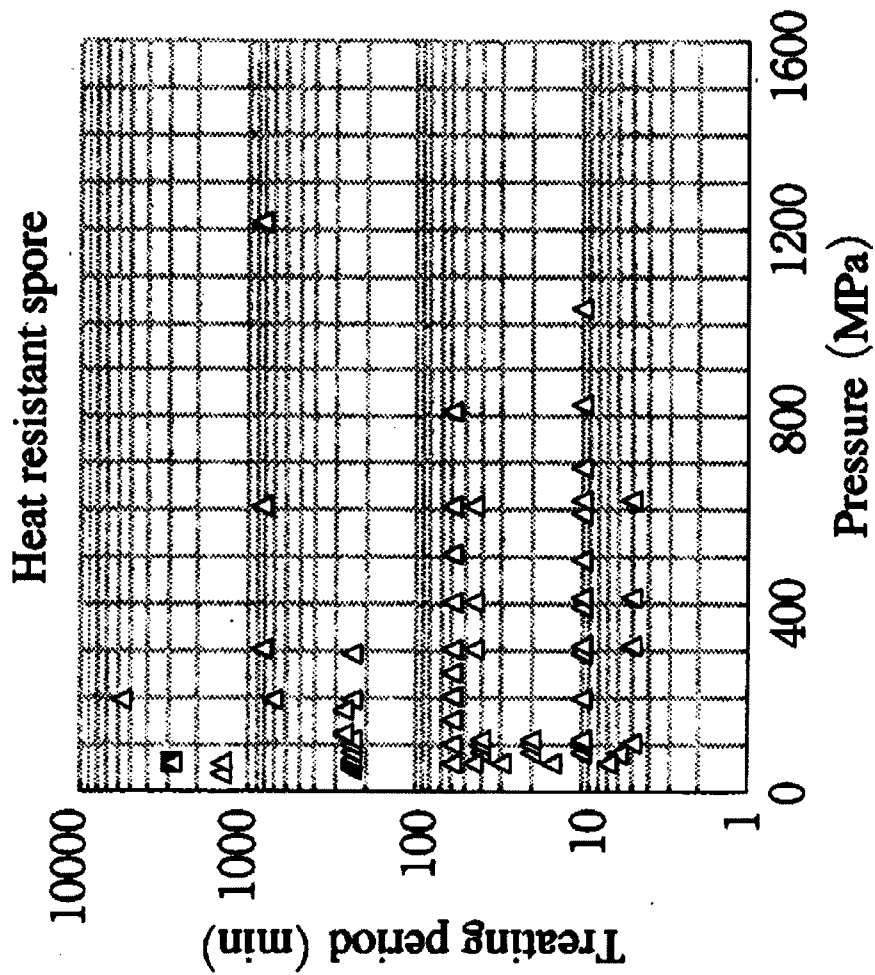


FIG. 1

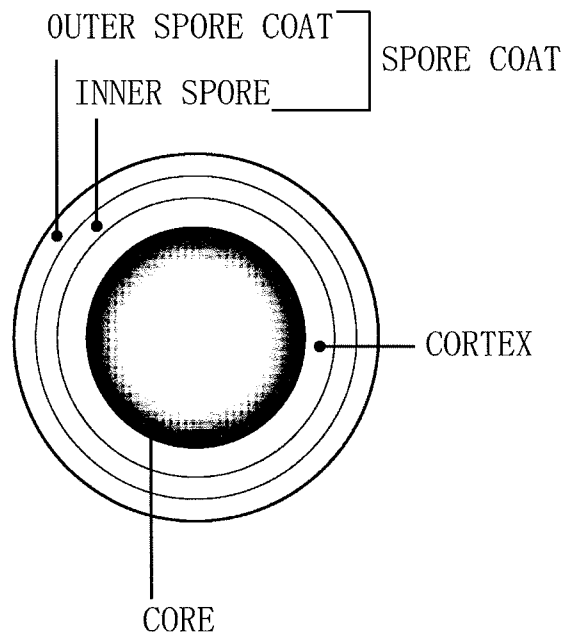


GRAPH OF STERILIZATION OF HEAT-RESISTANT SPORE-FORMING BACTERIA EXCERPTED FROM AN ARTICLE SUMMARIZING EXPERIMENT RESULTS OVER THE PAST 100 YEARS (KOICHIRO SONOIKE, HIGH PRESSURE STERILIZATION TECHNOLOGY-SUBJECT OF THE APPLICATION TO FOOD, NIPPON SHOKUHN KOGAKU KAISHI, VOL. 44, NO. 7, PP 522-530, 1997").

Summary of literature on pressure treatment and survival of microorganisms

△: survived ■: sterile

FIG. 2

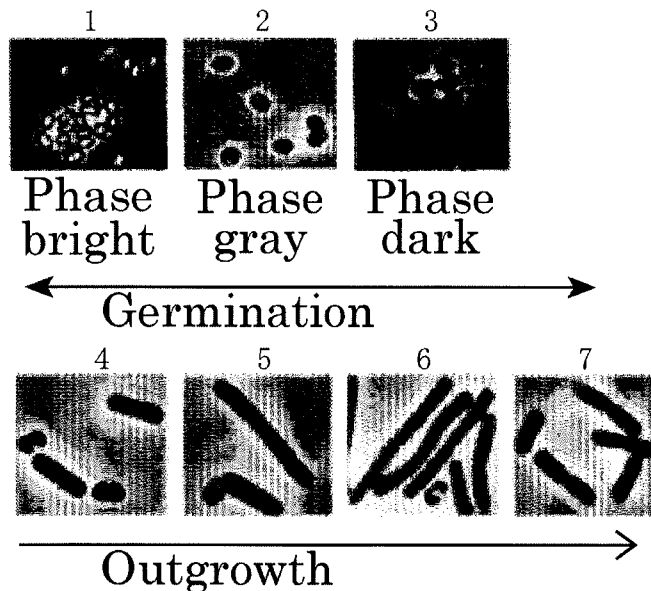
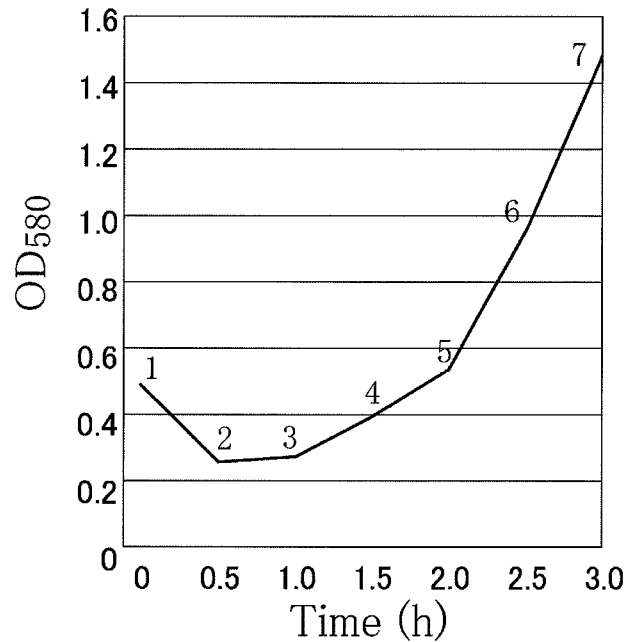


[STRUCTURE OF A SPORE]

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FIG. 3

RELATIONSHIP BETWEEN PHOTOMICROGRAPHS
OF SPORES AND CHANGE IN TURBIDITY (OD)



GERMINATION OF *BACILLUS SUBTILIS* AND OUTGROWTH AFTER GERMINATION. THE GRAPH IN THE UPPER SECTION SHOWS CHANGE IN LIGHT ABSORPTION AND TIME FROM THE START OF GERMINATION. THE MIDDLE AND LOWER SECTIONS SHOW PHOTOMICROGRAPHS OF PHASE CHANGES.

FIG. 4

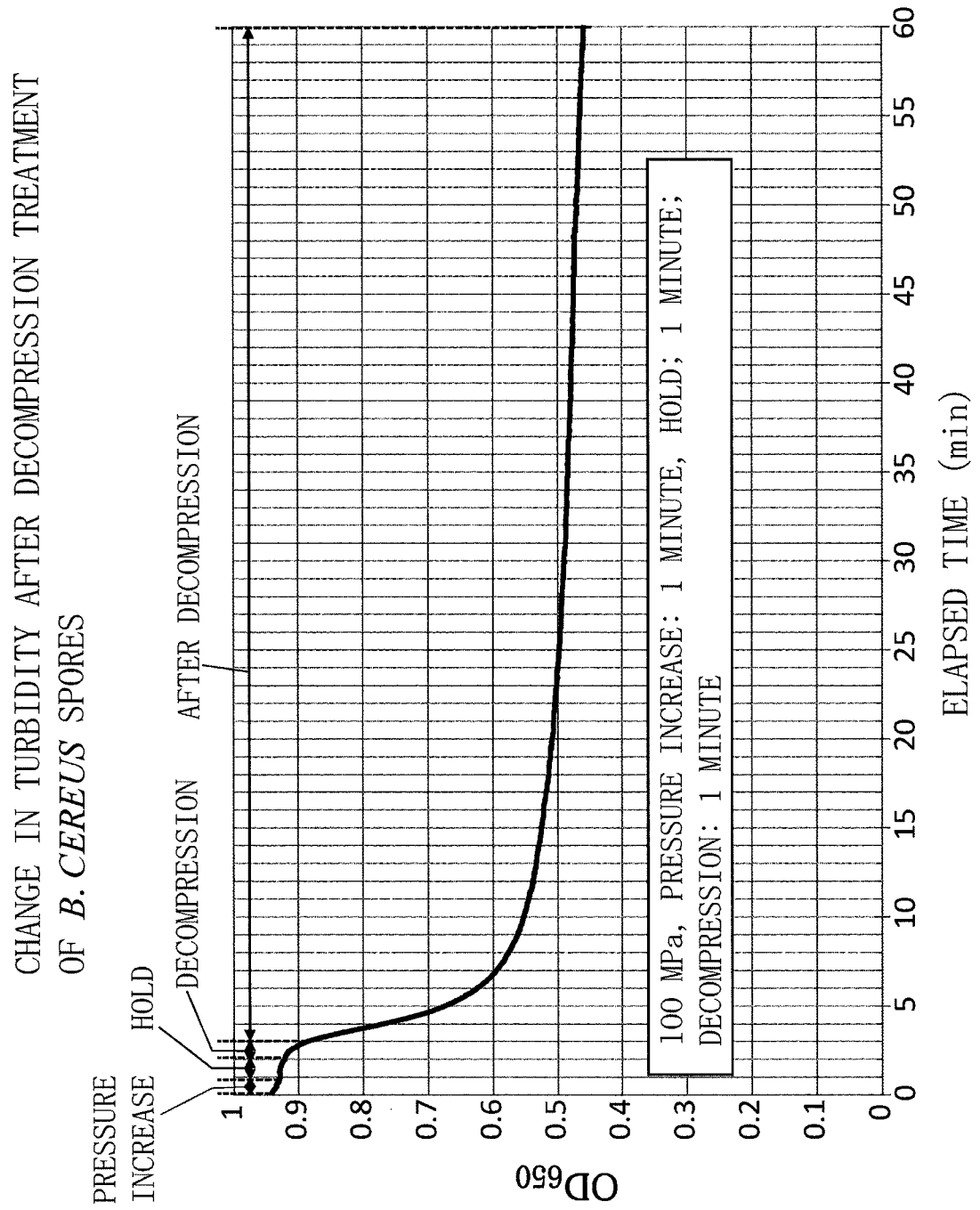


FIG. 5

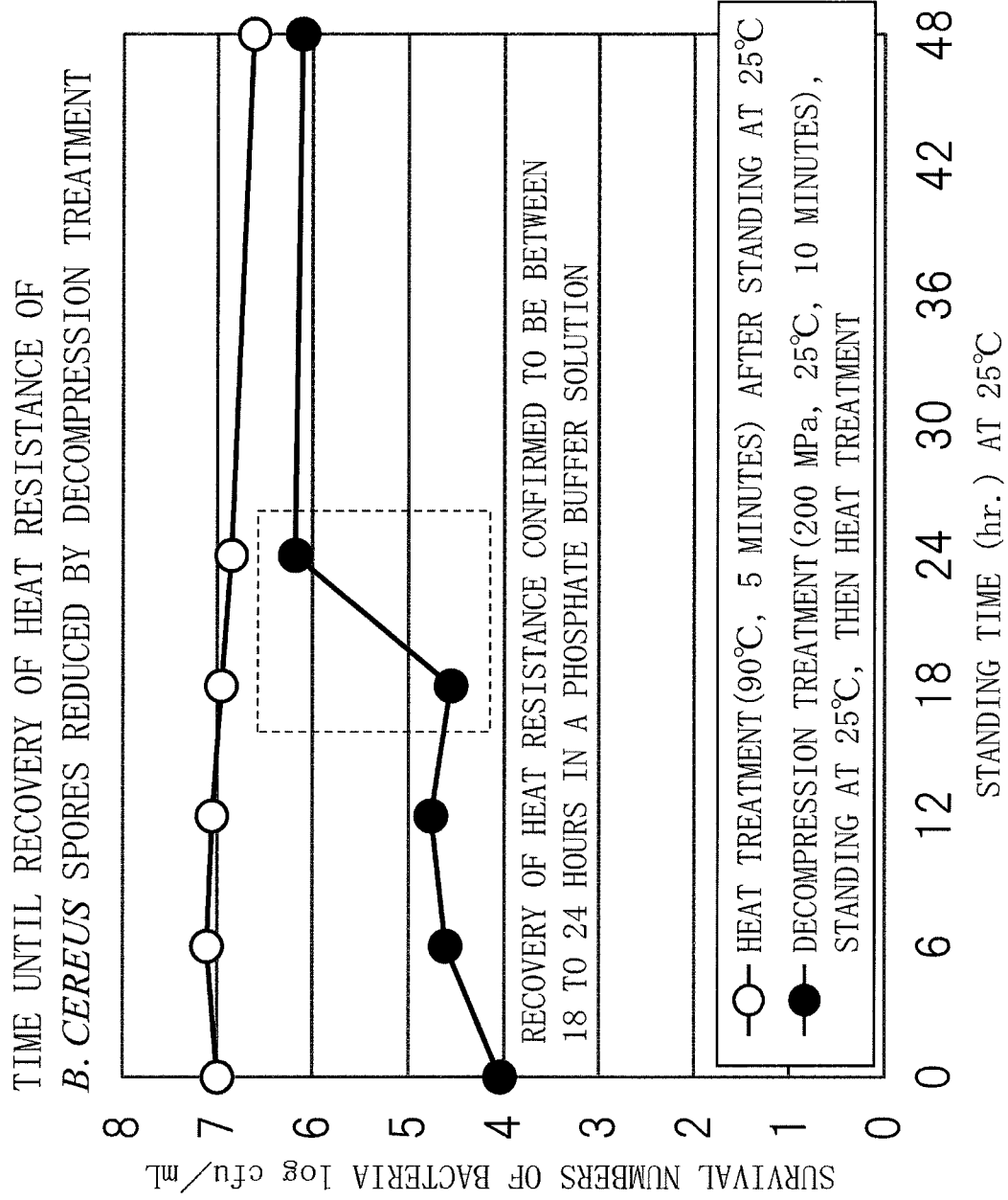
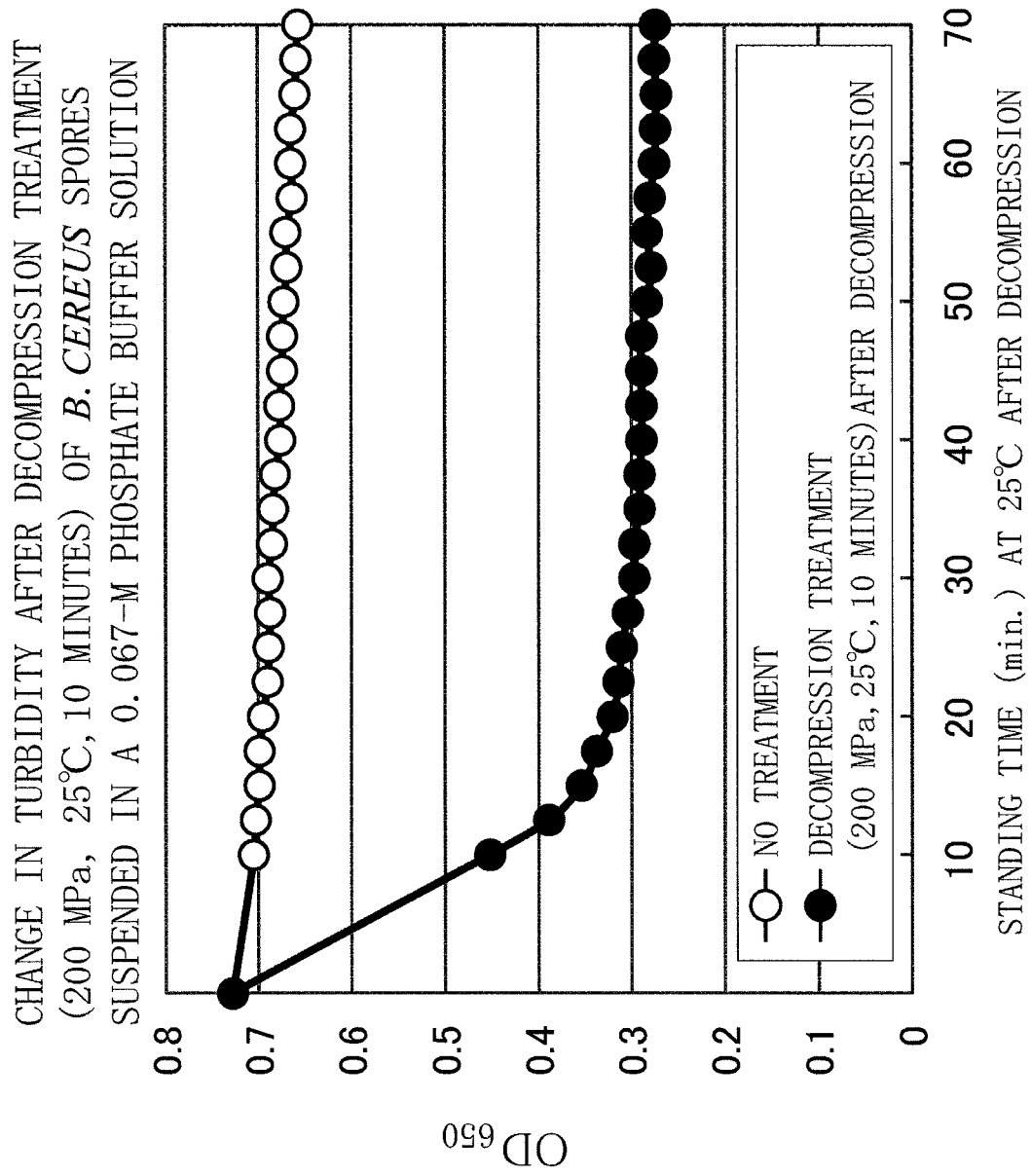
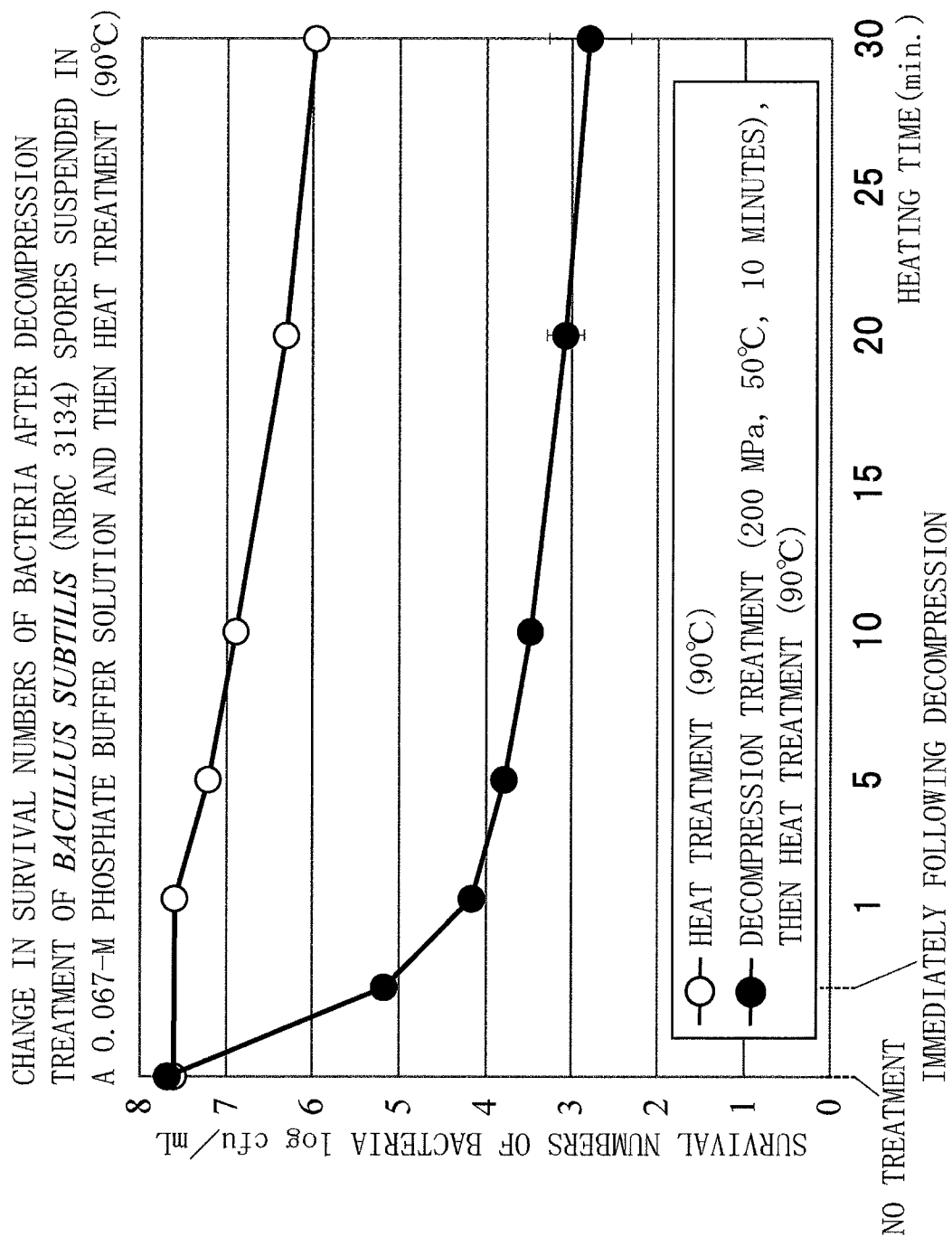


FIG. 6



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FIG. 7



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FIG. 8

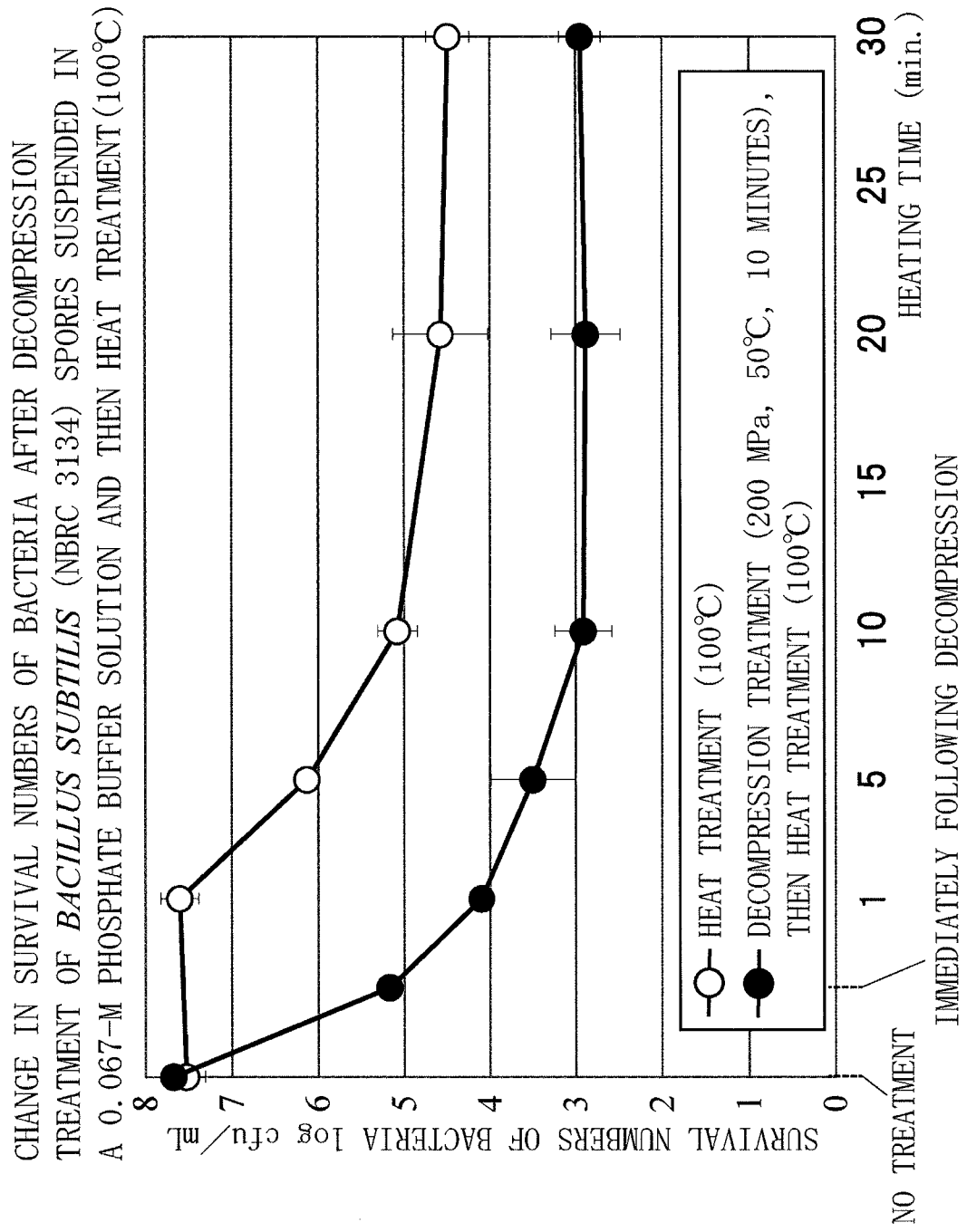
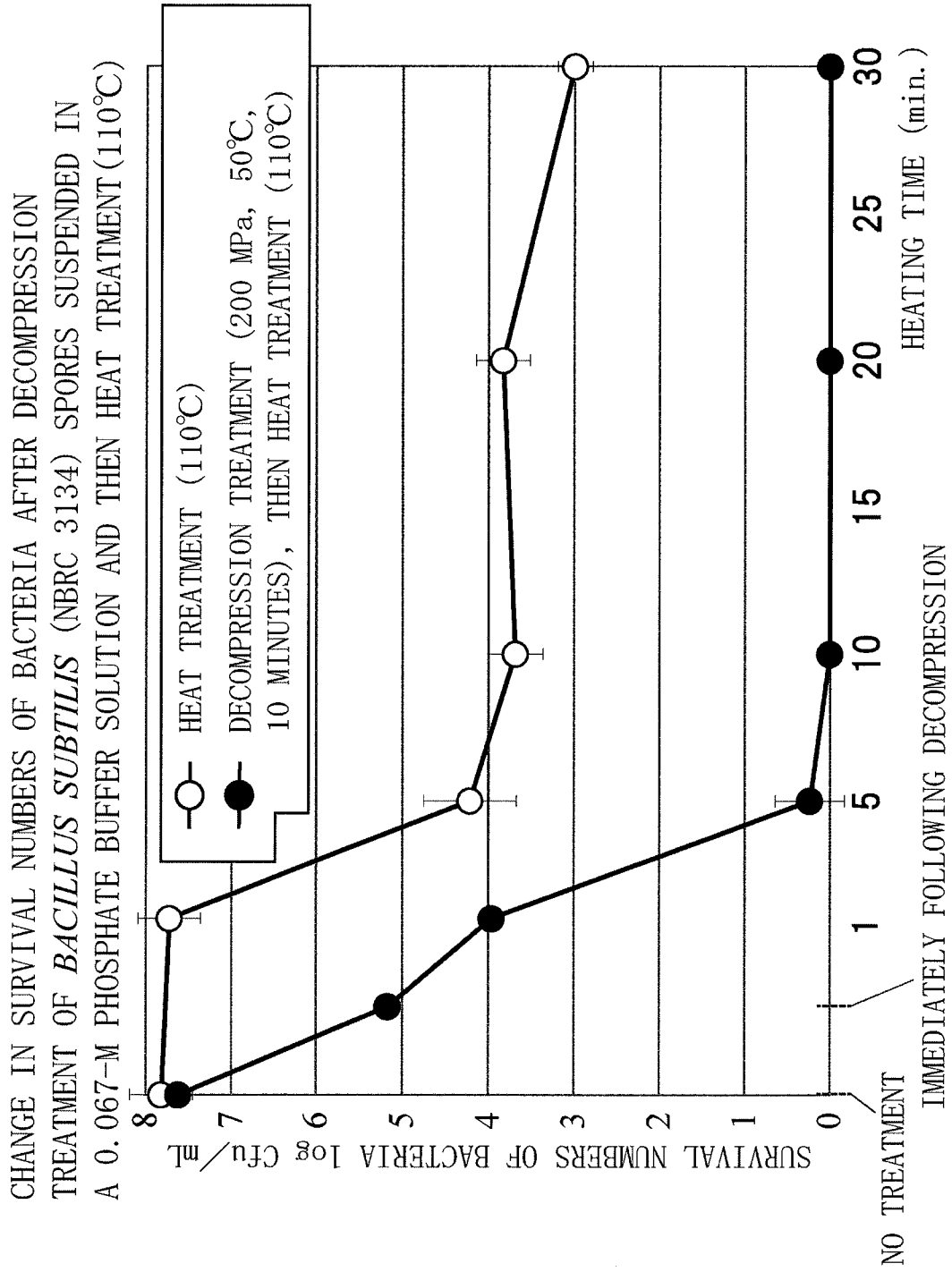
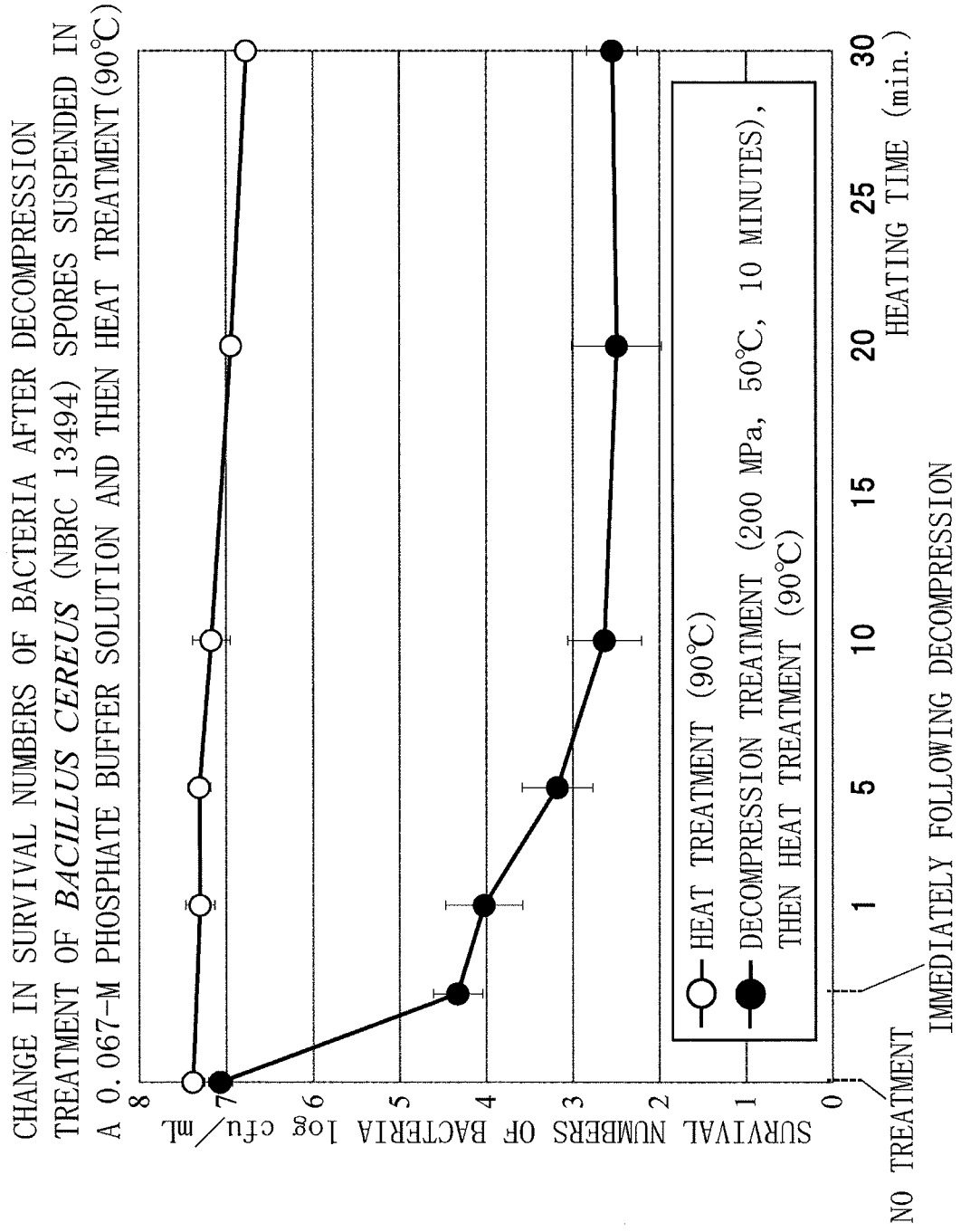


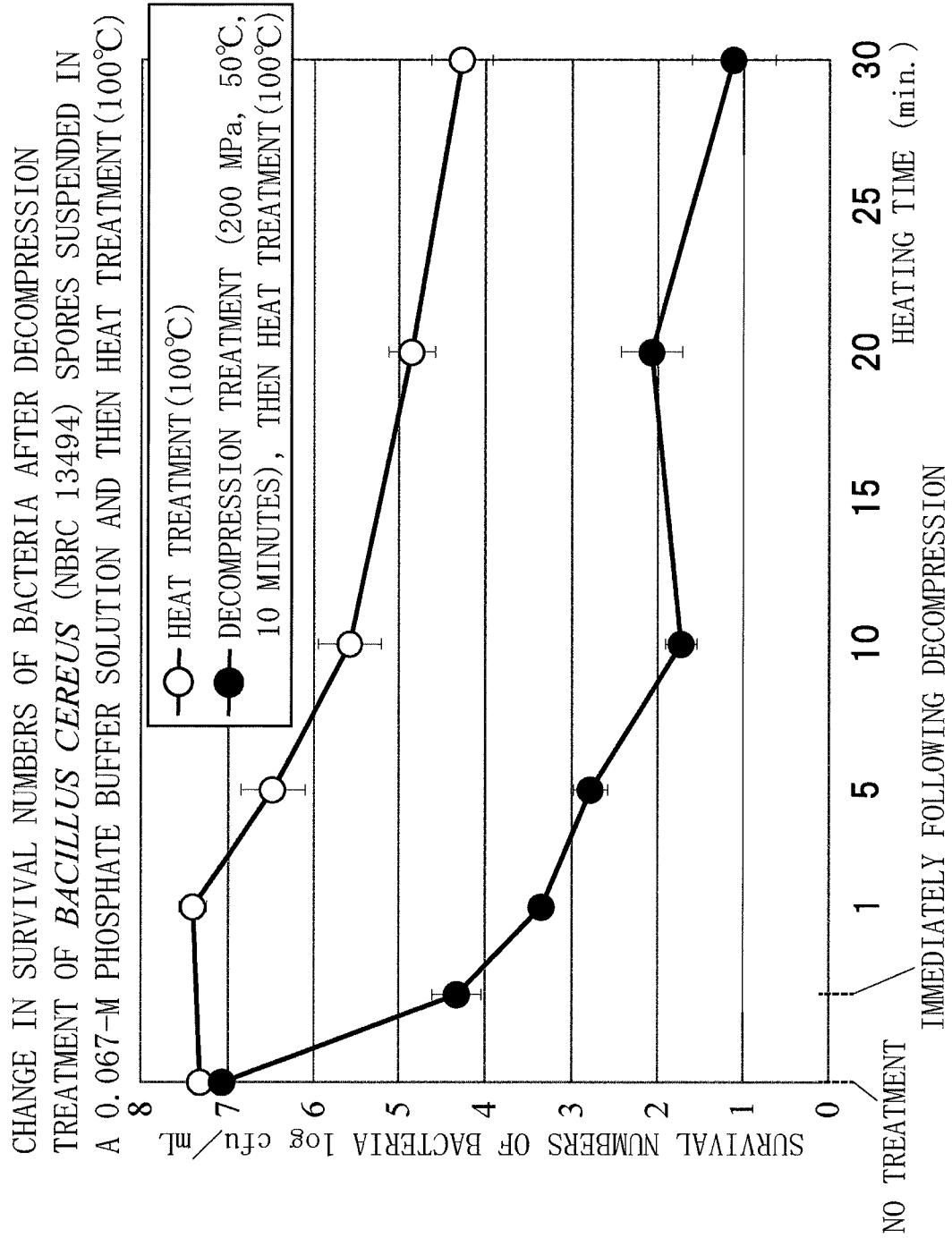
FIG. 9



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FIG.10



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FIG.11



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FIG.12

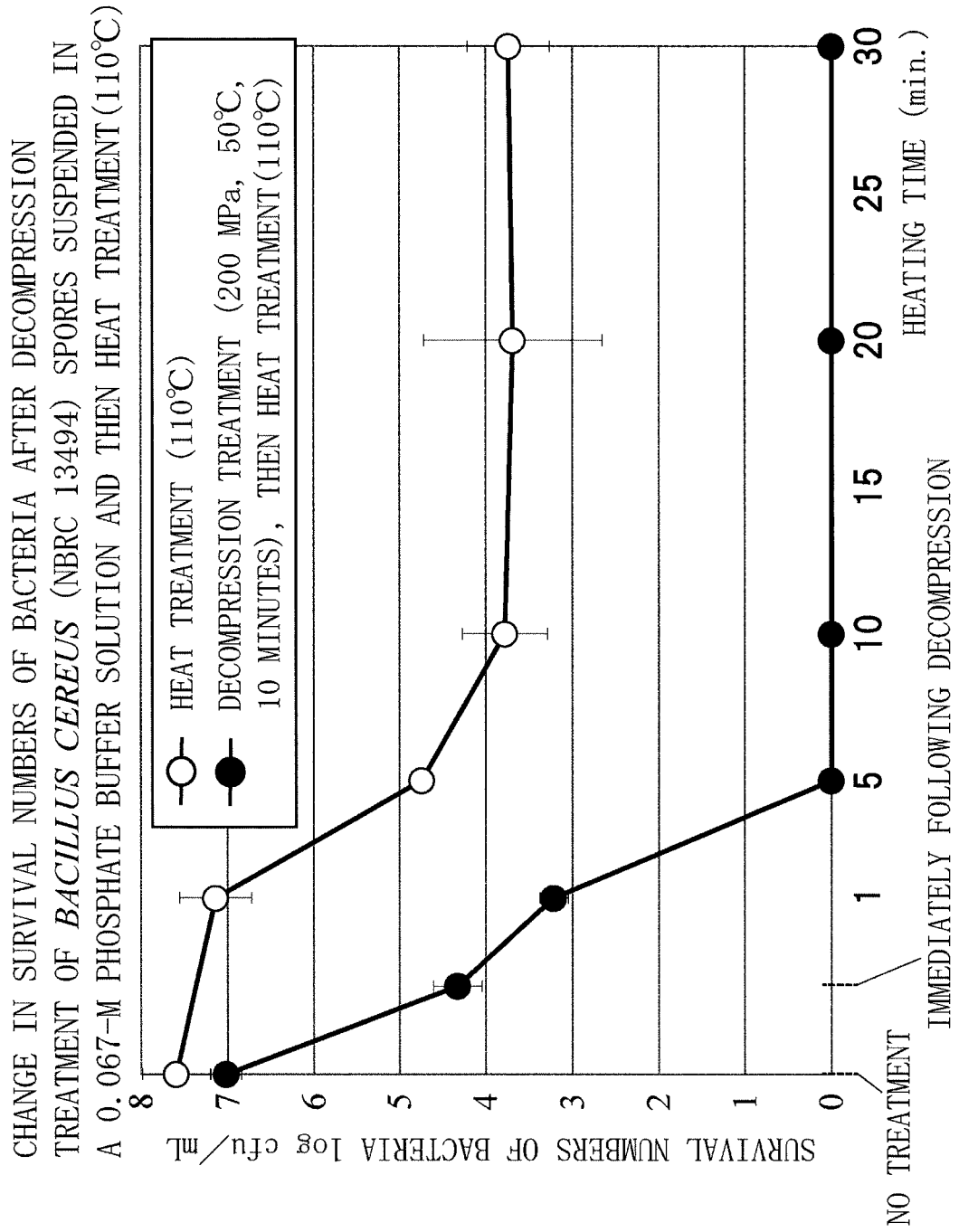


FIG.13

TURBIDITY AFTER DECOMPRESSION TREATMENT (200 MPa, 25°C, 1 MINUTE)
OF *B. CEREUS* SPORES, AND SURVIVAL RATE IN HEAT STERILIZATION
(100°C, 30 MINUTES) AFTER DECOMPRESSION TREATMENT

ELAPSED TIME AFTER DECOMPRESSION TREATMENT	TURBIDITY AFTER DECOMPRESSION TREATMENT (OD ₆₅₀)	SURVIVAL NUMBERS OF BACTERIA log cfu/mL WHEN HEAT STERILIZATION WAS CARRIED OUT AT 100°C FOR 30 MINUTES AFTER DECOMPRESSION TREATMENT	SURVIVAL RATE (log N/No) WHEN HEAT STERILIZATION WAS CARRIED OUT AT 100°C FOR 30 MINUTES AFTER DECOMPRESSION TREATMENT
0	0.566	2.3×10^7	0
3	0.332	4.0×10^3	-3.76
10	0.298	7.6×10^2	-4.48
120	0.254	2.5×10	-5.96

IMPLEMENTED CONDITIONS

B. CEREUS SPORES SUSPENDED IN A 0.067-M PHOSPHATE BUFFER SOLUTION
DECOMPRESSION TREATMENT (200 MPa, 25°C, 1 MINUTE)
HEAT STERILIZATION (100°C, 30 MINUTES)

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FIG.14

RELATIONSHIP BETWEEN TURBIDITY AFTER DECOMPRESSION TREATMENT (200 MPa, 25°C, 1 MINUTE) OF *B. CEREUS* SPORES, AND SURVIVAL RATE IN HEAT STERILIZATION (100°C, 30 MINUTES) AFTER DECOMPRESSION TREATMENT

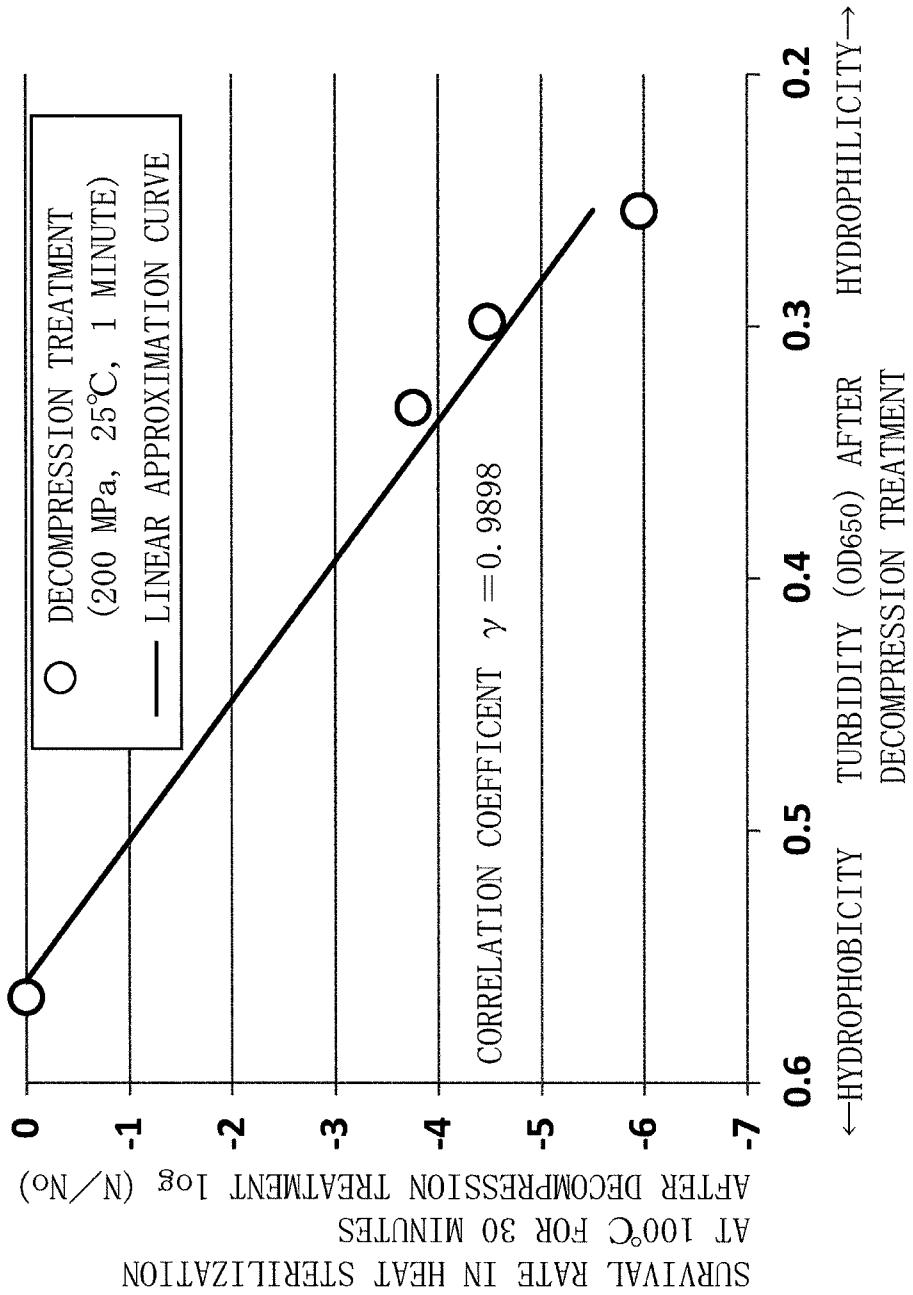
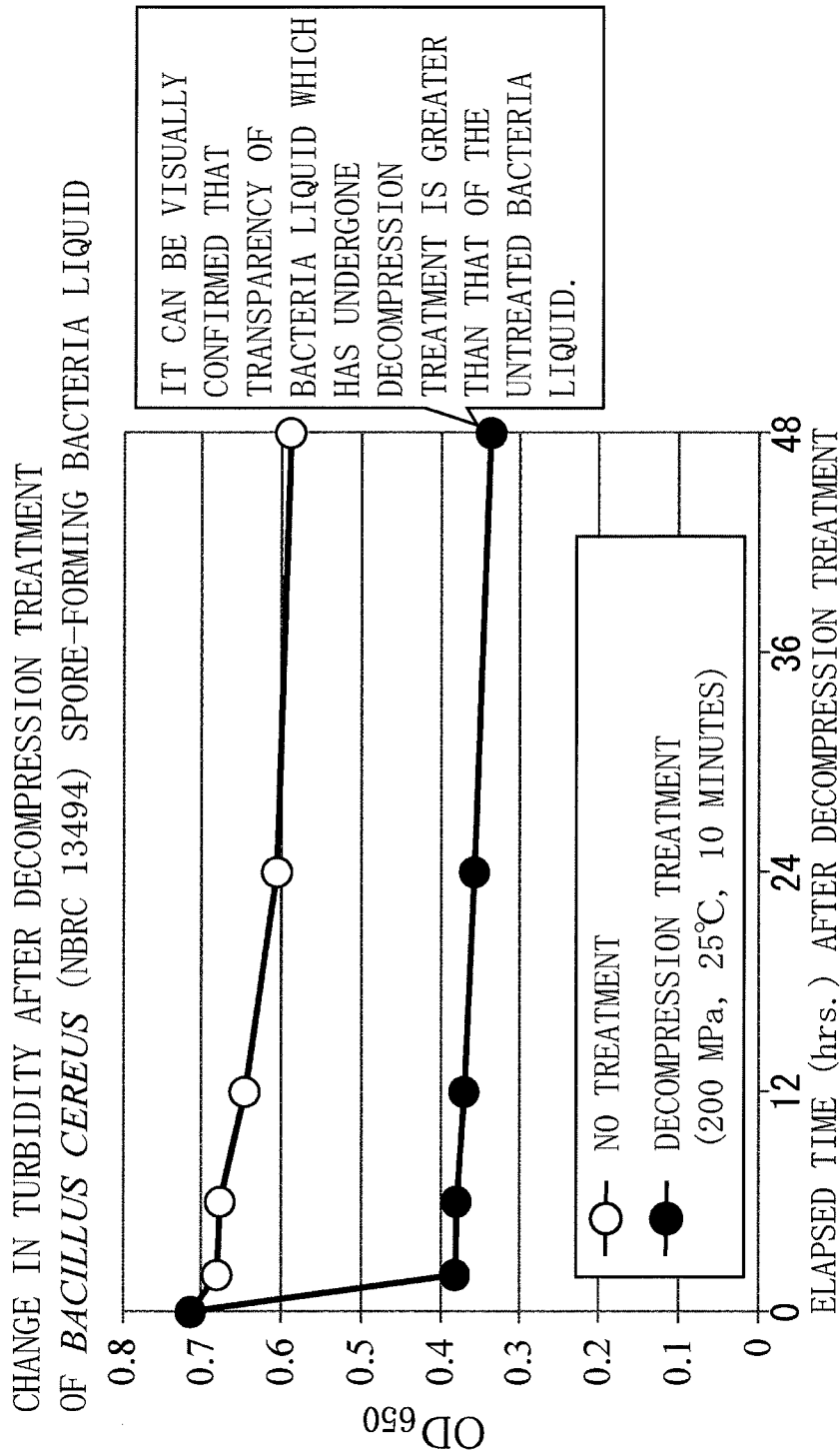


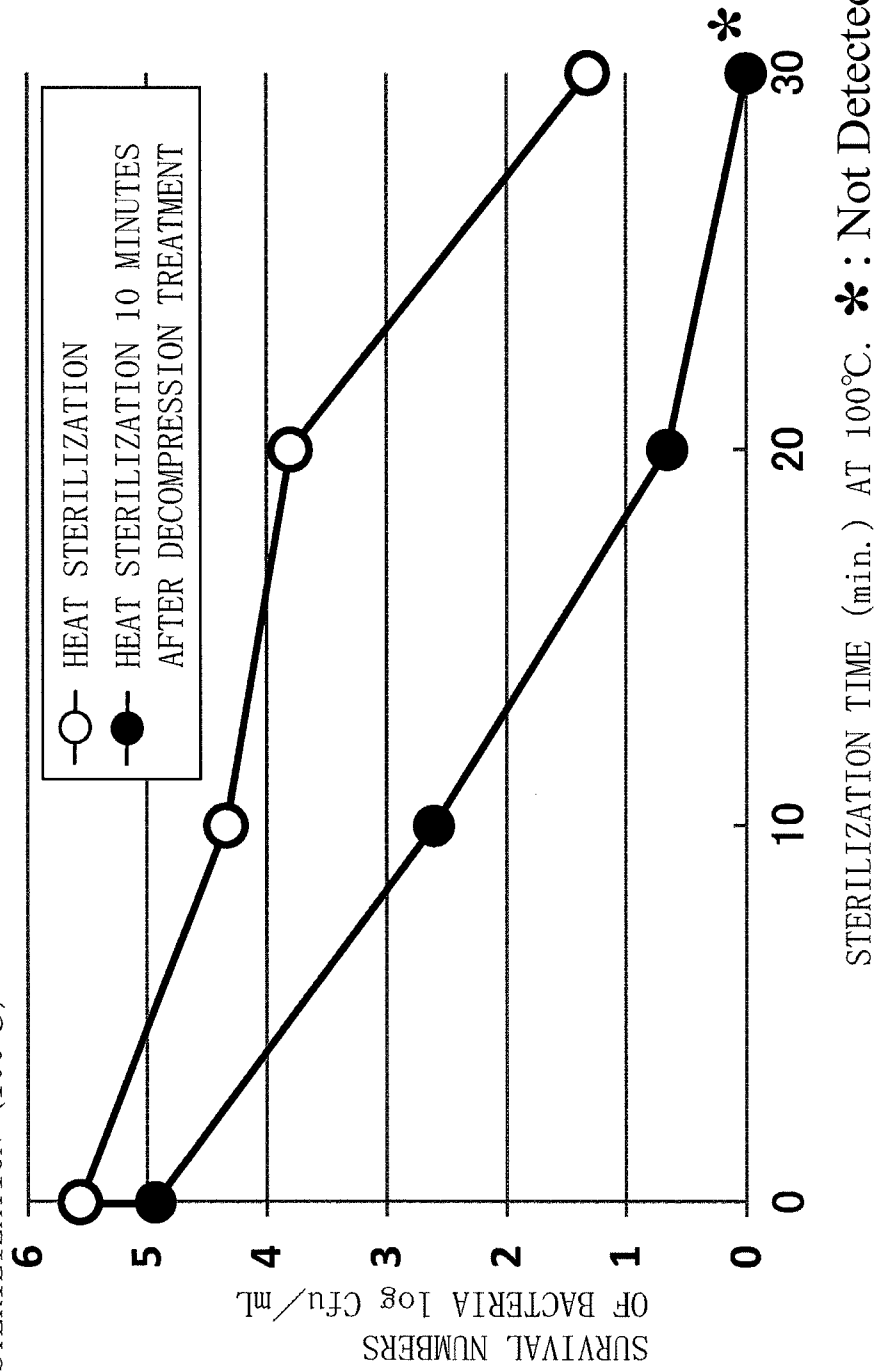
FIG.15



TURBIDITY IS REDUCED IMMEDIATELY AFTER DECOMPRESSION TREATMENT AND THEN TURBIDITY DID NOT RECOVER EVEN AFTER RESTING FOR 48 HOURS AT ROOM TEMPERATURE. IN ANOTHER EXPERIMENT, RECOVERY OF HEAT RESISTANCE WAS CONFIRMED 18 HOURS LATER, BUT WATER PERMEABILITY OF THE SURFACE DID NOT RECOVER.

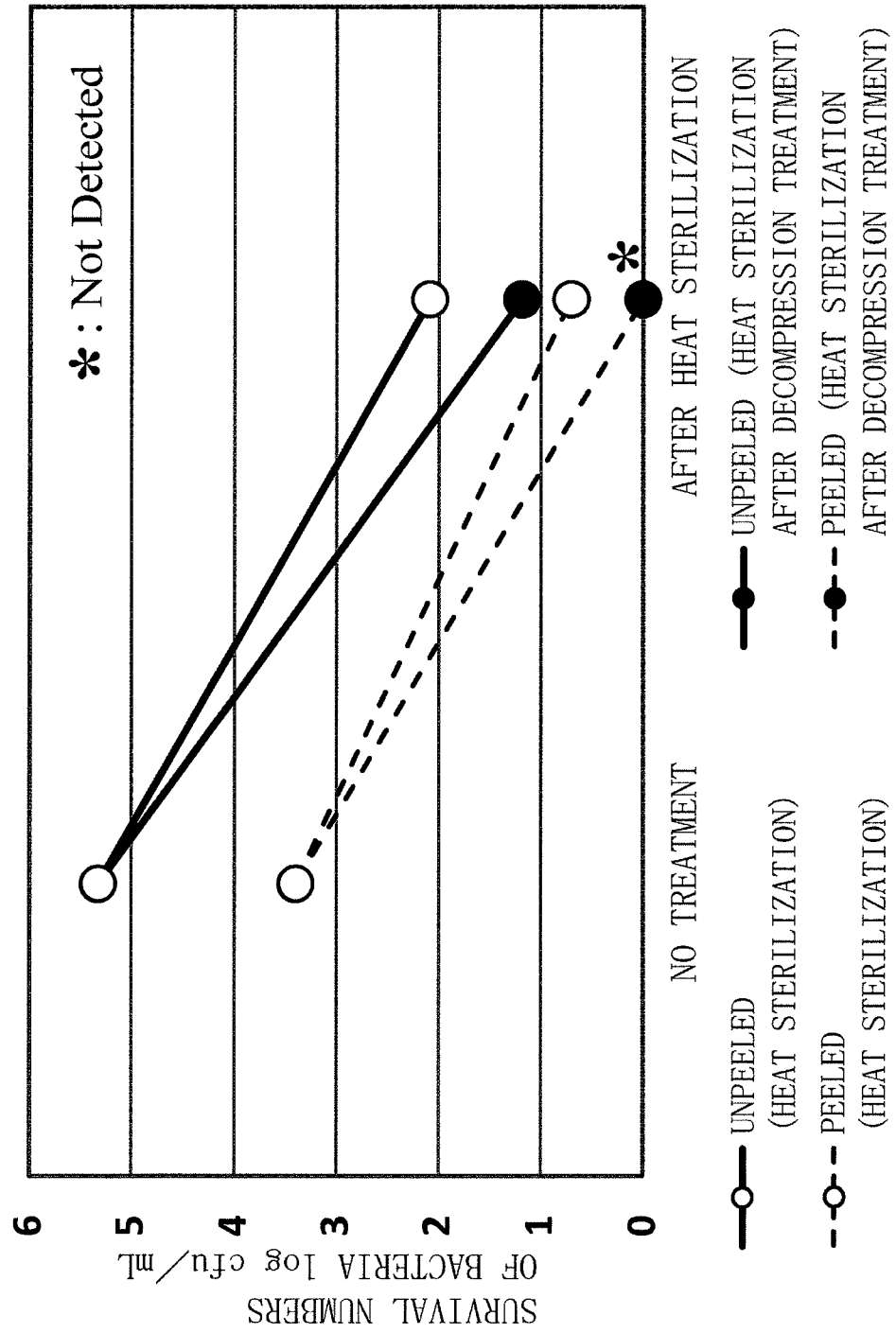
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FIG.16

CHANGE IN BACTERIA SURVIVAL NUMBERS AFTER A KAGOSHIMA PREFECTURE SWEET POTATO (BENI-AZUMA, UNPEELED, ROUND SLICES) HAD BEEN SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 50°C, 5 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (100°C)



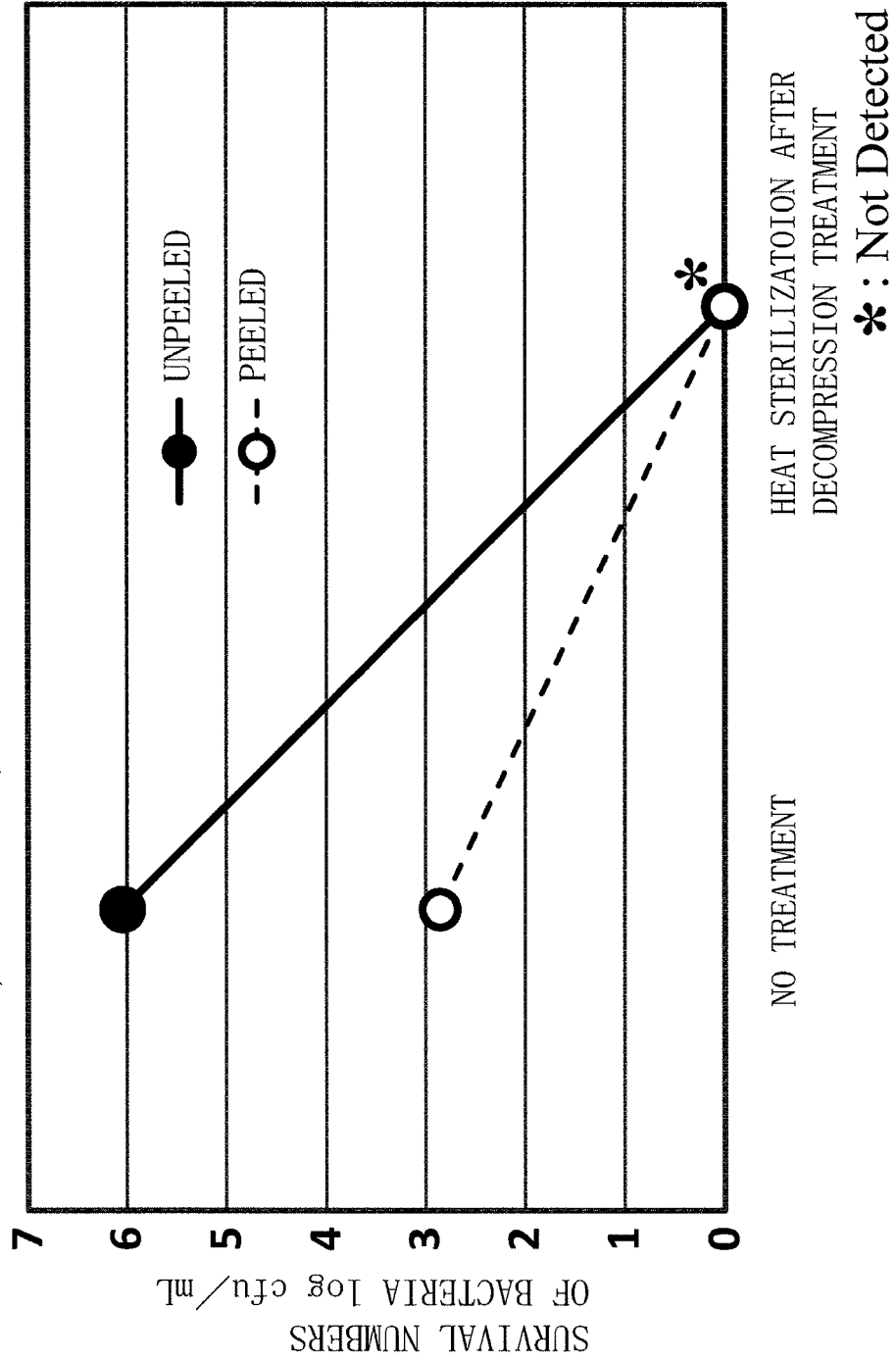
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FIG.17

CHANGE IN BACTERIA SURVIVAL NUMBERS AFTER A KUMAMOTO PREFECTURE SWEET POTATO (BENI-HARUKA, ROUND SLICES) HAD BEEN SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 50°C, 5 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (100°C, 30 MINUTES)



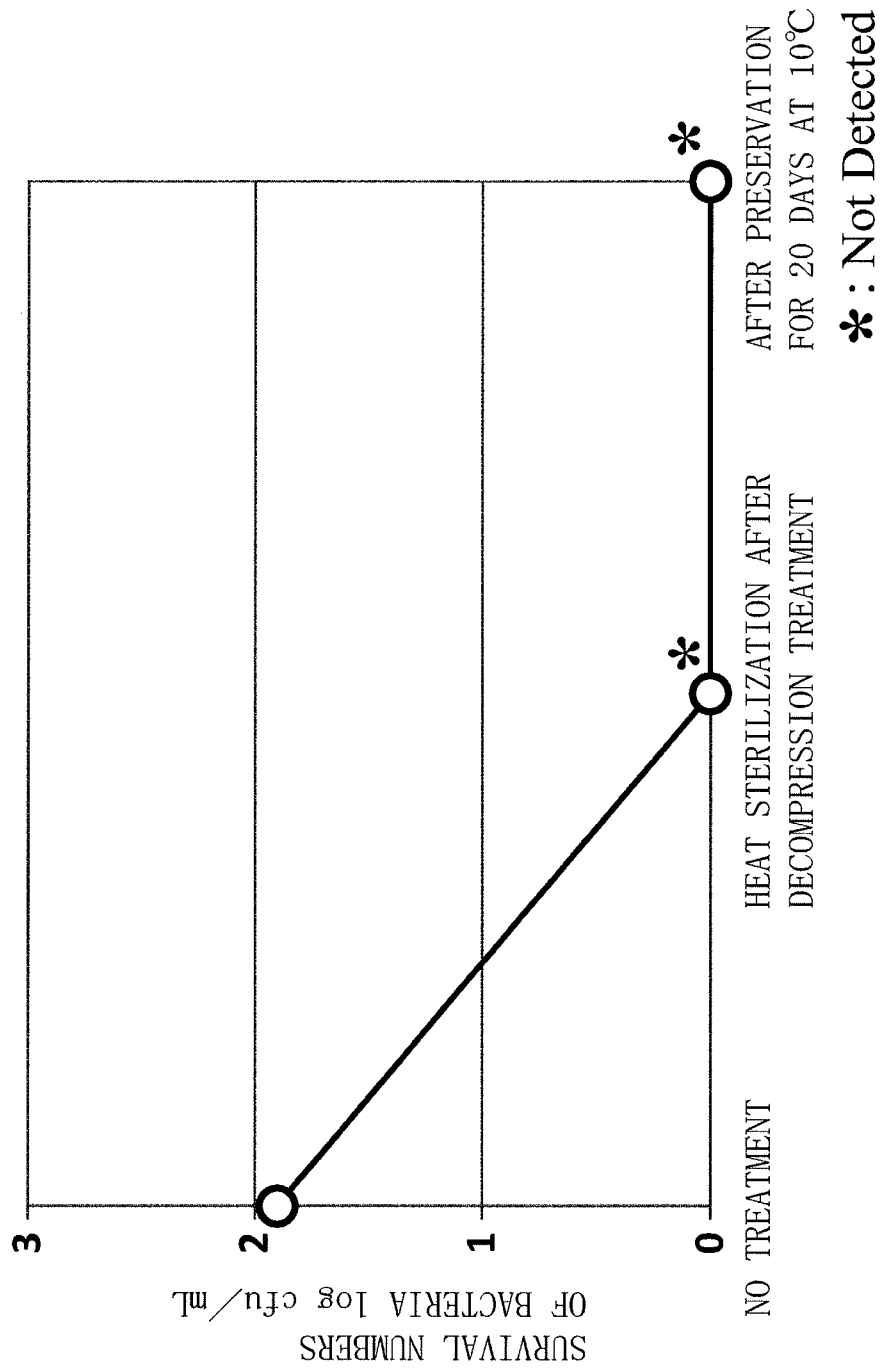
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FIG.18

CHANGE IN BACTERIA SURVIVAL NUMBERS AFTER A KAGOSHIMA PREFECTURE POTATO (ROUND SLICES) HAD BEEN SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 25°C, 2 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (100°C, 15 MINUTES; 105°C, 15 MINUTES)



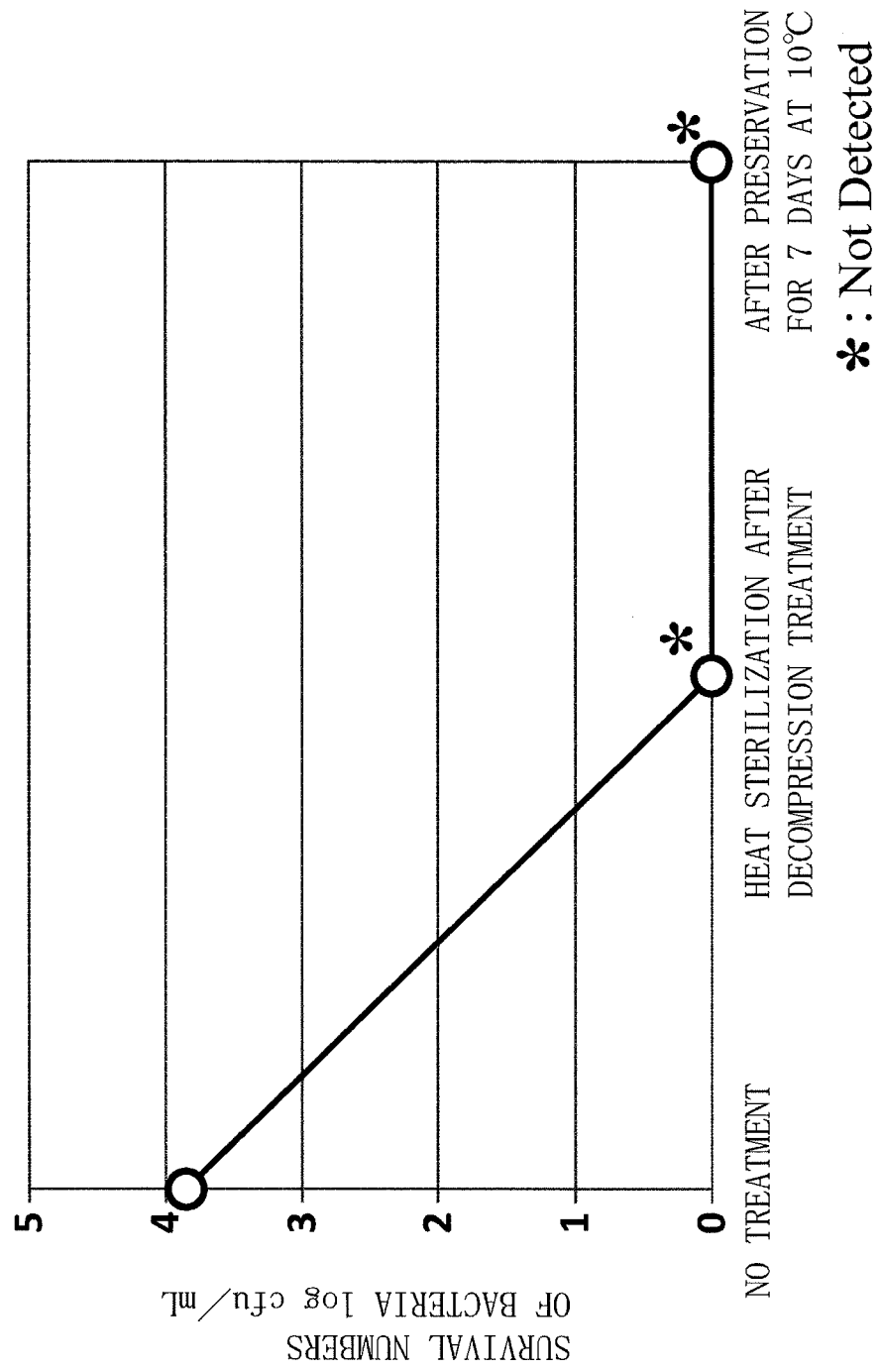
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FIG.19

CHANGE IN BACTERIA SURVIVAL NUMBERS IN A FROZEN TAKOYAKI (OCTOPUS DUMPLING) WHICH WAS SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 25°C, 2 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (105°C, 30 MINUTES), AND THEN REFRIGERATION



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FIG.20

CHANGE IN BACTERIA SURVIVAL NUMBERS IN A HAMBURGER STEAK WHICH WAS SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 25°C, 2 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (100°C, 15 MINUTES; 105°C, 15 MINUTES), AND THEN REFRIGERATION



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FIG.21

CHANGE IN BACTERIA SURVIVAL NUMBERS IN SHUMAI (SHAO-MAI) WHICH WAS SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 25°C, 2 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (100°C, 15 MINUTES; 105°C, 15 MINUTES), AND THEN REFRIGERATION

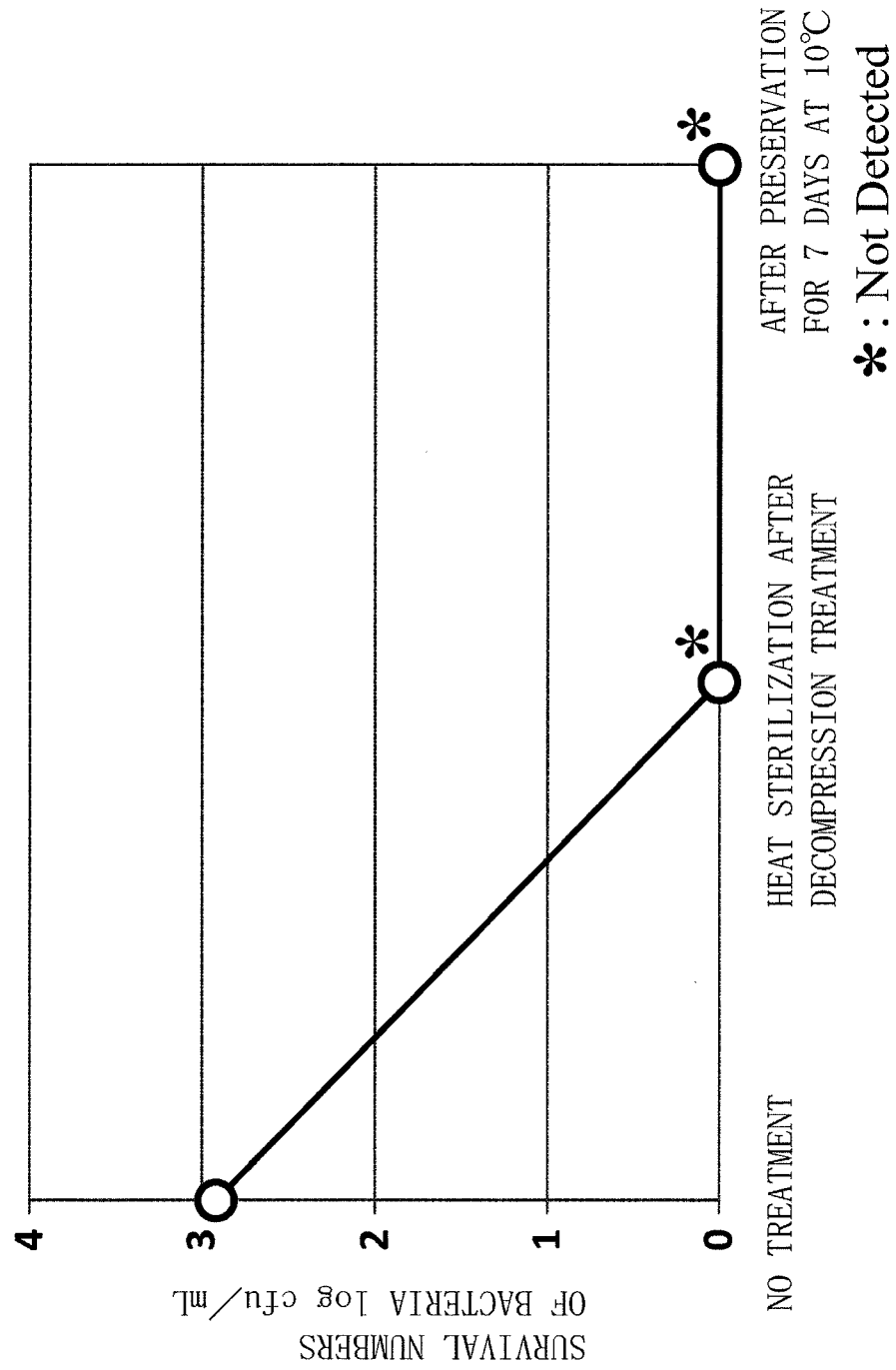


FIG.22

CHANGE IN BACTERIA SURVIVAL NUMBERS IN PINEAPPLE WHICH WAS SUBJECTED TO DECOMPRESSION TREATMENT (200 MPa, 25°C, 2 MINUTES) FOLLOWED 10 MINUTES LATER BY HEAT STERILIZATION (100°C, 15 MINUTES; 105°C, 15 MINUTES), AND THEN REFRIGERATION

