

Special lectures

- Ice Crystal Growth and Secondary Nucleation in Freeze Concentration

Kazuhiro NAKANISHI, Yoshito SHIRAI and Ryuichi MATSUNO

- Establishment of the JCRB Cell Bank and Quality Controls of Cell Lines

Hiroshi MIZUSAWA and Motoi ISHIDATE

Articles

1. Freezing Tolerance in Edible Mushrooms

Seizo FUJIKAWA and Kiyoshi MIURA

2. Fluorescence Polarization Study on Escherichia coli Cell Membranes Related to Sensitivity of the Cell to Freeze-Thawing

Hiroshi SOUZU

3. Translational Motion of Hydration Water on the Surface of Protein Molecule

Naofumi HANAFUSA

4. Freeze-Thawing Behavior of Biopolymer Gels

Norio MURASE and Kinji GONDA

5. Freeze Texturing of Food Materials by Ice-Nucleation with the Bacterium *Erwinia ananas*

Soichi ARAI and Michiko WATANABE

6. Studies on Preservation of Industrially Useful Microorganisms (Part 7)

On an Oxygen-Resistant Hydrogen Bacterium

Kazuo KIMURA, Kaname SAIDA and Yoshihiro NAKAMURA

7. Factors Affecting the Viability of L-Dried Cells and Frozen Cells of Marine Bacteria

Makoto SUZUKI and Kazuhide YAMASATO

8. Preservation of Various Bacteria by L-Drying, Part II

Takeshi SAKANE and Ko IMAI

9. Survival of Glycerol-Tolerant Cell from Freeze-Thawing Damage

Kaname SAIDA, Kazuo KIMURA and Yoshihiro NAKAMURA

10. Preservation of Yeast Cultures by Freezing at -80°C

Kozaburo MIKATA and Isao BANNO

11. Investigation of Preservation Methods of Plant Pathogenic Fungi

Yukio TSUCHIYA

12. Comparison between L-Drying and Freeze-Drying for Preservation of Tobacco Ringspot Virus

Fumiyoshi FUKUMOTO

13. Preservation of Toxoplasma and Eimeria-Organisms by Freezing

Shingo ITO and Kameo SHIMURA

14. Preservation of Bacterial Activities by Several Preservation Methods

Setsuko UCHIDA, Susumu MAEDA and Yoichi MIKAMI

15. Stability of Plasmids in L-Dried Cells of *Escherichia coli* Strains

Takeshi SAKANE and Ko IMAI

Seminar on papers presented at the International Institute of Refrigeration Commission C1 Meeting: "Fundamentals and Applications of Freeze-Drying to Biological Materials, Drugs and Foodstuffs".

1. Introduction

Kazuhide YAMASATO

2. Basic aspects

Norio MURASE

3. Pharmaceuticals

Nobuya NAGASHIMA

4. Foodstuffs

Yumiko MATSUDA

5. Engineering (Physical chemistry)

Yasuyuki SAGARA

(Apparatus)

Masakazu KOBAYASHI

6. Microorganisms

Mitsuo TAKANO

7. Medical field

Shinji YUASA