United States Patent [19]

Battista

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[45] * **Sep. 14, 1982**

[54] **PROTEIN POLYMER HYDROGELS**

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[*] Notice: The portion of the term of this patent subsequent to Apr. 28, 1998, has been disclaimed.

[21] Appl. No.: **246,660**

[22] Filed: **Mar. 23, 1981**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 74,014, Sep. 14, 1979, Pat. No. 4,264,493, which is a continuation-in-part of Ser. No. 952,303, Oct. 18, 1978, abandoned.

[51] **Int. Cl.**[3] **C07G 7/00;** C08H 1/00; C08H 1/06; C09H 9/00

[52] **U.S. Cl.** ..... **260/117;** 3/1.9; 106/125; 106/135; 106/154 R; 106/161; 128/92 C; 260/112 R; 260/123.5; 260/123.7; 264/1.1; 351/160 H; 351/160 R; 351/161; 351/162; 424/177; 424/359; 424/360

[58] **Field of Search** ..... 260/123.5, 112 R, 123.7, 260/117; 106/161, 135; 264/1.1

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[57] **ABSTRACT**

Protein hydrogel structures formed from natural proteins having an average molecular weight of about 100,000 or less by dissolving the protein in an aqueous acidic solution, crosslinking the protein, and air drying to a moisture content not exceeding 10 percent. The thus dried structure may or may not be bleached with an aqueous solution of an oxidizing agent and thoroughly washed with water. The washed structure is dehydrated by treatment with a water-miscible organic solvent, washed with water, and redried to a moisture content of not more than 10 percent. The structures may be in the form of soft contact lenses, films, fibers, and prosthetics.

25 Claims, No Drawings