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[54] CONTROLLED-RELEASE DELIVERY SYSTEM

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[58] **Field of Search** 424/464, 482, 480; 525/54.21; 527/311

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,489,743	1/1970	Crane	260/225
4,775,536	10/1988	Patell	424/482
4,795,641	1/1989	Kashdan	424/438
4,960,814	10/1990	Wu et al.	524/312
5,025,004	6/1991	Wu et al.	424/482
5,217,720	6/1993	Sekigawa et al.	424/480

OTHER PUBLICATIONS

Aqueous Polymeric Coatings for Pharmaceutical Dosage Forms, McGinnity, Dekker, New York (1989), p. 81.

"Materials Used in the Film Coating of Oral Dosage Forms", Rowe, Florence, Blackwell Scientific Publications, p. 1, 1894.

Kirk-Othmer, Encyclopedia of Chemical Technology, Third Ed., vol. 5, pp. 118-143 (1979), John Wiley & Sons, New York, New York.

Encyclopedia of Polymer Science & Engineering, vol. 3, pp. 158-181 (1985), John Wiley & Sons, New York, New York.

Ullman's Encyclopedia of Industrial Chemistry, vol. A5, pp. 438-447 (1986) VCH Verlagsgesellsehaft Weinheim, Germany.

Encyclopedia of Pharmaceutical Technology, vol. 5, pp. 188-200, Marcel Dekker, Inc., N.Y.

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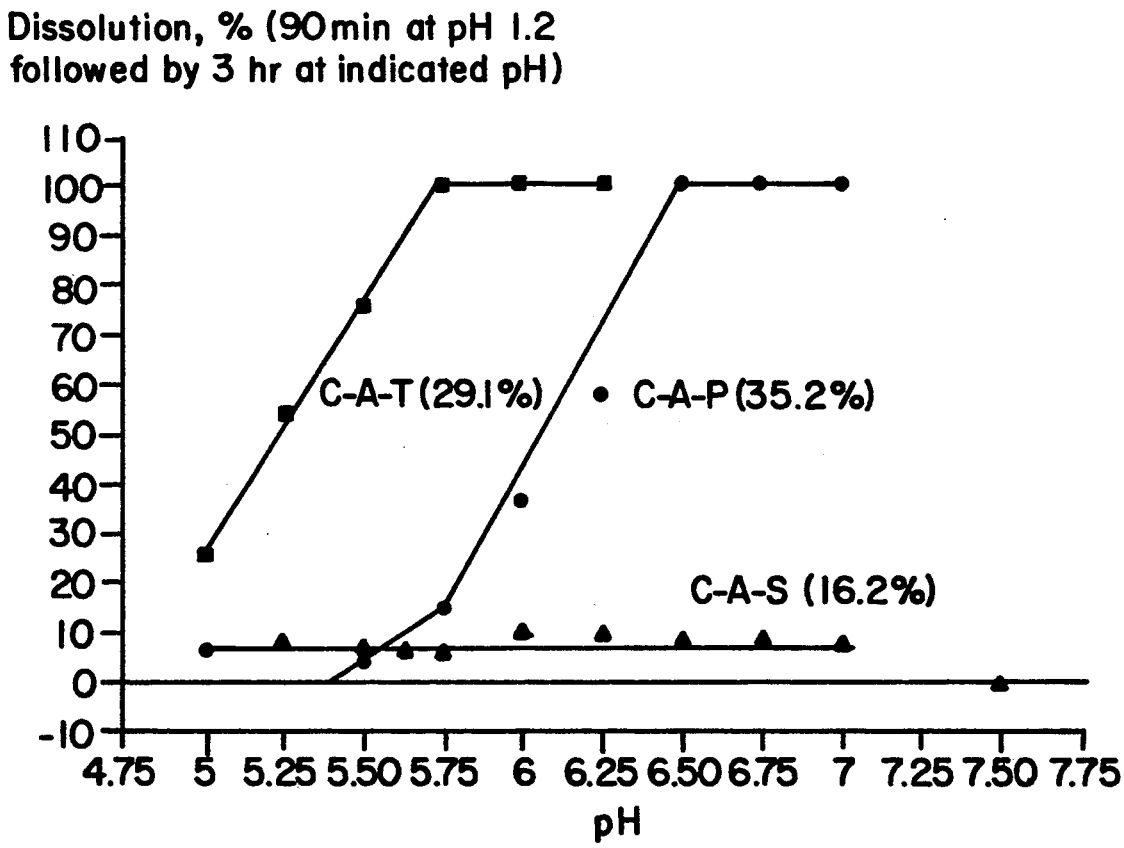
[57] **ABSTRACT**

Provided is a controlled-release system for delivery of bioactive materials such as medicaments, cosmetic ingredients and agrichemicals using cellulose acetate succinate or certain blends of cellulose acetate phthalate polymers as enteric coating materials. Also provided is a method for delivering active ingredients to animals utilizing the controlled-release system of the invention.

8 Claims, 18 Drawing Sheets