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United States Patent [19]

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Carrera et al.

[45] Date of Patent: **Jul. 13, 1993**

[54] METHOD OF PRODUCING SURFACTIN WITH THE USE OF MUTANT OF *BACILLUS SUBTILIS*

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[73] Assignee: **Eniricerche S.p.A.**, Milan, Italy

[21] Appl. No.: **718,464**

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[30] **Foreign Application Priority Data**

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Nov. 23, 1990 [IT]	Italy	22176 A/90

[51] Int. Cl.⁵ **C12P 21/02; C12P 1/125**

[52] U.S. Cl. **435/71.2; 435/71.1; 435/252.31; 435/252.5**

[58] Field of Search **435/71.2, 71.1, 252.5, 435/252.31**

[56] **References Cited**

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[57] **ABSTRACT**

The present invention relates to a stable mutant of *Bacillus subtilis* which can produce surfactin with high yields, a method of producing surfactin with the use of the strain and the use of the surfactin obtained for pharmaceutical, energy and environmental problems.

11 Claims, 11 Drawing Sheets

FIG. 1

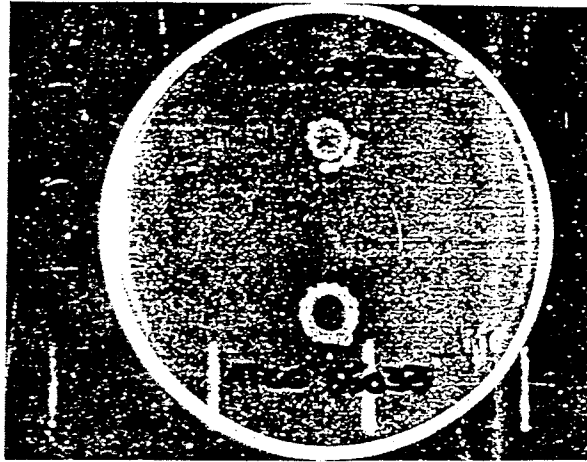


FIG. 2

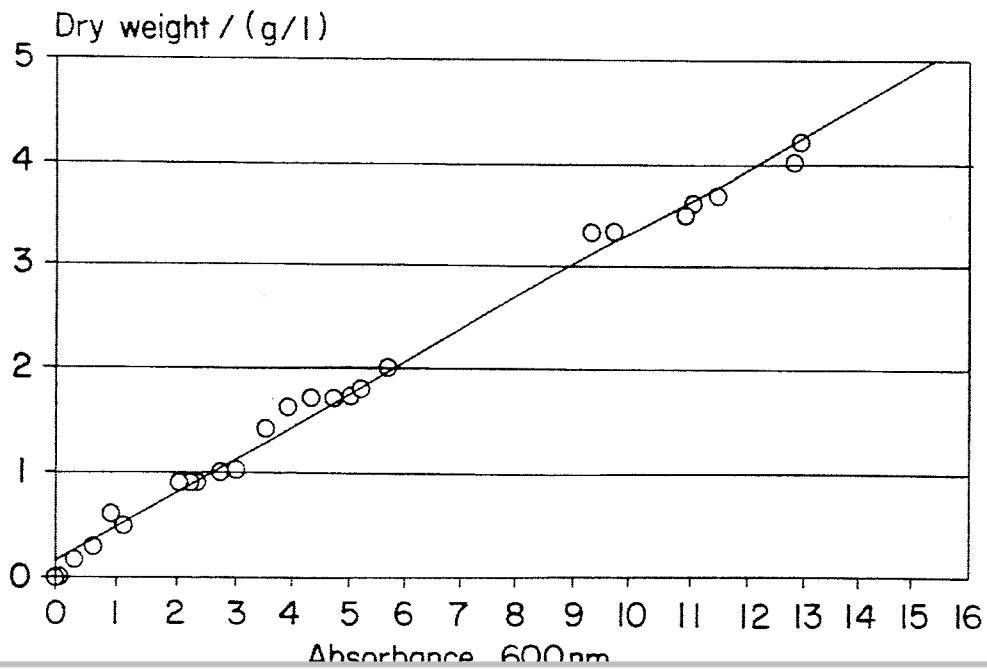


FIG. 3

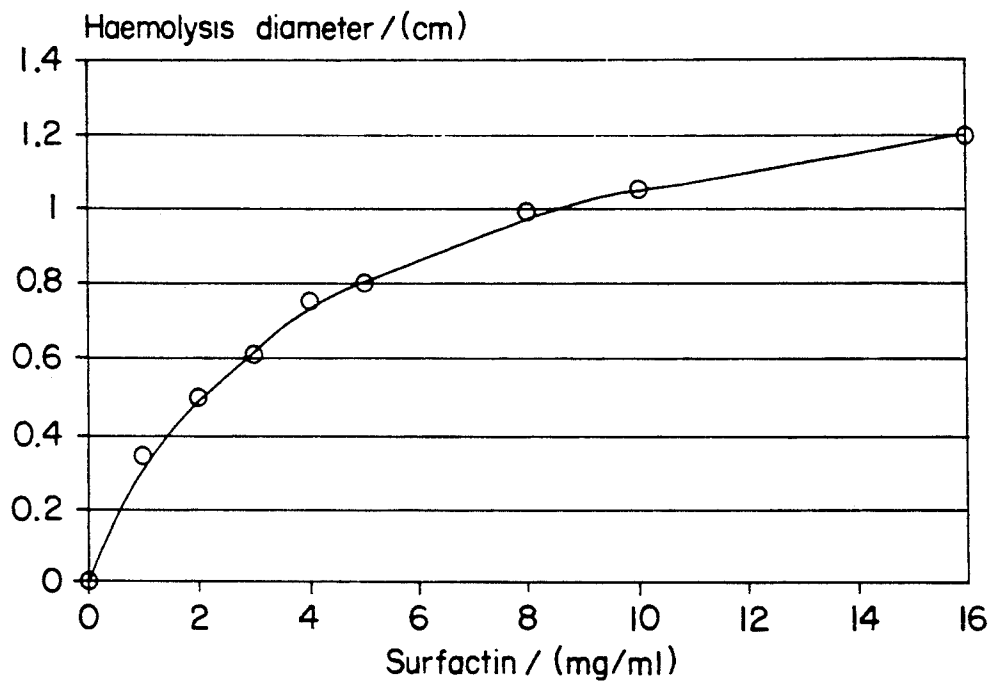


FIG. 4

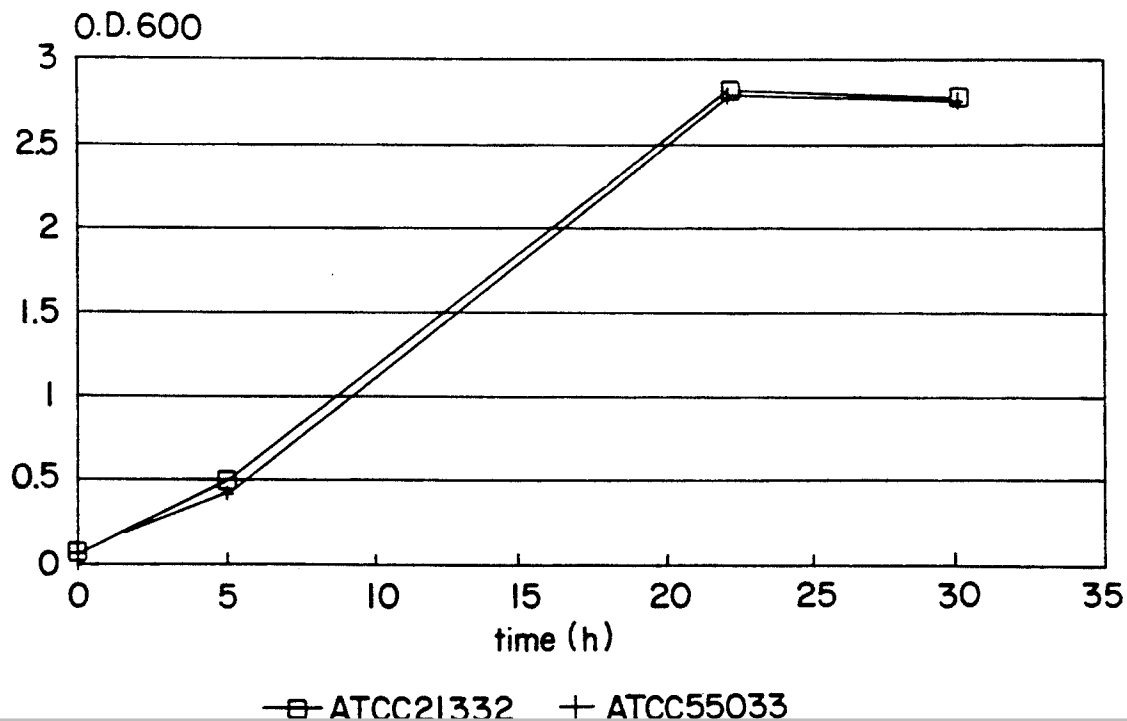


FIG. 5

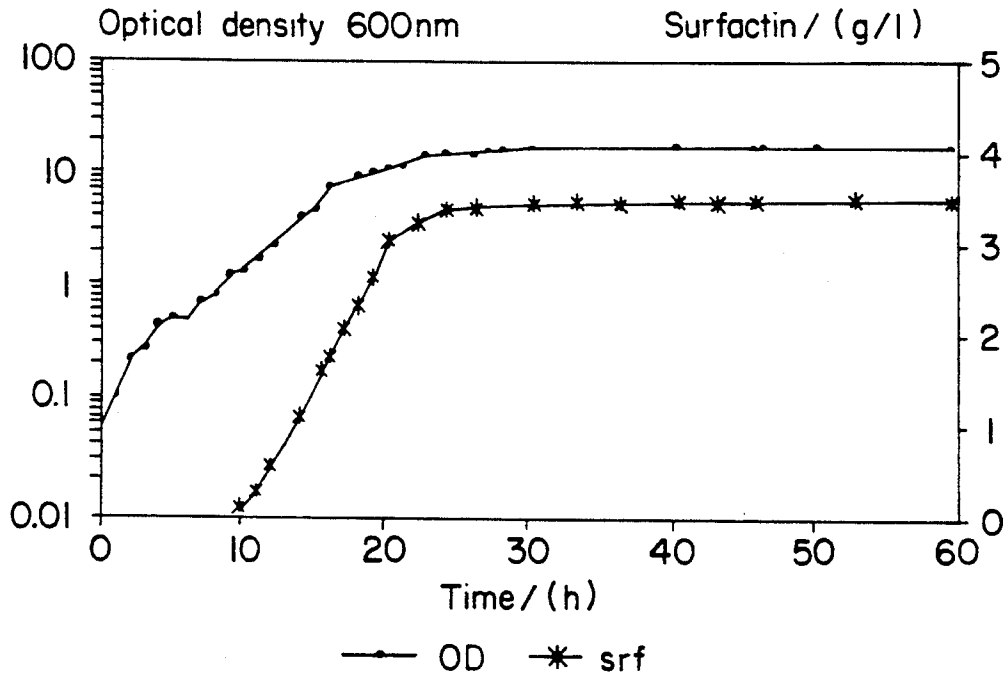


FIG. 6

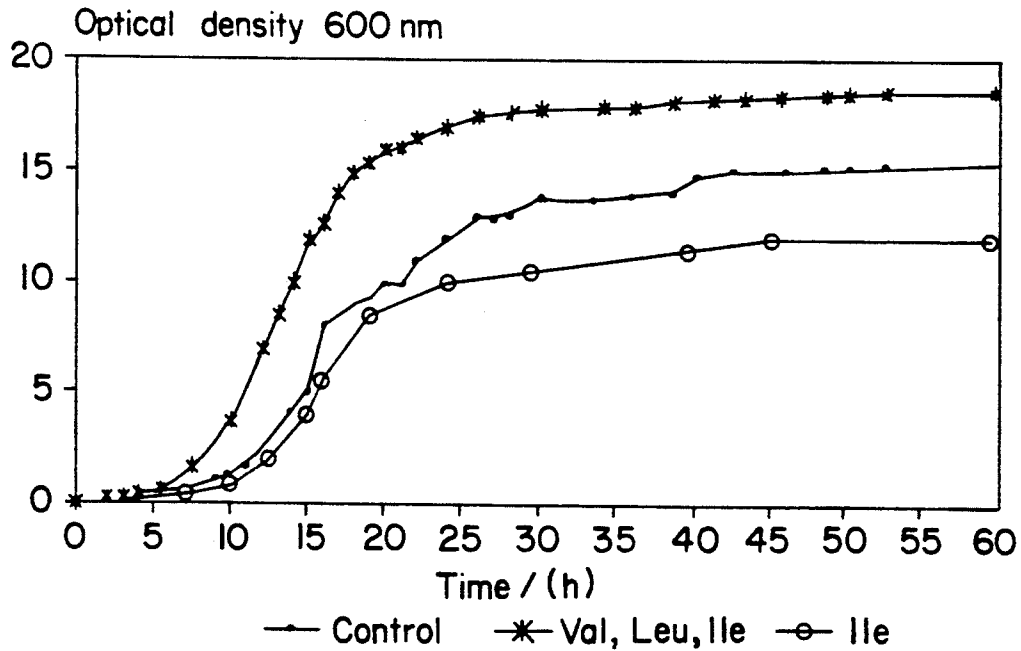


FIG. 7

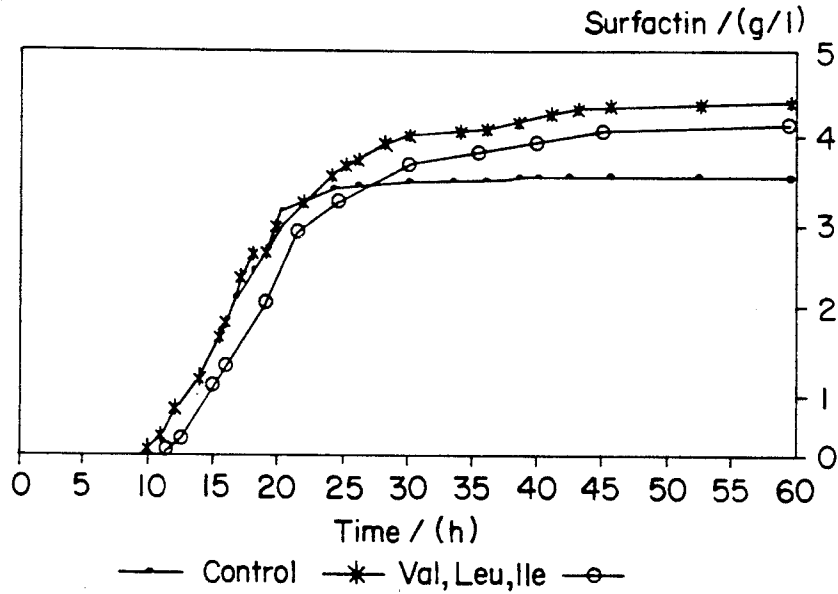
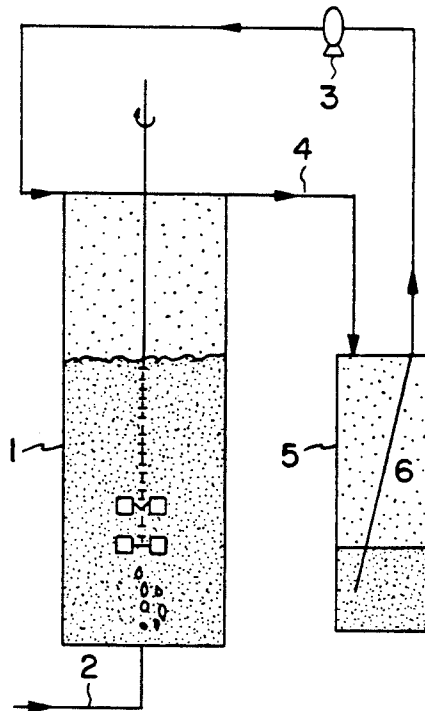


FIG. 8



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