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(54) **ANTIFUNGAL COMPOSITIONS FOR THE TREATMENT OF SKIN AND NAILS**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,706,701	A *	4/1955	Beller	A61K 33/18	424/672
3,551,554	A *	12/1970	Herschler	A61K 9/0014	424/184.1
4,652,557	A	3/1987	Sandborn		
6,391,879	B1	5/2002	Reeves		
2003/0049320	A1*	3/2003	Bhagwatwar	A61K 9/0019	424/486
2004/0241114	A1*	12/2004	Gupta	424/61	
2006/0067898	A1*	3/2006	Kepka et al.	424/61	
2006/0165747	A1	7/2006	Rolf		
2007/0292359	A1*	12/2007	Friedman et al.	424/47	
2009/0162301	A1	6/2009	Tarrand		
2014/0271529	A1*	9/2014	Stogniew et al.	424/78.07	

FOREIGN PATENT DOCUMENTS

GB	2275191 A		8/1994	
WO	WO 85/05036	*	11/1985	A61K 38/28
WO	WO 2012/154740 A1		11/2012	

OTHER PUBLICATIONS

Lubricants: retrieved from internet: http://www.dow.com/polyglycols/polyethylene/applications/lubricants.htm. Retrieved on Sep. 11, 2015.*

DNA from keratinous tissue. Part I: hair and nail: retrieved from internet: http://www.ncbi.nlm.nih.gov/pubmed/21530205. Retrieved on Sep. 11, 2015.*

Povidone-iodine: retrieved from internet: http://pubchem.ncbi.nlm.nih.gov/compound/Povidone-iodine. Retrieved on Sep. 11, 2015.*

Schenck et al.: Structure of Polyvinylpyrrolidone-Iodine (Povidone-Iodine), Journal of Pharmaceutical Sciences, vol. 68, No. 12, 1979, pp. 1505.*

Sulzberger et al.: Some Effects of DMSO on Human Skin in vivo, Annals of the New York Academy of sciences, vol. 141, Iss. 1, pp. 437.*

International Search Report in PCT/US2014/025470.

Berkelman, Ruth, et al., Journal of Clinical Microbiology, Apr. 1982, p. 635-639 vol. 15, No. 4.

International Search Report in PCT/US2012/036942.

* cited by examiner

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(57) **ABSTRACT**

The invention concerns a composition and method for treating an ungual infection, the composition comprising an iodophor and dimethylsulfoxide (DMSO).

28 Claims, No Drawings