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(54) **PURIFICATION PROCESS FOR IMPROVING TOTAL YIELD OF CURCUMINOID COLOURING AGENT**

(75) Inventors: **Bjørn Madsen**, Helsingør (DK); **Venancio Hidalgo Garcia**, Santa Ana-Cartagena Murcia (ES); **Luis Hernandez Vera**, Alcantarilla Murcia (ES)

(73) Assignee: **CHR. Hansen A/S**, Horsholm (DK)

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(58) **Field of Search** 424/756

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,138,212	A		2/1979	Stransky
4,368,208	A		1/1983	Schranz
5,108,750	A	*	4/1992	Liu
5,120,538	A	*	6/1992	Oei
5,210,316	A		5/1993	Yang et al.
5,494,668	A		2/1996	Patwardhan
5,861,415	A		1/1999	Majeed et al.
6,224,877	B1	*	5/2001	Gaikar et al.
6,326,504	B1	*	12/2001	Piquer et al.

FOREIGN PATENT DOCUMENTS

EP	0025637	3/1981
WO	WO 97/03674	2/1997
WO	WO 97/26802	7/1997
WO	WO 97/26803	7/1997
WO	WO 00/47703	8/2000

OTHER PUBLICATIONS

N. Krishnamurthy et al., Trop. Sci. 1976, 18(1), pp. 37–45, "Oil and Oleoresin of turmeric".

A. G. Perotti, Industrie Alimentari, pp. 66–68, La Curcumina—Un Utile Colorante Vegetale Poco Noto, "Curcumin: An Useful Vegetable Colour Not Much Well–Known", English Translation: "Curcumin—A Little Known Vegetable Colorant".

V. S. Govindarajan, Jun. 1980, CRC Critical Reviews in Food Science and Nutrition, "Tumeric–Chemistry, Technology, and Quality", pp. 199–301.

* cited by examiner

Primary Examiner—Christopher R. Tate
(74) *Attorney, Agent, or Firm*—Hunton & Williams LLP

(57) **ABSTRACT**

The present invention pertains to a process of improving the total yield of curcuminoids from curcuminoid-containing material. More specifically, there is provided a process wherein a second residue, previously considered a waste resulting from a crystallization step of a curcuminoid-containing phase, is made useful by improving the coloring properties of this second residue by extraction with hexane and/or methanol at ambient temperature. The process improves the total yield of curcuminoids by 30–40%.

42 Claims, 1 Drawing Sheet