



US005677434A

United States Patent [19]

[11] **Patent Number:** **5,677,434**

Freeman et al.

[45] **Date of Patent:** **Oct. 14, 1997**

[54] **IRON-COMPLEXED FORMAZAN DYES FOR POLYAMIDE AND PROTEIN SUBSTRATES**

Kubicki, Chemical Abstracts, vol. 71, p. 76 (1969) Abstract No. 14161f Polish No. 55361.

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Kubicki, Chemical Abstracts, vol. 71, p. 76 (1969) Abstract No. 14162g Polish 55362.

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Kubicki, Chemical Abstracts, vol. 71, p. 76 (1969) Abstract No. 14163h Polish 56636.

[21] Appl. No.: **656,638**

Jankowski et al., Chemical Abstracts, vol. 100, pp. 85-86 (1984) Abstract No. 105087v Polish 116084.

[22] Filed: **May 31, 1996**

Bialkowski et al., Chemical Abstracts, vol. 104, (1986) Abstract No. 90917x Polish 1242566.

[51] **Int. Cl.⁶** **C09B 56/10; C09B 62/018; C09B 62/038**

Cieslak, Chemical Abstracts, vol. 112, p. 151 (1990) Abstract No. 160-998r Polish 146991.

[52] **U.S. Cl.** **534/652; 534/618**

[58] **Field of Search** **534/652, 618**

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[56] **References Cited**

[57] **ABSTRACT**

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A family of 1:2 Fe-complexed formazan dyes is described. The dyes unexpectedly afford reddish-violet, violet, blue and black shades on natural and synthetic substrates. Methods for synthesizing the dyes and for dyeing a substrate are described. The dyes represent environmentally friendly alternatives to conventional Cr- and Co-based azo and formazan dyes.

12 Claims, No Drawings