

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
22 May 2003 (22.05.2003)

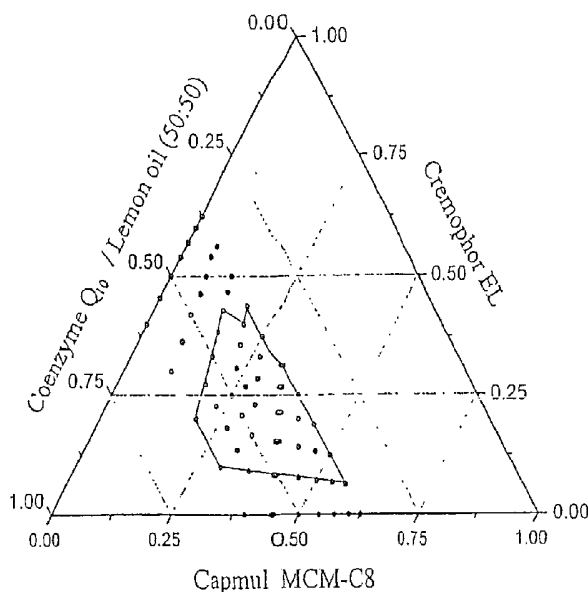
PCT

(10) International Publication Number  
WO 03/041632 A3

- (51) International Patent Classification<sup>7</sup>: A61K 9/48, 9/58, 9/66, 9/127
- (21) International Application Number: PCT/US02/33640
- (22) International Filing Date: 14 November 2002 (14.11.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/331,292 14 November 2001 (14.11.2001) US
- (71) Applicant: **TEXAS TECH UNIVERSITY** [US/US]; Texas Tech University Health Sciences Center, P.O. Box 42007, Lubbock, TX 79409-2007 (US).
- (72) Inventors: **KHAN, Mansoor, A.**; Texas Tech School of Pharmacy, 1300 Coulter, Amarillo, TX 79106 (US). **NAZ-ZAL, Sami**; Texas Tech School of Pharmacy, 1300 Coulter, Amarillo, TX 79106 (US).
- (74) Agent: **YANCY, Jennifer, P.**; Jones, Tullar & Cooper, P.C., P.O. Box 2266, Eads Station, Arlington, VA 22202 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published: — with international search report
- (88) Date of publication of the international search report: 20 November 2003

[Continued on next page]

(54) Title: EUTECTIC-BASED SELF-NANOEMULSIFIED DRUG DELIVERY SYSTEM



(57) Abstract: A eutectic-based self-nanoemulsified drug delivery system (SNEDDS) as described in Figures 1-18, is formulated from polyoxyl 35 castor oil, medium chain mono- and diglycerides, essential oils, and a pharmacologically effective drug. The preferred pharmacologically effective drug is a poorly water-soluble drug, such as ubiquinone. The SNEDDS can be further incorporated into a powder to produce a solid dosage form containing vinylpyrrolidone and vinyl acetate, maltodextrin, and microcrystalline cellulose.



WO 03/041632 A3



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/33640

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
IPC(7) : A61K 9/48, 9/58, 9/66, 9/127		
US CL : 424/450, 451, 455, 462		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 424/450, 451, 455, 462		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) West		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,980,939 A (KIM et al.) 09 November 1999 (09.11.1999), see abstract, columns 6-9, examples, and claims 1-17.	1, 2, and 7
A	US 6,284,268 B1 (MISHRA et al.) 04 September 2001 (01.09.2001), see abstract, columns 7-9.	1-19
A	US 6,174,547 B1 (DONG et al.) 16 January 2001 (16.01.2001), see columns 3-6.	1-19
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family	
Date of the actual completion of the international search 16 January 2003 (16.01.2003)		Date of mailing of the international search report <b>03 JUN 2003</b>
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230		Authorized officer <i>Susan Fran</i> Telephone No. (703) 308-1235