CONFIDENTIAL

Naturally Derived Ingredient
100% Scallop Shells

Safe & Reliable, Food Revolution!

PANACEA® FX

Proposal for Calcined Shell Calcium
PANACEA FX

PANACEA INC.

PANACEA

2016

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●Concept

Safe & Reliable, Food Revolution!

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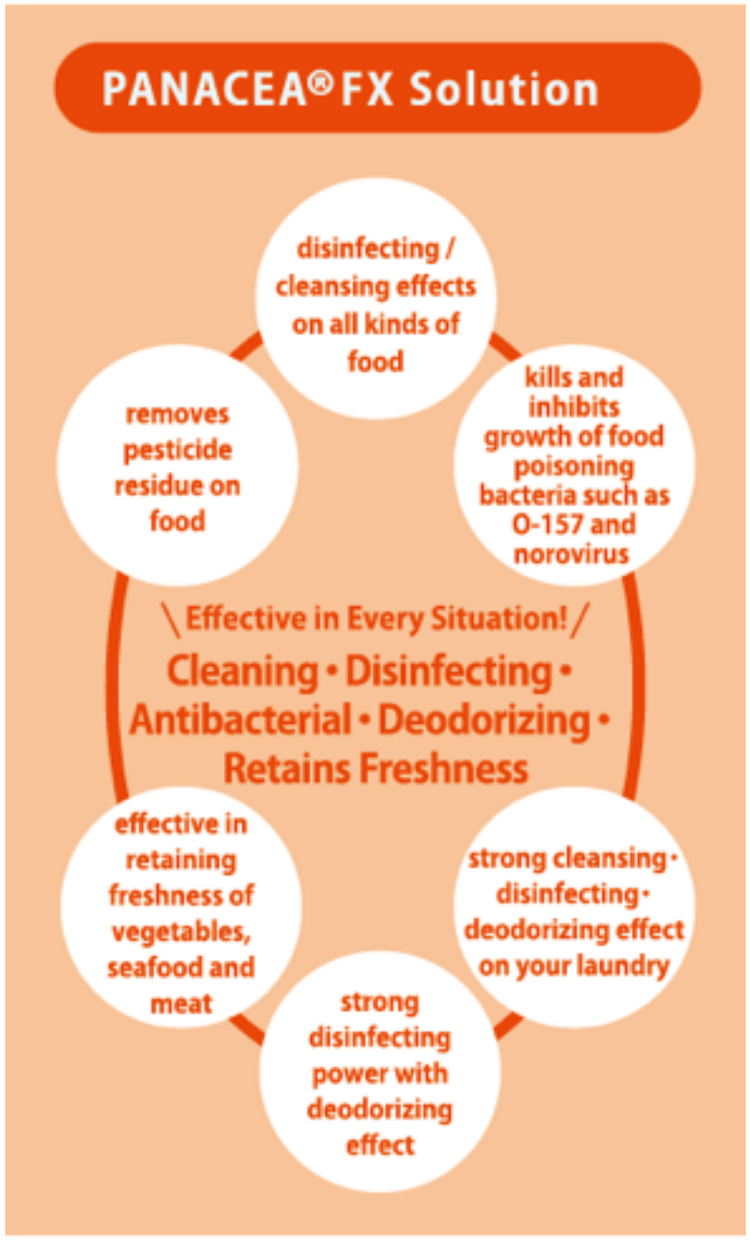
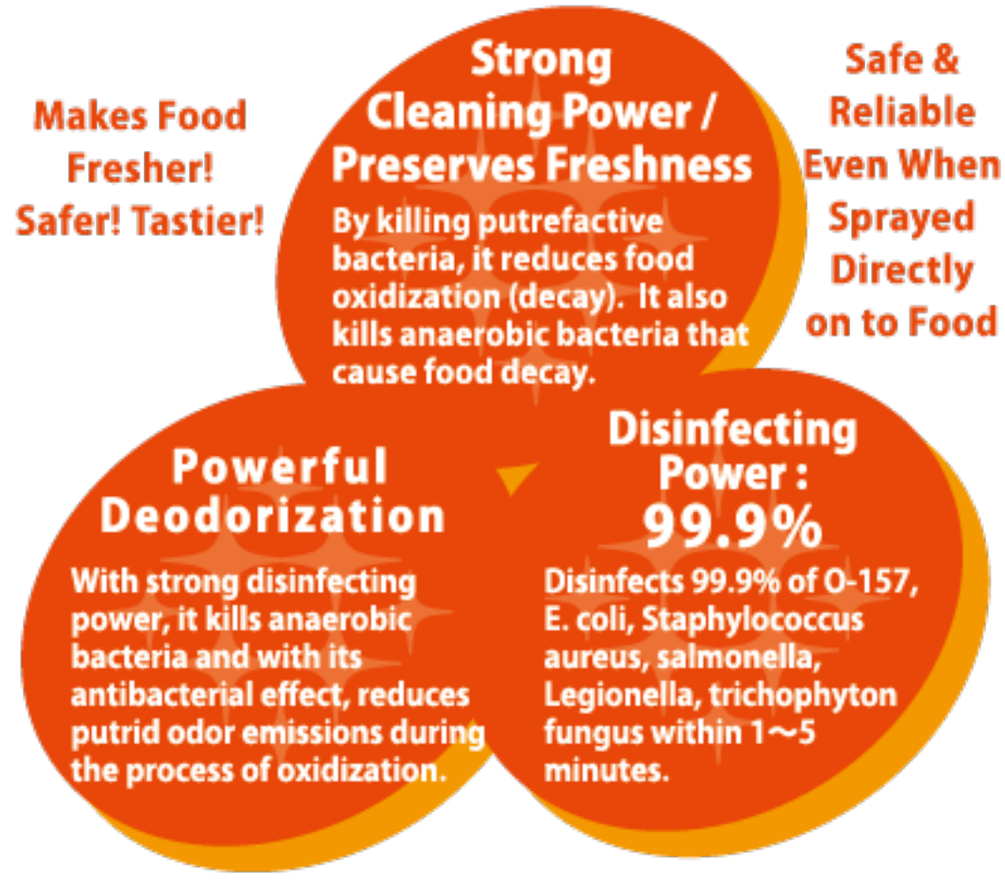
What is PANACEA FX?

【Word Origin】

The word “Panacea” is an ancient Greek word that means a “cure-all” and “a solution for all difficulties.” FX is a coined acronym for “FOOD” and “EXCELLENCE.”





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Product Lineup

120 g
Handy Size
For use in households.

1 kg
Large 1 kg Size
Wide range of uses from households to businesses.

10 kg
For Professional Use
Perfect for use in large quantities.

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Special Features of Panacea®FX

Soak food in 0.1% solution for 3 ~ 5 min. to disinfect, prevent spoiling and remove pesticide

❶ Disinfecting Effects	Effective in killing E. coli O157, Campylobacter, Salmonella, Staphylococcus aureus, Enterococcus, Serratia, Vibrio parahaemolyticus, Pseudomonas aeruginosa, Pseudomonas fluorescens, etc.
❷ Removes Fruit Wax	Removes wax coating on fruits such as apples and oranges. Eating fruits whole with the skin becomes much safer.
❸ Removes Preservatives from Food Surfaces	Because of its effectiveness in removing putrefactive bacteria and other bacteria, it is also highly useful in retaining the freshness of food (much more effective compared to food preservatives). Since it lowers the level of Redox Potential, it is useful in preventing oxidation of food.
❹ Removes Agricultural Chemicals	Helps in removing agricultural chemicals from the surface of fruits and vegetables.
❺ Removes Chemical Fertilizers	Removes chemicals such as nitrate nitrogen, which are hazardous to the human body.
❻ Preserves Freshness of Food	Effective in prolonging the shelf-life of fruits and vegetables and also in eliminating harsh flavors.
❼ Safe - Made from Natural Ingredients	Panacea®FX is made from 100% natural ingredients - shells found in the nutrient rich deep sea of the Hokkaido and Tohoku regions - which is made into a fine powder by using a special method of heating to over 1,000℃.

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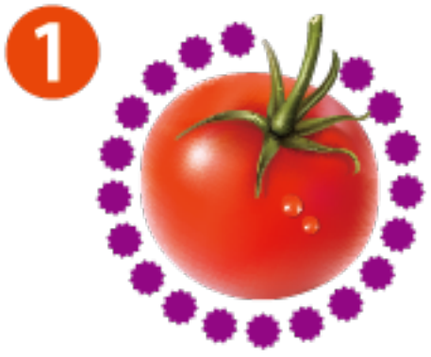
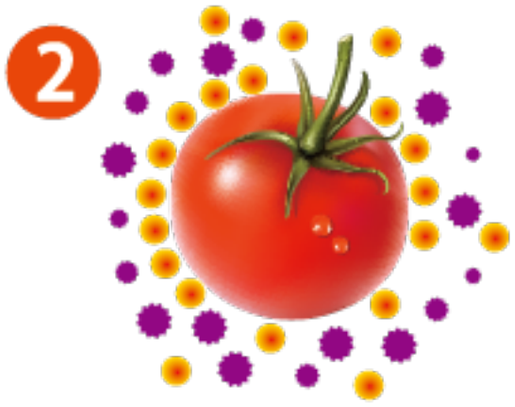
PANACEA FX – Effects / Instructions

When dissolved into water, it becomes a strong alkaline electrolyte (alkaline ionized water) with a pH value of approx. 13.
The alkalinity removes pesticide and wax residues and kills unwanted bacteria found on the surface of your food.



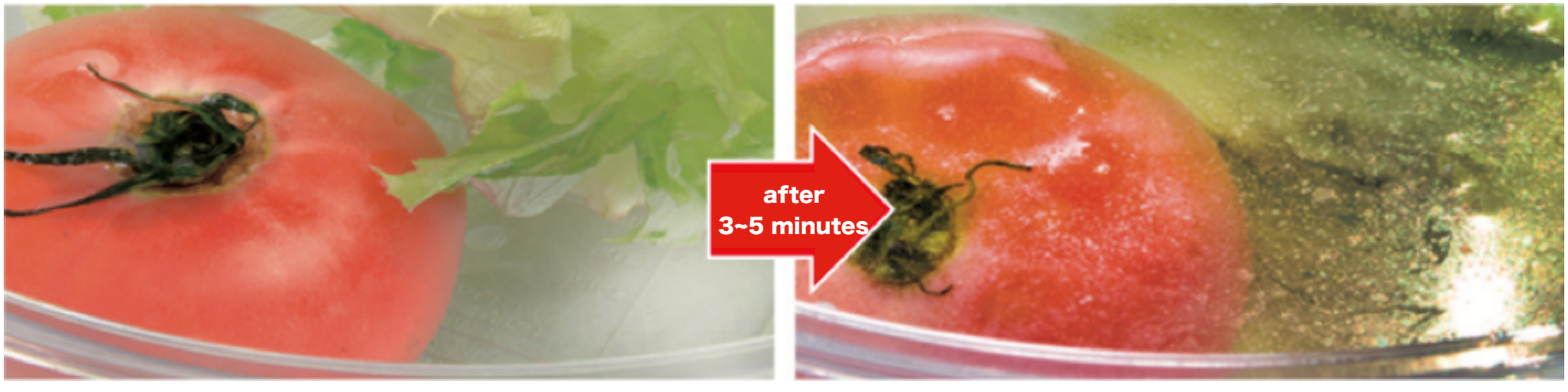
Bacteria, pesticide and wax residue can be found on the surface of food.



PANACEA®FX removes substances remaining on the surface of food.

It even reduces odors and germs and prevents food from oxidization (decay).

Add 1 g of PANACEA FX to 1 L of water to make a solution.
Soak food in the solution for about 3~5 minutes.



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Antibacterial Effects (E. coli/ Staphylococcus aureus/ Salmonella)

試験検査成績書

食第D02266号
平成26年12月16日

別紙
試験方法

1. 供試菌
   大腸菌　(*Escherichia coli*　NBRC 3972)
   黄色ブドウ球菌　(*Staphylococcus aureus subsp. aureus*　NBRC 12732)
   サルモネラ　(*Salmonella enterica subsp. enterica*　NBRC 3313)
2. 試験菌液の調製
   供試菌を普通寒天培地に移植し35℃で24時間培養後、1コロニーを普通ブイヨン培地に接種し、35℃で 18 時間振とう培養した。この菌液を普通ブイヨン培地を用いて希釈調製した。
3. 試験液の調製
   試験品 3g を滅菌蒸留水 1lに溶かして試験液とした。
4. 殺菌効果試験
   上記 3 で調製した試験液 20ml に、上記 2 で調製した試験菌液 0.1ml を接種し各経過時間後の生菌数を SCDLP 寒天培地を用いて測定した。

試験結果

供試菌	大腸菌	黄色ブドウ球菌	サルモネラ
初発菌数	3, 200, 000/ml	3, 900, 000/ml	2, 200, 000/ml
経過時間後の菌数			
1 分後	43/ml	3, 100, 000/ml	0/ml
3 分後	0/ml	1, 600, 000/ml	0/ml
15 分後	0/ml	280/ml	0/ml

試 験 検 査 成 績 書

別紙　　東技研第００６２７－ＡＺ４Ｙ４号

試験方法

1．供試菌
　大腸菌（Escherichia coli　IFO 3972）
　サルモネラ（Salmonella enteritidis　IFO 3313）
2．接種菌液の調製
　供試菌を普通寒天培地に移植し、３５℃で２０時間培養後、再度普通寒天培地に移植し、３５℃で２０時間培養した。この菌体を滅菌精製水に均一に分散させ調製した。
3．試料の調製
　試料は、滅菌精製水１００mlに試験品０．１５ｇを加えて調製した。
4．試験操作
　試料に接種菌液０．５mlを添加し、２５℃で１０分間スターラーを用いて攪拌した後、菌数を測定した。なお、対照として滅菌精製水１００mlを用いて同様に試験した。
5．菌数測定
　試料１ml当たりの生菌数をSCDLP寒天培地を用いた混釈培養法により測定した。なお、生菌数測定時の希釈にはSCDLPブイヨンを使した。

試験結果

CFU／ml

	大　腸　菌	サルモネラ
初　発　菌　数	3, 200, 000	3, 700, 000
１０分後の菌数		
試　料	0	0
対　照	3, 500, 000	3, 700, 000

以　上

社団法人東京都食品衛生協会
東京食品技術研究所

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Antibacterial Effects

(E. coli/ Staphylococcus aureus/ Salmonella/ Tinea fungus / Streptococcus mutans/ MRSA)

Antibacterial testing was performed on E. coli, Staphylococcus aureus, salmonella, tinea fungus, Streptococcus mutans and MRSA. Antibacterial effects were observed in each test, and immediate effects were found in all tests except for MRSA.

した。この培地は、生理食塩水 100ml にホタテ貝殻セラミックス 1g を入れ、約 24 時間攪拌した。これを、東洋ろ紙 No.5C でろ過し、ろ過した溶液を使用した。水虫菌の抗菌試験には、次の 3 種類の菌を用いた。① 白癬菌(*Arthroderma vanbreuseghemii*)、② 白癬菌(*Arthroderma benhamiae*)、③ 酵母菌(*Saccharomyces cerevisiae*)である。酵母菌は比較のために実験を行った。

ミュータンス菌の抗菌試験は、試験液 0.9ml に培養したミュータンス菌 0.1ml を入れ、30 ℃の水槽で保温した。これを 48 時間後に取り出し、抗菌性を確認した。

2.4 MRSA の抗菌試験

MRSA の抗菌試験に用いた菌は、メチシリン耐性黄色ブドウ球菌の臨床分離株 2 種類(No.60905,No.951121)である。 実験に用いた試験液は、ホタテ貝殻セラミックスを生理食塩水に溶かしたものを用いた。なお、ホタテ貝殻セラミックスの主成分は $Ca(OH)_2$ であり、この水溶液の pH は 12.7 である。実験に用いた試験液の組成は、水溶液：培養した細菌＝ 0.9ml：0.1ml で行い、これを 30 ℃で保温し経過時間ごとに各生菌数を計測した。なお、生理食塩水の場合は細菌に対し負荷を加えない場合の値として計測し、生理食塩水 0 分の生菌数を 100%として各生菌率を求めた。MRSA 抗菌試験終了後、大腸菌を鑑別する培地により鑑別を行った。生理食塩水とホタテ貝殻セラミックス水溶液の他、比較のため、同じ pH 値に調整した試薬の NaOH を添加した場合の抗菌試験も行った。ホタテ貝殻セラミックス水溶液と試薬 NaOH の希釈度は、10^{-3} である。

3．結果および考察

3.1 大腸菌と黄色ブドウ球菌の抗菌試験結果

大腸菌培養液にホタテ貝殻セラミックス水溶液を加えて培養し、生菌率を調べた結果を表 1 と図 1 に示す。濃度が高い場合は、 1 時間で生菌率がほぼ 10^{-4}%以下となる結果を報告 [4] したが、本実験においては、ホタテ貝殻セラミックス水溶液を加えた瞬間に、生菌率、35%(大腸菌) 52%(黄色ブドウ球菌)となり、約 1 分で生菌率がほぼ 0.4 ～ 0.5%の強力な抗菌結果を得ている(図 2)。この水溶液は強アルカリ性(pH12.7)であるが、この水溶液を中和した培養液中でも、即効性は落ちるものの 36 時間後に生菌率は 5%に達した。

表 1 大腸菌と黄色ブドウ球菌の生菌率(%)

供 試 菌	0 min	1 min	5 min	10 min
大腸菌	36	0.4	$<10^{-3}$	$<10^{-4}$
黄色ブドウ球菌	62	0.6	$<10^{-4}$	$<10^{-4}$

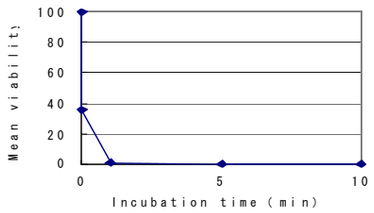
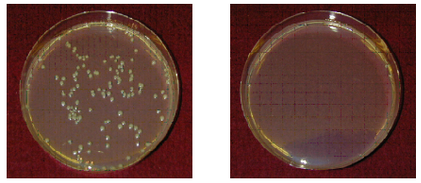


図 1 ホタテ貝殻セラミックス水溶液添加の場合の大腸菌の生菌率



(a) 生理食塩水　(b) ホタテ貝殻セラミックス水溶液添加

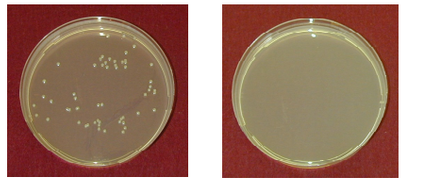
図 2 大腸菌の抗菌試験結果、培養時間 5 分

3.2 サルモネラ菌の抗菌試験結果

サルモネラ菌の抗菌試験の結果を表 2、図 3 に示す。大腸菌と黄色ブドウ球菌の結果と同様にホタテ貝殻セラミックス水溶液は強い抗菌効果を示した。

表 2 サルモネラ菌の生菌率(%)

培　養　液	0min	1min	5min	10min
生 理 食 塩 水	100	–	–	–
ホタテ貝殻セラミックス	22	$<10^{-2}$	$<10^{-4}$	$<10^{-4}$

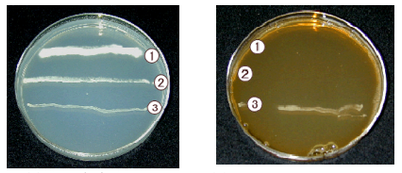


(a) 生理食塩水　(b) ホタテ貝殻セラミックス水溶液添加

図 3 サルモネラ菌の抗菌試験結果、培養時間 5 分

3.3 水虫菌とミュータンス菌の抗菌試験

図4 (a), (b)に培養試験終了後(48 時間)の写真を示す。実験の結果、「ホタテ貝殻セラミックス水溶液添加のマルツエキス寒天平板培地」の場合、2 種類の白癬菌



(a) 生理食塩水　(b) ホタテ貝殻セラミックス水溶液添加

図 4 水虫菌の抗菌試験結果、48 時間後

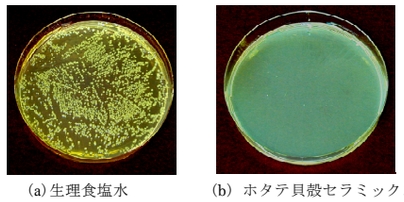
(① *Arthroderma vanbreuseghemii*、 ② *Arthroderma benhamiae*) は菌が生えず、抗菌効果がある。

ミュータンス菌は他の細菌に比べ、繁殖が遅く、死滅しやすい細菌であるため、今回の実験では、生菌率の計測はできなかった。しかし、試験管での実験結果、1 時間後にミュータンス菌の沈殿現象が確認された。これは、ホタテ貝殻セラミックス水溶液により細菌が死滅したときに見られる特徴的な現象であり、大腸菌や黄色ブドウ球菌などでは確認している。そのため、今回の沈殿現象もミュータンス菌が死滅しているものと判断でき、即効効果があると判断できる。

水虫菌の抗菌試験において、酵母菌に対しては影響がないようである。データが少なく、判断できないが、生体材料には、悪玉菌に対して抗菌作用があり、善玉菌に対しては影響がないと言うことが期待される。

3.4 MRSA の抗菌試験

メチシリン耐性黄色ブドウ球菌の抗菌試験結果を図 5 と表 3 に示す。ホタテ貝殻セラミックス水溶液を培養液に添加した場合(60905)、培養時間 5 分で、生菌率 7.9%、



(a) 生理食塩水　(b) ホタテ貝殻セラミックス水溶液添加の場合，15 分の培養試験

図5 メチシリン耐性黄色ブドウ球菌(MRSA,No.60905)の抗菌試験結果

表 3 メチシリン耐性黄色ブドウ球菌の培養時間(min)と生菌率(%)の結果

供試菌	培養時間(min)					
	0	1	5	10	15	30
大腸菌	36	0.4	$<10^{-3}$	$<10^{-4}$	–	–
黄色ブドウ球菌	62	0.6	$<10^{-4}$	$<10^{-4}$	–	–
MRSA(60905)	59	44	7.9	0.7	$<10^{-2}$	$<10^{-4}$

15 分で 10^{-2}%未満、30 分で 10^{-4}%未満の結果を得た。同じ pH12.7 に調整した試薬の NaOH 添加の場合は、30 分で 10^{-2}%未満となり、抗菌作用を示すが、ホタテ貝殻セラミックス水溶液ほどの即効性はなく、単なるアルカリ性が影響しているだけではないことがわかる。

アルカリ水溶液中での抗菌機構として、細胞内への栄養の取り込み(物質透過)の理論がある。細胞内からプロトン(H^+)を排出し、これを再び細胞内に取り込むときにアミノ酸等の栄養素を取り込むが、水溶液中に(OH^-)基が存在することにより、プロトン(H^+)は反応し、水(H_2O)になるために栄養素を取り込むことが不可能になり死滅する機構である。しかし、ホタテ貝殻セラミックス水溶液を中和した場合、即効性は劣るものの抗菌機能は見られ、単なるアルカリ性だけが影響しているのではないことがわかる。

4．まとめ

ホタテ貝殻セラミックスの大腸菌、黄色ブドウ球菌、サルモネラ菌、水虫菌、ミュータンス菌、MRSA に対する抗菌試験を行った。いずれも、抗菌効果を示し、MRSA 以外は、即効性があると判断できる。

大腸菌等に対する抗菌効果の即効性の結果から、野菜、卵、台所用品を洗浄する自然素材で人体に優しい洗浄剤、「チャフクリーン」を実用化した。さらに、スポンジ、ファンなどの除菌、消臭に使用できる。この洗浄剤はホタテ貝殻セラミックスを主成分とし、100%天然素材である。ある食品メーカーの製品のカルシュウム添加剤としてホタテ貝殻が使用されているように、口の中に入っても安全な洗浄剤である。また、化学物質軽減・分解、消臭、防虫機能を併せ持つ洗浄剤である。また、水溶液として、種々のものにスプレーすることにより、応用範囲は広がる。例えば、カーペットの消臭、家具やカーテンに施し、室内の化学物質軽減、シックハウス対策の住居改善のためのリフォームとしても幅広く使用できる。

水虫菌に対する抗菌効果の結果から、水虫治療薬開発のための臨床試験が、2002 年 7 月より、病院にて臨床試験が行われ、2 年後に治療薬が実用化される見込みである。MRSA 対策の洗浄剤も実用化のための技術開発が行われており、治療薬に関しては米国の薬品企業において技術開発が進行中である。

ホタテ貝殻の機能性を応用した研究開発は、人間の健康と安全の確保につながり、持に、MRSA に対しては、解決不可能とされている問題を解決する可能性がある。さらに、東北、北海道で産出される年間約 21 万トンの貝殻の廃棄物処理問題も解決が迫られている問題であり、製品開発の結果として、未利用資源の廃棄物を資源化し、高度利用循環型技術開発となり、地域活性化と産業の育成と雇用創出が可能である [5]。

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Testing of the Effects of Panacea®FX on Food ①

1: Bean Sprouts (0.1% Panacea®FX Solution)
*Tokyo Metropolitan Food Technology Research Center

- Mold Growth — less then 1%
- Germination Rate — 99%
- Hypocotyl Length — 272mm

→ The growth and harvest of bean sprouts increased. The calcium and mineral content increased. Achieved even hypocotyl length and improved in crispness.
Harmless: healthy and safe.

2: Sliced Cucumber Disinfecting Test (0.1% Panacea®FX Solution)
*National Food Research Institute

- Immersion Time — 5 min.
- Common Bacteria — $2.8 \times 10^5 \rightarrow 680$
- E. coli — 880 → Negative

→ Prevents odor and discoloring.
Retains crispness.
Prolongs freshness and shelf-life.

3: Shredded Cabbage Disinfecting Test (0.1% Panacea®FX Solution)
*National Food Research Institute

- Immersion Time — 5 min.
- Common Bacteria — $1.3 \times 10^5 \rightarrow 200$
- E. coli — 70 → Negative

→ Disinfects, prevents molds and retains freshness of packaged vegetables, by using Panacea®FX during the cleansing process.

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Testing of the Effects of Panacea®FX on Food ②

4: Chinese Noodles Disinfecting Test *Panacea®FX used as a replacement for Kansui

Type	Start	3rd Day	5th Day	7th Day	14th Day
Uncooked Noodles w/ Kansui	2.53 x 10^3	2.74 x 10^3	1.49 x 10^3	5.06 x 10^3	1.79 x 10^3
Uncooked Noodles w/ Panacea®FX	<300	<300	<300	<300	<300

When made with Panacea®FX, the shelf-life of noodles can be prolonged while retaining their freshness.

5: Defrosted Squid Disinfecting Test *National Food Research Institute

	Bacteria	Common Bacteria			E. coli		
	Time	Start	24 Hours	48 Hours	Start	24 Hours	48 Hours
Treatment	Tap Water	3.4 x 10^4	4.2 x 10^4	8.0 x 10^4	5.1 x 10^4	3.0 x 10^4	7.0 x 10^4
	Panacea®FX	<300	<300	<300	(—)	(—)	(—)

6: Red Bean Paste Mold Inhibition Test (kept at a temperature of 25℃)
*National Food Research Institute

Red bean paste without PANACEA FX	Start →	Mold found after 7 days
Red bean paste with PANACEA FX	Start →	Mold found after 10 days

• With the use of PANACEA FX, evidence of mold inhibition and syneresis prevention was found.

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Testing of the Effects of Panacea®FX on Food ③

7: Red Bean Jelly Mold Inhibition Test * National Food Research Institute

Red bean jelly without PANACEA FX	Start →	Mold found after 3 days
Red bean Jelly with PANACEA FX	Start →	Mold found after 10 days

8: Raw Chicken Thigh Post-Treatment Observations(preserved at 5℃)
*National Food Research Institute

Solution	Bacteria Type	1st Day	2nd Day	3rd Day	4th Day	5th Day
0.85% Common Hypochlorous Acid Solution	Common Bacteria	3.0×10^3	6.0×10^3	1.3×10^4	1.3×10^5	2.0×10^5
	E. coli	7.0×10^1	7.9×10^2	2.1×10^3	2.7×10^3	3.6×10^3
0.5% Panacea®FX Solution	Common Bacteria	<300	<300	<300	<300	<300
	E. coli	(−)	(−)	(−)	(−)	(−)

9: Raw Chicken Thigh Post-Cooking Observations(preserved at 25℃)
*National Food Research Institute

Solution	Bacteria Type	Immediately After	1st Day	2nd Day
0.85% Common Hypochlorous Acid Solution	Common Bacteria	<300	2.5×10^4	1.4×10^7
	E. coli	(−)	(−)	(−)
0.5% Panacea®FX Solution	Common Bacteria	<300	3.0×10^3	1.0×10^3
	E. coli	(−)	(−)	(−)

＊Also effective with beef, pork, roast beef, processed meat, etc.

＊Prolongs shelf-life, enhances juiciness, tenderizes meat, provides binding effects and prevents dripping.

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PANACEA FX Food Immersion Testing

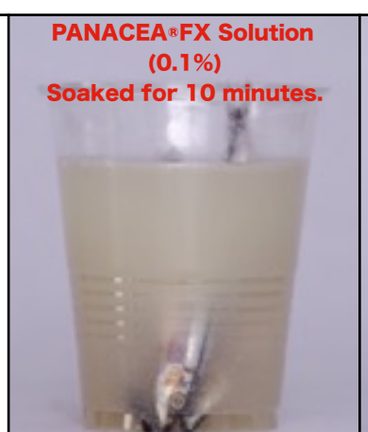
Cherry Tomatoes	PANACEA®FX Solution (0.1%) Soaked for 5 minutes.	Tap Water Soaked for 5 minutes.
PANACEA FX solution removes pesticide, wax and preservative residue and eliminates the viruses and bacteria found on the surface of the tomatoes, making them safe to eat while also enhancing their flavor. After soaking the tomatoes in the solution, the solution turns yellow. This is because the oxidized polyphenol of the tomatoes reacts to the calcium ion and the nitrogen found in the air.		

Shiitake Mushrooms	PANACEA®FX Solution (0.1%) Soaked for 5 minutes.	Tap Water Soaked for 5 minutes.
Agricultural chemicals, pesticides, preservatives and bacteria are removed from the shiitake mushrooms, regaining the aroma and freshness. It is obvious to see how much contamination can be found on imported shiitake mushrooms.		

Rice	PANACEA®FX Solution (0.1%) Soaked for 10 seconds.	Tap Water Soaked for 10 seconds.
The oxidized bran and starch of the rice react to the alkali・calcium ion, immediately changing the color of the solution to yellow. Through this reaction, the residual pesticides and preservatives are removed from the rice. Stir the rice for 10~15 seconds as you would when cleaning, and then follow the usual process of rinsing and cooking the rice. The rice will become tastier with enhanced fluffiness and springiness.		

Asari (Japanese Carpet Shell) Clams	PANACEA®FX Solution (0.1%) Soaked for 2 hours.	Tap Water Soaked for 2 hours.
Clean the clams by soaking them in a solution of water with 1 % salt and 0.1% of PANACEA®FX for 2 hours. This will remove the viruses and bacteria found on the clams, which will revive the freshness, making them tastier and safer to eat.		

Tea Leaves	PANACEA®FX Solution Soaked for 5 seconds.	Tap Water Soaked for 5 seconds.
Briskly wash the tea leaves with PANACEA FX solution for 5 seconds and rinse with water. Any residue, such as pesticides and wax, will be removed from the leaves, bringing out their natural flavor and making them tastier. As it is apparent in the photos, with the effects of the alkali ions, the residue found on the surface of the leaves is immediately removed and dissolved. ※Be careful not to soak the leaves in the solution for more than 5 seconds.		

Fish	PANACEA®FX Solution (0.1%) Soaked for 10 minutes.	Tap Water Soaked for 10 minutes.
By soaking fish in the PANACEA FX 0.1% solution for 10 minutes, they become fresher and tastier after the removal of viruses, bacteria and oxidized fat. They also keep their shape even after grilling or boiling and won't crumble or break apart easily. By soaking in the solution before refrigerating, the fish stay fresh longer.		

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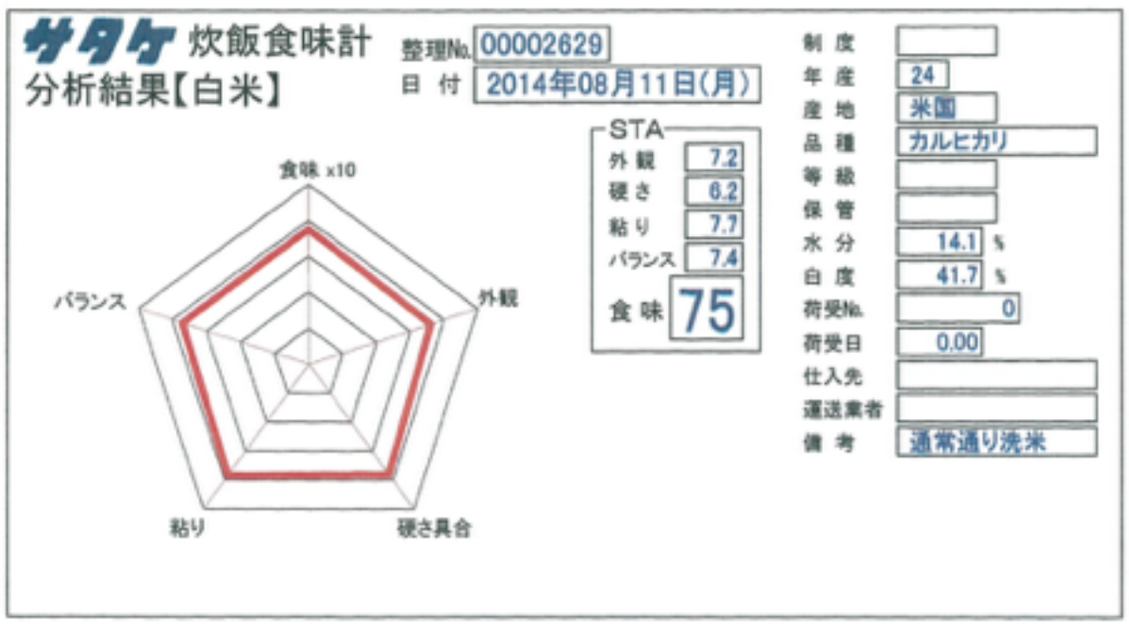
Rice Taste Analysis (Satake Rice Taste Analyzer)

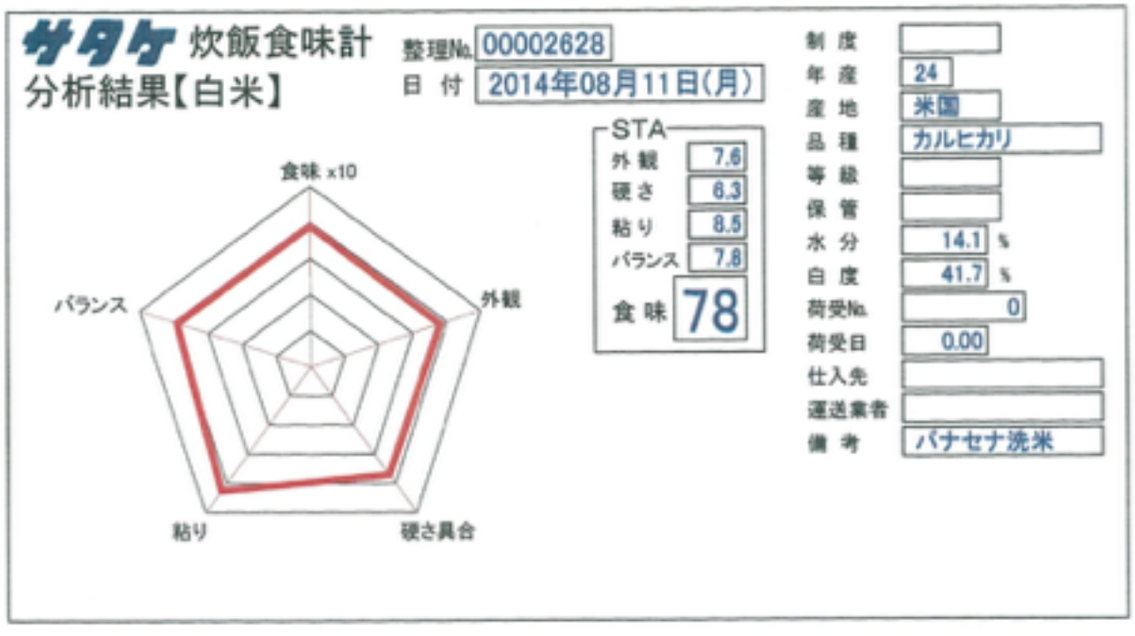
Although the score given to the rice does not usually change very often, the rice washed for 10 seconds with PANACEA FX solution gained 3 whole points! It even scored 0.8 higher in the "stickiness" category.

By washing with PANACEA FX, pesticides and oxidized bran residue are removed from the rice. This also accelerates the gelatinization, creating tasty rice that is fluffy and springy.

Using Tap Water



Using PANACEA FX 0.1% Solution



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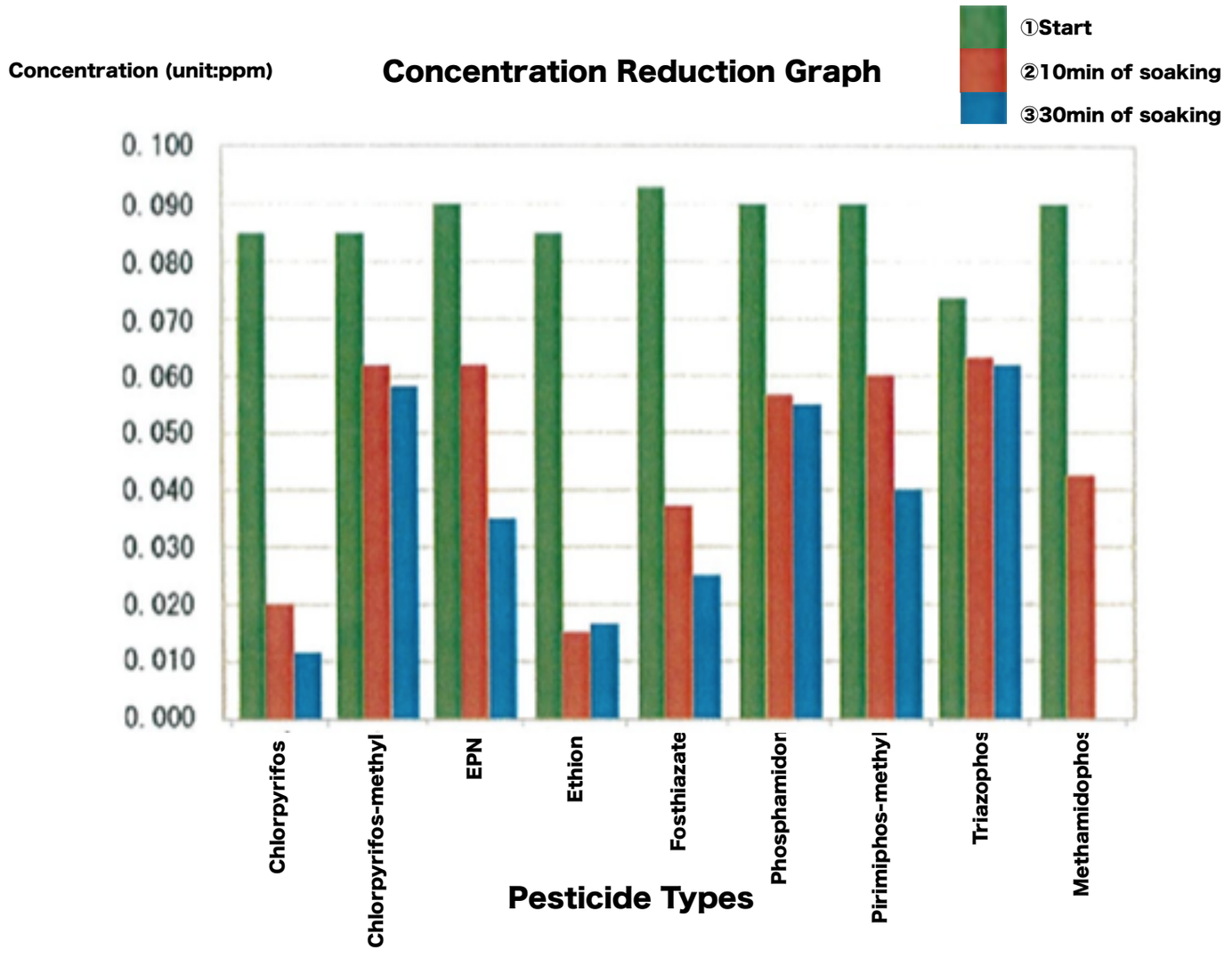
Reduction Effect of Panacea®FX on Pesticide Residue

In this pesticide reduction testing, a solution made with food additive, Panacea®FX, calcined scallop shells, was used to test its effects on breaking down pesticides. As a result, a reduction (breakdown)of pesticide levels in vegetables was found. The main ingredient of Panacea®FX is calcium oxide, which, when it reacts to water, produces a solution high in alkalinity. It is commonly known that alkalinity has a breakdown effect especially on organic phosphorous based pesticides. Because many of the pesticides are relatively insoluble, washing food with water alone will not remove most of the pesticides found on the surface of the food. Therefore, having found proof of pesticide reduction when using this approved food additive, it can be conclude that Panacea®FX is a safe and effective product for pesticide removal.



Examined by Techno Science Co., Ltd Environmental Analysis Department

Has the power to breakdown 99% of even Methamidophos

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Effects on Radiation

Voice of the Panacea®FX User

I was impressed by your company's powder (scallop shells).

Originally, I bought this item to get rid of the body odor I was experiencing, which comes with aging, and it was very effective.

I saw on TV that the shell powder is used in experiments for radiation decontamination.

I live in Ichikawa-City, Chiba and the radiation level is quite high in my neighborhood.

It shocked me to discover that the soil under the rain gutter emitted 5.45 becquerel.

So I tried the powder on the soil right away. After waiting for 2 weeks, the radiation

level was down to 0.715 becquerel.

I am truly amazed by your product and wanted to report your product's impressive

effect on radiation.

(comment received from Suwada, Ichikawa-City)

The effect of scallop shells in decontamination has been reported by the Yomiuri Newspaper!!

"Scallop shells, which can be obtained cheaply even in the disaster areas, have countless micro sized pores which are said to be effective in absorbing radioactive cesium. Because it does not contain any chemical substances, it is also environmentally friendly. Its ability to kill three birds with one stone is highly promising.

According to Hiroki Ohtani, associate professor of Tokyo Metropolitan University and the creator of the study, the mineral 'Zeolite' is microporous and is commonly used for removing radioactive cesium. However, the number of pores on the scallop shells exceeds that of zeolite, which he believes will be highly effective in absorbing cesium."

Source: Yomiuri Newspaper

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Corrosion Control Testing / Mold & Die Cleaning Water Testing

Corrosion Control Testing

The nail immersed in 0.1% PANACEA® FX solution does not rust even after 3 months, while the nail immersed in tap water shows clear signs of oxidation progression as the water turns murky.

Die / Mold Machinery Cleaning Water Testing

When using underground water for cleaning molds and dies, the water became contaminated with pollutants and oil, producing bacteria and causing putrefactions, leading to the emission of malodor. With the use of PANACEA® FX, the odor level was greatly reduced.

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Food Additive Specifications and Standards Compliance Test

“PANACEA FX” is approved as a safe food additive by the Japanese government.
It is identified by the mark “PF.”

分析試験結果

分　析　試　験　項　目	結　　果	検 出 限 界	注	方　　法
貝殻焼成カルシウム			1	
性状	適			
確認試験				
(1)	適			
(2)				
カルシウム塩				
(1)	適			
(2)	適			
純度試験				
塩酸不溶物	適(0.02%以下)			
炭酸塩	適			
重金属	適			
ヒ素	適			
強熱減量	適(1.6%)			
含量	適(酸化カルシウムとして 97.7%)			

注1. 食品，添加物等の規格基準(昭和34年厚生省告示第370号)の第2添加物。

以　上

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Safety (LD50 Value – Lethal Dose, 50%)

The LD50 is an abbreviation for median lethal dose. It is the amount of substance that causes the death of one half of a group of test animals (rats, guinea pigs, etc.) after a specified test duration. The amount of substance required to kill 50% of the test population is expressed as the weight of chemical administered per unit mass of test subject (mg/kg). It is often used as a general indicator of a substance's acute toxicity. The value of LD50 is calculated by creating a graph using the test data on substance amount and the death rate of the test animals. 50% lethality was chosen as it was statistically reliable with less potential for making measurements in the extreme. It is generally considered safe when the LD50 figure is over 1500mg/kg.

※PANACEA FX was observed to be significantly safer than common salt in acute oral toxicity testing in rats.

	LD50
PANACEA FX®	6,600mg / kg
Salt	4,000mg / kg
Sodium Hypochlorite	5mg / kg

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Uses and Effects of Panacea®FX (Fruits & Vegetables)

Fruits & Vegetables

Intended Use

- For disinfecting, removing pesticides, wax and retaining freshness of food

Instructions

- Stir in 1g of Panacea®FX into 1L of water. Soak fruits and vegetables for 3~5 min. Rinse with tap water. The solution can be used consecutively up to 3 times.
- Place a strainer or other type of weight on top to keep fruit and vegetables completely submerged in the solution. If not, use a bubbling device and stir. Make sure to let all surfaces of food soak in the solution, especially leafy vegetables.
- For dried beans, soak in 0.1% solution for 8 hours during summer and 12 hours during winter.

*A 0.3~0.5% concentration is sometimes preferred in commercial use.
(0.3%: To mix in the dough for pastas and other noodles / 0.5%: For cleaning large amount of vegetables)

Effects

- Depending on the oxidized level, green vegetables may or may not change color. However, the discoloration is not related to the disinfecting or pesticide removal effects.
  Compared to the general data of the effect of tap water on pesticide removal, the effect of Panacea®FX solution is 2.7 times higher.
- The alkalinity in the solution and the organic matter (polyphenol, etc.) in tomatoes react to each other and cause the solution to turn yellow. This helps to disinfect, remove pesticide and retain freshness.
- The Panacea®FX solution helps in suppressing bioactivity in vegetables, which prevents the release of ethylene gas. This will keep food fresh even in room temperature. It also removes putrefactive bacteria and other germs from food and prevents oxidation by lowering the level of Redox Potential.
- Useful in removing lye from wild vegetables with strong bitter taste. It enhances the natural taste of food.
- Highly effective in removing pesticide from parsley, grapes and broccoli.
- Its anti-bacterial effect on lettuce are equal to hypochlorous acid up to 2 days but surpasses the effects of hypochlorous acid beyond 2 days
- No molds or damages were found on blueberries after 12 days of refrigeration. Excellent results were reported in Organoleptic Testing and Visual Inspection.
- The solution turns milky white because Panacea®FX reacts with the dirt, chemical fertilizer, endocrine disrupters, pesticide residue, etc. found on food and with nitrogen in the air.

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Uses and Effects of Panacea®FX (Beef/ Pork/ Poultry)

Beef/ Pork/ Poultry

Intended Use

For disinfecting and creating an anti-bacterial condition, preventing discoloring & retaining freshness.

Instructions

<Beef/ Pork/ Poultry>

- Add 1g of Panacea®FX into 1L of water.
  Submerge the meat completely and soak for 20 min.
  Rinse with running water.
  When using frozen meat, make sure to thaw out before the procedure.
- It is effective for all purposes (grilling, frying, stewing).

*When preparing large amounts of meat, use a 0.3~0.5% concentration.

<Effects>

- It enhances the flavor of meat and tenderizes.

<Q&A>

Q : Wouldn't the meat lose its flavor by soaking it in the solution?

A : It may seem hard to believe but the meat soaked in Panacea®FX solution actually becomes tastier.
With its deoxidizing power, it restores the flavor of meat and makes it very tender.

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Uses and Effects of Panacea®FX (Noodles)

Noodles

Intended Use and Effects

- By adding Panacea®FX, the initial bacterial count can be reduced and with the effect of pH control, retaining the freshness of noodles is possible. It also enhances the springiness in noodles.
- It can be used to replace or reduce the amount of kansui (alkaline water) when making ramen noodles.
- The water left after boiling noodles becomes less mirky.
- Depending on the added amount, the noodles can be labeled as a " Calcium-Enriched" product.
- After boiling or steaming, cool the noodles with 0.3% Panacea®FX solution to keep the noodles fresh and improve shine and silkiness.
- It can also be used for dim-sum wrappers and stuffing.

Instructions

- Make the solution for the dough by adding Panacea®FX (0.3% the amount of flour) to water. Adjust the amount to achieve ideal springiness and color of the noodles and according to the amount of kansui (alkaline water) when using together.
- Make sure to create required amount of Panacea®FX solution to make dough. Mix the solution well with flour. Panacea®FX can be directly added to flour but the powder needs to be distributed evenly.

※Add a little more Panacea®FX solution than the usual amount of water used when making dough. When making the solution, it is recommended to use chilled water to achieve higher solubility and effects.

※By adding Panacea®FX, the noodles' springiness, color and firmness changes. Adjust the time for kneading accordingly.

Precautions

- Test before using.
- As a general rule, avoid using Panacea®FX with a pH adjuster or other shelf-life prolonging agents. It may reduce the effects and cause odor and discoloring.

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Uses and Effects of Panacea®FX（Rice)

Rice

Intended Use

- For enhancing flavor, preventing discoloration and removing odor from old rice.

Instructions and Effects

- Add Panacea®FX <1g per 3~5 go of rice (1go = 180ml/150g)> and stir for about 10 sec. (*1 longer than 10 sec. could cause discoloring).
  If discoloring occurs, rinse thoroughly in a strainer. Wash rice as usual and cook.
- Freshly cooked rice will become tastier and even cold rice retains its deliciousness.
  It decomposes and removes the cause of odor in old rice, oxidized gluten and fatty acids, and enhances the natural flavor of rice.

＊1 Soaking the rice in the solution for 1~10 minutes can enhance the fluffiness and springiness of the rice. Testing different soaking times is recommended to achieve the desired result.

＊2 The discoloration of rice, turning yellow, is caused when the Panacea®FX reacts with gluten and fatty acids contained in rice. Factory washed rice does not often produce discoloring effects.

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Uses and Effects of Panacea®FX (Seafood & Seaweed)

Seafood (fish/octopus/squid/shellfish)

Intended Use

- For disinfecting and creating an anti-bacterial condition, preventing discoloring, retaining freshness and preventing drip loss when frozen.

Instructions and Effects

<Fish/Octopus/Squid/Shrimp>

- Stir 1 g of Panacea®FX into 1 L of 1% saline water. Soak seafood for 20 min. and rinse with tap water.
  For refrigerating, refrigerate without rinsing with tap water to retain the freshness 2~3 days longer.
  (The total viable bacterial count of 300 and under after 2 days of refrigerating)
- With the use of Calcine Calcium, it is possible to suppress the raw smell of seafood up to 5 days.
- Also effective with imported shrimp

<Shellfish>

- Soak clams in 0.1% Panacea®FX solution for 20 min. Remove dirt and scum floating in the water and rinse the clams before cooking.
- Can be used for preventing SRSV(Norovirus) in oysters.

Seaweed

Intended Use

- For disinfecting and creating an anti-bacterial condition and retaining freshness.

Instructions and Effects

- Soak dried or raw seaweed in 0.1% Panacea®FX solution for 5 min, drain and keep refrigerated.
  Rinse out the solution before eating or cooking.
  Typically, seaweed becomes slimy after 2~3 days of storing but seaweed soaked in Panacea®FX solution retains its freshness up to 5~6 days.

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Retaining Freshness of Seafood for Commercial Use

Retaining Freshness of Seafood for Commercial Use

Present Condition

Generally, seafood is caught in fishing boats, passed through fish markets and end up in places like factories where it is cleaned of dirt and other excesses with tap water, seawater, a hydrogen peroxide solution or something akin to chlorine bleach.
However, this process is unable to suppress discoloration and the spread of germs and can only retain the freshness of seafood for a short period of time.

The Purpose of Using Panacea®FX

By putting the seafood through the process of freshness retention (by washing and icing) using Panacea®FX, its shelf-life, in raw and edible state, will be extended by 1～2 days longer.
With this, it is possible to reduce the amount of wasted seafood and cut expenses.

Instructions

①Before shipping, the seafood is cleaned with seawater. Add 1g of Panacea®FX into 1L of the seawater (0.1% solution.) Shower the solution over seafood or soak the seafood in the solution for 3～5 min.
②After cleaning with Panacea®FX solution, pack the seafood with ice made from 0.1% Panacea®FX solution in the container. Once the Panacea®FX ice starts to dissolve, compared to normal ice, it significantly reduces the amount of germs and assists in retaining the freshness.

<For Reference>

The cost of the total amount of seafood wasted a month in Hachinohe Fishing Port amounts to over 100 million yen. By using Panacea®FX, this waste can be reduced significantly.

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Uses and Effects of Panacea®FX (Sushi Restaurants & Salad Bars)[1]

Sushi Restaurants & Salad Bars

Instructions and Effects

Concentration of Solution

- Use 0.1% or 0.3% solution according to purpose.
- Use 0.1% solution for soaking and 0.3% solution for spraying.

Shellfish (clams and other shells)

- Soak them while alive in 0.1% solution for 2~3 hours. Use saline water (10g of salt/ 1L of water) when making the solution. After the clams expel all the dirt, rinse thoroughly and keep refrigerated in a show case or refrigerator.
- This will enhance the flavor and prolong the freshness of cooked and raw clams.
- For frozen clams, spray the 0.3% solution evenly after thawing. The freshness can be prolonged even to the next day. Use any spray bottle found in stores.

Fish and other Seafoods

Squid ▶ Spray evenly.

Octopus ▶ Soak boiled octopus for 10 min.

Mackerel, Kohada & Hamachi ▶ Fillet in 3 pieces and spray evenly.

Tuna ▶ Spray the tuna in fillet size.

Uni (sea urchin) ▶ Gently soak in 0.1% solution made with saline water for 5 min.

Tai (sea bream), Aji (horse mackerel) & Salmon ▶ Fillet in 3 pieces and spray evenly.

Shrimp ▶ Soak raw shrimp in 0.1% solution made with saline water for 5 min. Spray for boiled shrimp.

Flounder ▶ Spray.

Seaweed ▶ Soak in 1% solution for 5 min. Drain well and refrigerate. Highly effective in inhibiting germs.

Tuma (shredded radish) ▶ Soak shredded daikon (Japanese radish) for 5 min. Rinse and drain well. Wrap and store in refrigerator.

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Uses and Effects of Panacea®FX (Sushi Restaurants & Salad Bars)[2]

Sushi Restaurants & Salad Bars

Salad

- Soak cut vegetables for 3～5 min. Rinse and drain well. Wrap and store in refrigerator.

Important Points

- After spraying or soaking fish and vegetables, make sure to drain and wrap them in plastic wrap to prevent drying out.
- Be cautious of any dripping.
- Use chilled water or tap water. Do not use lukewarm water.
- Make sure the food is completely submerged in the solution. Do not allow the food to float.
- By spraying or soaking, inhibition of germs can be achieved and it is possible to prolong the shelf-life by 2～3 days. However, to ensure safety, shelf-life should be considered to be extended by only 1 day.

◎ Do not reuse the solution after 24 hours of first use.

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Uses and Effects of Panacea®FX (Others)

Omelets	Add 4cc(4ml) of 0.1% PANACEA®FX solution for 2 eggs (small/medium). Enhances texture and reduces food poisoning bacteria.
Boiling/Stewing	Soak cut ingredients (meat, vegetables, etc.) in 0.1% solution for 20 min. and rinse. Helps to keep food intact and brings out its natural flavor.
Sushi Toppings	Spray 0.1% solution on to sushi toppings. Disinfects, reduces odor and retains freshness 1 day longer.
Pickles	Soak ingredients in 0.1% solution for 5 min. Not only does it disinfect but also enhances crunchiness and color and helps to preserve longer.
Salads	Soak in 0.1% solution for 5 min. Disinfects and prevents discoloring (more effective than hypochlorous acid) and helps to preserve longer.
Processed Meats	Helps in prolonging the standard value of the antibacterial effect 2 days longer than when using sorbic acid.
Dish Washing	Cleans and disinfects dishes, cutting boards and baby bottles by soaking them in 0.1% solution.
Tofu Production	Helps in producing more soy milk and helps tofu to last longer.

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For Use in Laundry

For your laundry…

While many people use sodium bicarbonate (baking soda) for washing clothes, PANACEA FX is much more effective, as it has a stronger alkalinity. It is useful for eliminating the damp odor often found when drying clothes indoors.

Instructions

Add PANACEA FX (3~5 g / 1~2 tablespoons for 20 L of water) with clothes and detergent and proceed with the usual process of washing clothes.

★The alkalinity of PANACEA FX enhances the cleansing effects of laundry detergent. Less detergent than usual is needed to achieve the effective results, contributing to a reduction in the amount of detergent used.

★Alkalinity is still effective even at a water temperature of 20~30℃. Boiling water is not necessary to achieve higher cleaning effects.

Effects

- Strong alkalinity enhances the effects of laundry detergent.
- Eliminates damp odor / disinfecting effects of strong alkalinity / prevents yellowing caused by rust and other factors / removes black mold found inside the washing machine.
- Disinfects trichophton fungus (ringworm), E. coli. etc. / removes slime and malodor from water pipes and drains.

※It does not have any bleaching effect. It is not effective when used together with chlorine bleach.

※Can also be used in fully automatic washing & drying machines and in dry cleaning.

※Occasionally a white powder may be left on clothes, which is calcium and is harmless.

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For Disinfecting Kitchenware! Deodorizing! And Much More![1]

For Disinfecting Kitchenware and Preventing Food Poisoning…

Adding PANACEA FX in water creates strong alkaline water. This alkaline water has antibacterial and disinfecting effects (bacteria can not grow in alkaline water). It is effective to use PANACEA FX solution on cookware such as cutting boards, dishcloths and sponges and also for cleaning sinks and floors.

Instructions

Create strong alkaline water by adding 1~1.5 tablespoons of PANACEA FX in 20 L of water. Use to wash cookware.

★Although there are other antibacterial spray products that use alkaline water, about 1.5~2 tons of alkaline water can be produced with only 1 kg of PANACEA FX.

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For Disinfecting Kitchenware! Deodorizing! And Much More![2]

Deodorizing Effect

• Spraying alkaline water (made from PanaceaFX) onto curtains, carpets, inside shoe racks and around entrances will help to eliminate odors.

※ Use with caution when spraying on dark colored material and shoes as it may leave white powdery residue after drying.

※ The white residue found in the bottom of the container is calcium and is harmless.

For Other Use

• Drain openings and other places that produce odors!

※PANACEA FX does not have the ability to dissolve hair.

• For kitchen floors and drains

※Immediate effects may not be achieved, depending on the condition of the place and the strength of odor.

The odor can be reduced with the continual use of PANACEA FX.

• Washing feet in a basin full of alkaline water can help to eliminate odor (about 2 g of PANACEA FX in 2 L of water).

Calcined shell calcium is classified as a food additive by the government of Japan (Ministry of Health, Labour and Health Notification No. 120 Food Additive under the Food Sanitation Act 128). It is a calcined and powdered shell, which is additive-free and pure clacined calcium that is approved by the government as a safe and natural food additive.

When using this product, please follow the instructions and use the specified amounts.

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Panacea®FX Users

Cut Vegetables Manufacturer Supplies to major convenient stores	①Disinfects and retains freshness of vegetables such as lettuce, cucumbers and cabbage. Received well for their enhanced flavor. ②Assists in enhancing flavor of Tsuma, shredded Japanese radish served next to sashimi, and retaining its freshness longer than using hypochlorous acid.
Cut Fruits Manufacturer Supplies to major supermarkets and convenient stores	Can be used for all cut fruits such as strawberries and pineapples. Drastically extends shelf life of strawberries.
Processed Meat Manufacturer	Replacing sorbic acids with Panacea®FX made it possible to supply their products to major supermarkets.
Fish Market Fishing port in Fukuoka	Helps in retaining freshness of seafood commonly found in the ocean near Japan like Aji (Horse Mackerel), Saba (Chub Mackerel), squid, wakame seaweed and frozen fish. Helps to prolong the freshness of sashimi up to 4~5 days, which usually lasts only 2 days.
Mill Factory Used in flour for making bread, pizza, etc.	Prevents food poisoning, enhances flavor, improves the look of products and supplements calcium.
Ice Manufacturer Used in ice for fish markets	Ice made from Strong Alkaline Water with a pH value of 12 aids in retaining freshness of fish. Enables the production of edible ice with a pH value of around 9~10.
Noodle Manufacturer Used in more restaurants	Perfect for retaining the freshness of noodles. Lasts 2~3 days longer when refrigerated.
Washed Rice/Bento Lunch Manufacturer Used in Bento lunches	①Prevents decay. Rice regains its newly harvested freshness. ②Rice stays delicious even when it's cold.
Dried Wakame Seaweed Manufacturer Supplies to supermarket as seaweed salad	The usual 2~3 day shelf life of dried seaweeds can be doubled when soaked in Panacea®FX solution.
General Food Service Industries Used in fish/meat/vegetables	Enables raw meat, fish and vegetables to retain freshness and helps to significantly reduce waste and expenses.

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The Mechanisms of PANACEA FX

Disinfecting/ Cleansing/ Deodorizing/ Retaining Freshness / Improving Taste

PANACEA®FX
Ingredient: 100% Scallop Shells
Burning Temperature: 1,200℃→pH13.2
＊Generally: 700℃→pH 12
LD 50 approx. 400 g / 60 kg

PANACEA®FX Solution (0.1%~0.5%)
Alkaline Ionized-Reduced Water pH13.2
Oxidation-Reduction Potential -200 mV~-400 mV
*** Tap Water 400 mV~500 mV**
Overwhelming amount of
hydroxide ions (OH-) and hydrogen ions (H+)

Food
<vegetables / fruits / rice / fish / meat / etc.>

- pesticide / wax / dirt / hormone mimicking chemicals / etc.
- Viruses & Bacteria Norovirus / E. coli / Salmonella / etc.
- umami (flavor) component & mineral component
- putrefactive bacteria / anaerobic bacteria / bacteria that causes discoloring of food stored in refrigerators*
- odor & oxidative component

Exfoliated and removed with effects of strong alkalinity

Hydroxide ions help to extract umami components (amino acid and glutamic acid / speeds up saccharification (conversion to sugar) / gelatinization of starch / water absorption / increases minerals

Disinfects food (surface /inside) with the effects of strong alkalinity (pH13.2) Viruses and bacteria undergo hydrolysis with the effects of hydroxide ions (OH-)

• Same as above. Food becomes less prone to oxidation.
*Pseudomonas fluorescens

With the effects of H+ & OH-, odor and oxidative components become odorless compounds

Food becomes safe and worry-free

Improves Taste. Tastier food that is crisper and firmer.

Disinfects while inhibiting the growth of viruses and bacteria

Controls the oxidation in food / retains freshness

Eliminates odors in food

PANACEA®FX Food Revolution

Tastier food that is safe and worry-free with long lasting freshness.

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Summary

“Calcined Scallop Shell Powder PANACEA FX” is all-natural, made of 100% scallop shell. Calcium hydroxide, created by calcinating the shells at a temperature of over 1,200℃, has excellent disinfecting and cleansing powers and is also highly effective on odors such as putrid odor and ammonia.

As the ingredient is 100% natural, PANACEA FX is safe and reliable. The solution made with PANACEA FX can be sprayed directly onto food. Food can be disinfected and retains its freshness, when soaked in the solution.

The basic use of PANACEA FX is for soaking food. The solution can be created by adding 1 g of the PANACEA FX into 1 L of water. By soaking food in this solution for about 5 minutes, you can eliminate pesticide residue, preservatives, waxes, chemical fertilizers and coliform group bacteria and as a byproduct, it can also help to retain freshness and prolong shelf life of food. Vegetables will become crisper and rice will become fluffier and springier, bringing out the natural flavor and texture of food.

With just 1 bottle of PANACEA FX, food can become tastier and stay fresh longer and by using it in your kitchen, you can obtain a safer, worry-free and clean environment.

We are confident of PANACEA®FX’s potential as a product that will be widely sought after, not only domestically but also in Mainland China, Hong Kong, Taiwan, Singapore and in other East Asian countries.

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野菜・果物・お米・肉・魚介類
食材洗いにコレ1本!

食材をよりおいしく、安全に

PANACEA® FX

ホタテ貝殻焼成パウダー

原料：ホタテ貝殻 100%

赤ちゃんにも
安心

農薬・ワックス
除去!

ウイルスや
細菌の除菌!

鮮度保持!
日持ち向上!

水に溶かすと、pH13前後の強アルカリ性電解質（アルカリイオン水）になり、このアルカリ性が、食品などの表面の汚れを剥離・除菌します。

1 食品には残留農薬やワックス、雑菌が付着しています。

2 パナセアFXが表面についた物質を剥離し、除去します。

3 さらに消臭・抗菌、酸化（腐敗）を抑制します。

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We thank you for considering PANACEA FX.

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