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Chang et al.

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(54) **ONCE DAILY FORMULATIONS OF TETRACYCLINES**

(58) **Field of Classification Search**

None
See application file for complete search history.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(Continued)

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(21) Appl. No.: **13/920,538**

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(Continued)

(65) **Prior Publication Data**

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Related U.S. Application Data

(Continued)

(63) Continuation of application No. 12/926,933, filed on Dec. 17, 2010, now Pat. No. 8,470,364, which is a continuation of application No. 12/155,676, filed on Jun. 6, 2008, now Pat. No. 8,206,740, which is a continuation of application No. 10/819,620, filed on Apr. 7, 2004, now Pat. No. 7,749,532.

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(60) Provisional application No. 60/460,963, filed on Apr. 7, 2003, provisional application No. 60/547,964, filed on Feb. 26, 2004.

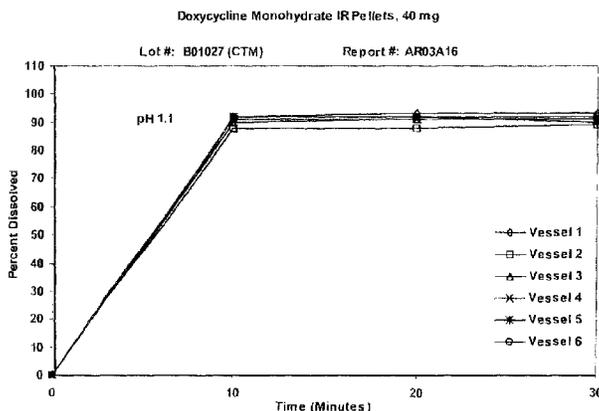
(57) **ABSTRACT**

Disclosed are once-daily formulations containing tetracyclines, especially doxycycline. Such formulations are useful, for instance, for the treatment of collagenase destructive enzyme-dependent diseases, such as periodontal disease and acne, and acute and chronic inflammatory disease states, such as rosacea and arthritis.

(51) **Int. Cl.**
A61K 9/22 (2006.01)

(52) **U.S. Cl.**
USPC **424/468**

37 Claims, 6 Drawing Sheets



Dissolution profile for doxycycline monohydrate IR beads