; 544/236; 544/238; 544/257; 544/276; 544/256; 544/279; 544/310; 544/316; 544/350; 546/118

[58] **Field of Search** 514/254, 258, 269, 274, 514/293, 249, 221; 544/279, 238, 310, 319, 236, 276, 257, 350, 256; 546/118; 540/502

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,026,891	5/1977	Austel	544/238
4,578,386	3/1986	Lee	514/241
4,710,507	12/1987	Campbell	514/312
4,859,672	8/1989	Spada	514/254

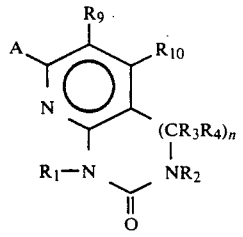
FOREIGN PATENT DOCUMENTS

8400756 3/1984 World Int. Prop. O. .

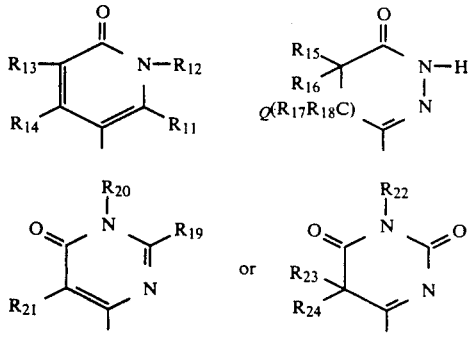
Primary Examiner—Mark L. Berch
Attorney, Agent, or Firm—James A. Nicholson; Imre (Jim) Balogh

[57] **ABSTRACT**

Compounds useful for increasing cardiotonic contractility in humans or other animals and pharmaceutical compositions including these compounds are disclosed. The compounds have the general structure:



where A is



R_1, R_2, R_3, R_4, R_9, and R_{10} are H, lower alkyl of 1–4 carbon atoms, phenyl, substituted phenyl, phenyl lower alkyl of 1–4 carbon atoms or substituted phenyl lower alkyl of 1–4 carbon atoms; and n is 0 or 1.

5 Claims, No Drawings