

Special lectures

1. The Cryopreservation of Human Embryos

Rihachi IIZUKA and Rui AOKI

2. Sludge Dewatering by Freezing

Masanori FUJITA

Articles

1. Freezing of DNA Gel and Separation of Tris-HCl-H₂O Eutectic

Hisako URABE, Midori KATO, Kazuhito KAJIWARA and Yasunori TOMINAGA

2. The Hydration Characteristics of Lipid

Naofumi HANAFUSA

3. Changes in Membrane Ultrastructure of Plant Protoplasts after Freezing

Yasutake SUGAWARA and Peter L. STEPONKUS

4. Generation of Free Radicals in Human Polymorphonuclear Leukocytes by Hyperosmotic Stress and Freeze-thaw Cycle

Tsuneo A. TAKAHASHI, Mikinori KUWABARA, Wakako HIRAOKA, Kunihiko NAKAI, Mari HOSODA and Sadayoshi SEKIGUCHI

5. Disrupting of Fungus and Actinomycetes Cells with Cryo Clean Blaster (CCB)

Yoshiyuki OMORI, Masanori TSUMURA, Taizo ICHIDA and Kazuhide YAMASATO

6. Interval Variance of the Sublimation Rate in Shelf Freeze-drying : Elimination of the Variance by the Chamber Wall Temperature Control

Masakazu KOBAYASHI, Ryoji SUNAMA and Konomi HARASHIMA

7. A Closed System for Batch Freeze-drying of Liquid Material by the Use of Vertical Tube

Masakazu KOBAYASHI, Konomi HARASHIMA and Hiroichi ARIYAMA

Lectures presented at the Meeting on the 30th Anniversary of Japanese Society for Research of Freezing and Drying (in part)

Special lectures

1. Vitrification of Cryoprotectant Solutions

Douglas R. MACFARLANE

2. Ultrastructural Changes of Freeze-injured Plasma Membranes

Seizo FUJIKAWA

3. Behavior of Hydration Water of Protein during Freezing and Drying

Naofumi HANAFUSA

4. Induction of Mutation by Drying in Bacteria and Effects of Thiourea, Adonitol and Cysteine on Prevention of Induction of Mutation

Takeshi SAKANE

Articles (Freezing and Drying Session)

1. A Preliminary Report on the Superhigh Speed Cell Freezing with Ultra Low Temperature Helium Gas

Atsuo NOGUCHI, Masami FUJISAKI, Takeshi URAO, Nobuo SAKAO and Yasuo KURAOKA

2. Preservation of Methanogens by Freeze-drying and L-Drying

Tsuyoshi MORINAGA and Kouichi INOUE

3. Cryopreservation of Unprotected Red Blood Cells by Ultra Rapid Freezing

Shin-ichi UEDA, Tsuneo A. TAKAHASHI and Seizo FUJIKAWA

4. Cryo-disruption of Bacterial Cells by Cryo Clean Blaster (CCB)

Masanori TSUMURA, Taizo ICHIDA and Kazuhide YAMASATO