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(54) **SOLUBLE DOUBLE METAL SALT OF GROUP IA AND IIA OF HYDROXYCITRIC ACID, PROCESS OF PREPARING THE SAME AND ITS USE IN BEVERAGES AND OTHER FOOD PRODUCTS WITHOUT EFFECTING THEIR FLAVOR AND PROPERTIES**

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(50) References Cited

U.S. PATENT DOCUMENTS

3,764,892 A	10/1978	Loweman	514/449
3,767,678 A	10/1978	Garfink et al.	514/449
3,810,931 A	5/1979	Garfink et al.	562/584
4,275,254 A	6/1981	Barcel et al.	562/584
4,282,236 A	6/1981	Bjorn	424/270
4,104,044 H	3/1984	Von Kunitzcrinski	426/548
4,919,983 A	4/1985	Sarfo et al.	106/362
4,949,405 A	2/1987	Lawton et al.	426/271
5,006,416 A	7/1986	McBain et al.	426/271
5,135,959 A	3/1997	Policapelli et al.	424/195-1
5,556,714 A	8/1997	McBain et al.	426/271
6,160,172 A	* 12/2000	Balasubramanyam et al.	562/584

FOREIGN PATENT DOCUMENTS

WO 1998/06554 5/1998

OTHER PUBLICATIONS

Y.S. Lewis, *Isolation and Characterization of Hydroxytric Acid*, Methods in Enzymology, vol. VII, pp. 613-617 (Oct. 1, 1969)
Abstract of EP 275,820—Caplas Doc. No. 128-275299, 1Apr. 24, 1998.

* cited by examiner

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(57) **ABSTRACT**

The present invention is directed to a new soluble double metal salt of group IA and IIA of (-)-hydroxycitric acid of general formula I:

where X is IA group metal: Li or Na or K or Rb or Cs or Fr

where Y is IIA group metal: Be or Mg or Ca or Sr or Ba or Ra

where the concentration of X in the salt varies from 1-31.0%,

the concentration of Y in the salts varies from 2.0-50.9%,

the concentration of HCA in the salt varies from 31.0-93.0% depending on the nature of X and Y.

This invention more particularly relates to new soluble double metal salt of group IA and IIA of (-)-hydroxycitric acid of general formula II.

This invention also includes a process of preparing the soluble double metal salt of group IA and IIA of (-)-hydroxycitric acid of general formula I comprising: preparing (-)-hydroxycitric acid liquid concentrate solid lactone or hydroxycitric acid from Garcinia extract, neutralizing the free (-)-hydroxycitric acid present in the said (-)-hydroxycitric acid liquid concentrate solid lactone (-)-hydroxycitric acid with group IA metal hydroxides, displacing partially the group IA metal ions in the above salt solutions by adding group IIA metal hydroxides to form soluble double metal salt of group IA and IIA of (-)-hydroxycitric acid, precipitating the said double metal salt of group IA & IIA of (-)-hydroxycitric acid by adding aqueous polar solvent to get soluble IIA metal salt of (-)-hydroxycitric acid or obtaining the soluble double metal salt as powder by spray drying prior to the solvent addition or spray drying water solubilized solvent precipitated material.

The instant invention also discloses the use of the said soluble double metal salt of group IA and IIA of (-)-hydroxycitric acid of formula I and particularly formula II in beverages and other food products and its use in beverages and other food products.

14 Claims, No Drawings