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(12) **United States Patent**
Moriya et al.

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(54) **COMPOSITION CONTAINING β -GLUCAN, METHOD OF PRODUCING THE SAME AND FOODS, DRINKS OR SKIN MOISTURIZERS CONTAINING THE COMPOSITION**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1389 days.

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(58) **Field of Classification Search** None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,442,541 B2 * 10/2008 Tsubaki et al. 435/254.1
2005/0272694 A1 12/2005 Moriya et al.

FOREIGN PATENT DOCUMENTS

JP	61 146192	7/1986
JP	62 205008	9/1987
JP	7 51080	2/1995
JP	7-51080	2/1995
JP	7-51082	2/1995
JP	9 56391	3/1997
JP	9-56391	3/1997
JP	10 276740	10/1998
JP	2002 204687	7/2002
JP	2002-204687	7/2002
KR	2003-0039872	5/2003

OTHER PUBLICATIONS

Nobutake Hamada, et al., "Ascorbic Acid Stimulation of Production of a Highly Branched β -1,3-Glucan by *Aureobasidium pullulans* K-1—Oxalic Acid, a Metabolite of Ascorbic Acid as the Stimulating Substance", *Biosci. Biotechnol. Biochem.*, vol. 64, No. 9, XP-009049436, Jan. 1, 2000, pp. 1801-1806.

* cited by examiner

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(57) **ABSTRACT**

It is intended to utilize β -glucan produced by a bacterium belonging to *Aureobasidium* sp. From a bacterium belonging to *Aureobasidium* sp., a mutant with little pigment accumulation is constructed by a mutagenesis means of, for example, irradiating with ultraviolet light or treating with a mutagen. A culture obtained by culturing this mutant in a liquid culture medium is usable as a composition with a large β -glucan content without showing any intense dark green color caused by the accumulation of melanin-like pigments. This composition may be taken as such as a functional food having the physiologically active functions of the β -glucan-containing composition. Alternatively, it may be added to foods, drinks, food additives, cosmetics and so on.

7 Claims, 5 Drawing Sheets