## United States Patent [19]

#### Rhodes

#### [54] SLOW RELEASE FORMULATION

- [75] Inventor: Alan Rhodes, Ely, United Kingdom
- [73] Assignee: Ethical Pharmaceuticals Limited, United Kingdom
- [21] Appl. No.: 12,026
- [22] Filed: Feb. 9, 1987

#### [30] Foreign Application Priority Data

#### Feb. 13, 1986 [GB] United Kingdom ...... 8603523

- [51] Int. Cl.<sup>4</sup> ..... A61K 9/16; A61K 9/26
- [58] Field of Search ...... 424/468, 469, 470, 472, 424/473; 514/965

#### [56] References Cited

#### U.S. PATENT DOCUMENTS

2,809,916 2,809,917 3,148,124 3,279,998 3,400,197 3,402,240 3,870,790 3,946,110 3,962,414 4,369,172 4,540,566 4,590,062	10/1957 9/1964 10/1966 9/1968 3/1975 3/1976 6/1976 1/1983 9/1985 5/1986	Hermelin	424/500 424/472 424/468 424/469 424/469 424/469 514/161 424/473 424/468 514/964 424/469
	-,	Jang Uemura et al	

# [11] Patent Number: 4,880,830 [45] Date of Patent: Nov. 14, 1989

#### FOREIGN PATENT DOCUMENTS

0013131	9/1980	European Pat. Off.
0094513	11/1983	European Pat. Off.
1021924	3/1966	United Kingdom .
1033484	6/1966	United Kingdom .
1137379	12/1968	United Kingdom .
1333576	10/1973	United Kingdom .
	9/1975	United Kingdom .
1486288	9/1977	United Kingdom .

Primary Examiner-Ronald W. Griffin

Attorney, Agent, or Firm—Saidman, Sterne, Kessler & Goldstein

#### ABSTRACT

A slow release formulation to be administered to humans or animals, comprising primary granules which contain an active ingredient and are in a secondary matrix of a water soluble/dispersible slow release material, the granules themselves comprising particles containing the active ingredients and in a primary matrix of a water soluble/dispersible slow release material.

Optionally the formulation comprises a binder phase of a water insoluble slow release material having embedded therein secondary granules comprising the secondary matrix containing the primary matrix granules.

The water soluble/dispersible material may be a polysaccharide and acacia and low viscosity methylcellulose are exemplified, as well as alginate and gelatine.

#### 20 Claims, 4 Drawing Sheets

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[57]

GRANULE/ BINDER MIXTURE

4 GRANULATE AND DRY

#### GRANULES

5 DRY BLEND WITH WATER INSOLUBLE BINDER

WAX/GRANULE AGGLOMERATE



TABLETS

FIG. 1.

```
ACTIVE INGREDIENT
BINDER SOLUTION
```

Ø MIX

ACTIVE INGREDIENT/BINDER MIXTURE

C GRANULATE AND DRY

GRANULES

3 MIX WITH BINDER SOLUTION

GRANULE/ BINDER MIXTURE

(4) GRANULATE AND DRY

GRANULES

5 DRY BLEND WITH WATER INSOLUBLE BINDER

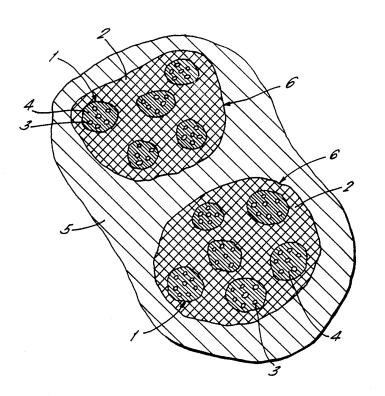
WAX/GRANULE AGGLOMERATE

6 PRESS NTO TABLETS

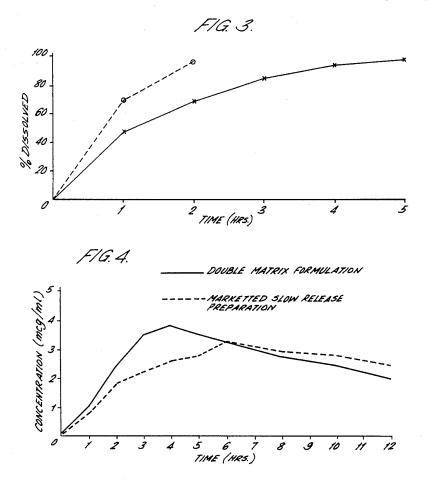
TABLETS

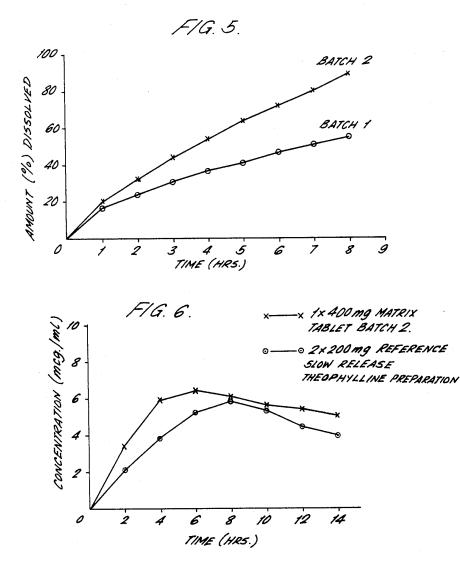
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