



About turmeric...

- Ginger family *Curucuma* genus. (*Curcuma longa* L.)

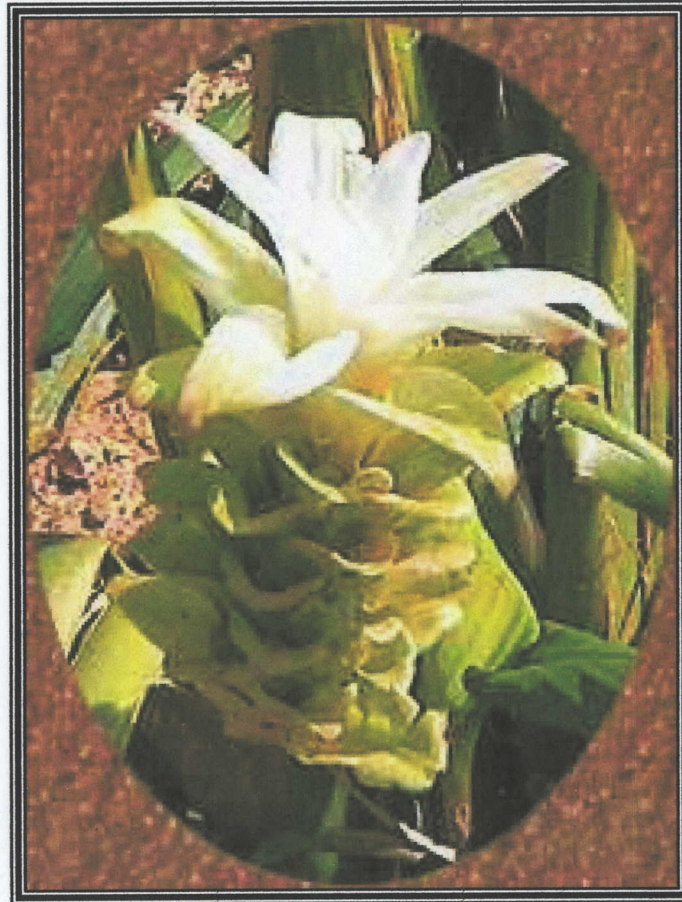
HISTORICAL BACKGROUND

- In Okinawa, people had been exported turmeric to Mainland as a monopoly goods.
- In Okinawa, since turmeric have been one of the most familiar plant which have been regarded as **MEDICINE FOR LIVER** or **EFFECDTIVE METHOD OF RECOVERY FROM HANGOVER**, people have been made use of it for long time.

NOTEWORTHY MATERIAL

- We are paying attention it's **PIGMENT, CURCUMIN** because of increase of people who are in trouble caused from liver disability.

Turmeric flower



Root of turmeric



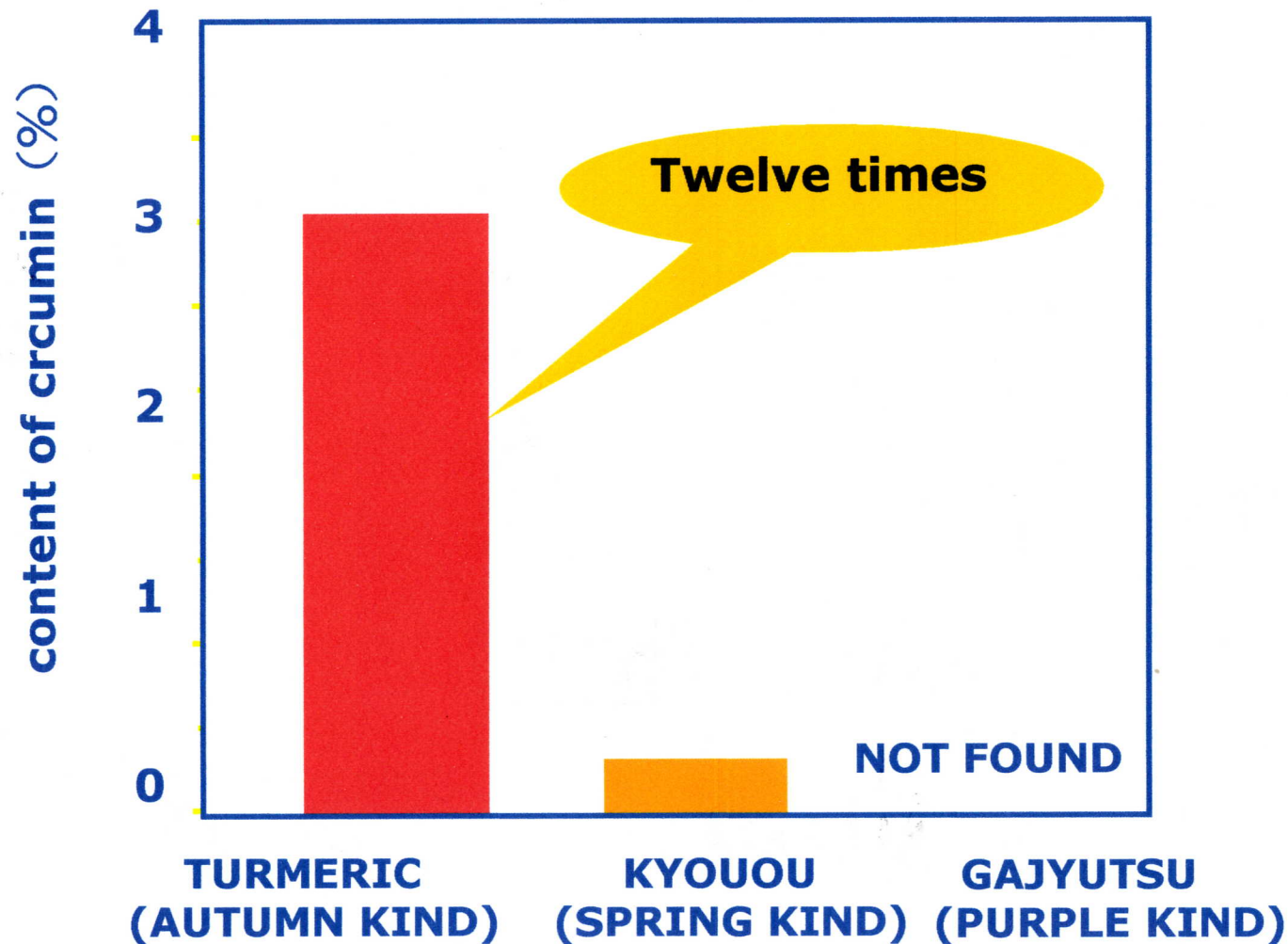
Turmeric kinds



**AUTUMN TURMERIC
(TURMERIC)**

**SPRING TURMERIC
(KYOUOU)**

Comparative data of content of curcumin



Noteworthy features of fermented turmeric

Fermented Turmeric is **high functional** food which we can provide with noteworthy features.



SPECIFIC MATERIAL

- ANTI TUMOR ACTIVATION
- ANTI INFLAMMATION
- ANTI OXIDATION

ADDITIONAL VALUE

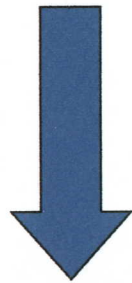
- CHANGE TO BETTER FLAVOR
- INCREASE OF ANTI-OXYDATION TENDANCY
- INCRECE ABSORPTION TO HUMAN BODY
- INCREASE CONTENTS OF MINERALS



What is fermented turmeric?

FERMENTED TURMERIC is our high functional product which is proved to have effect by physical method.

TURMERIC + LACTIC ACID BACTERIA + MOLASSES



Ferment

(HIGH FUNCTIONAL TURMERIC)

FERMENTED TURMERIC

Our unique process = (PATENT NO.2949411)



Collaboration research

Our company is extending collaboration research for ensuring our product quality.

- **RYUKYU UNIVERSITY. DEPARTMENT OF AGRICULTURE**
- **RYUKYU UNIVERSITY. DEPARTMENT OF MEDICINE**
- **GRADUATE SCHOOL OF NAGOYA UNIVERSITY**
- **GRADUATE SCHOOL OF KYOTO UNIVERSITY**
- **NOMURA DIGESTIVE ORGAN INTERNAL MEDICINE HOSPITAL**
- **MEDICAL CORPORATION RYUSHINKAI. KATSUYAMA HOSPITAL**
- **MINISTRY OF EDUCATION AND SCIENCE. RADIOLOGY GENERAL lab.**

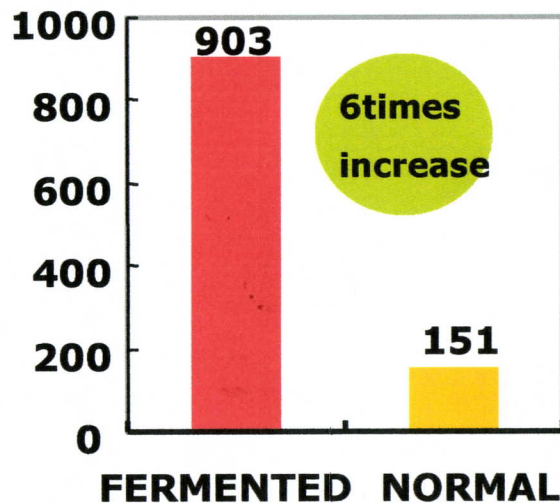


Advantage of ferment (compare to no fermentation)

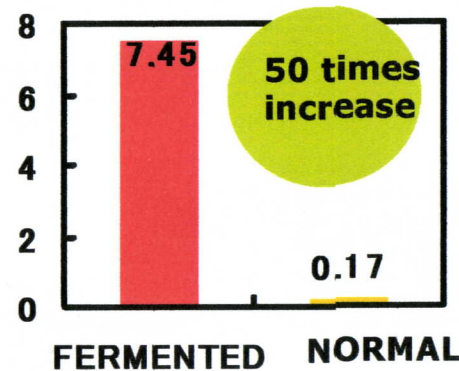
- 1. Decrease bitter taste itself, changes to mild flavor**
- 2. Increase of mineral contents..**
- 3. Increase absorption to body.**
- 4. Increase of anti-oxidation tendency.**
- 5. Control of cholesterol and neutral fat in your body**
- 6. Raise liver functional ability
(control increase of GOT, GPT, γ -GTP)**
- 7. Raise the ability of composing alcohol**

Increasing mineral contents

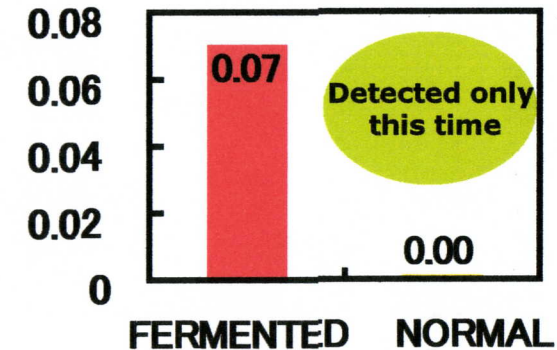
(mg/100g) CALCIUM



(mg/100g) ZINC



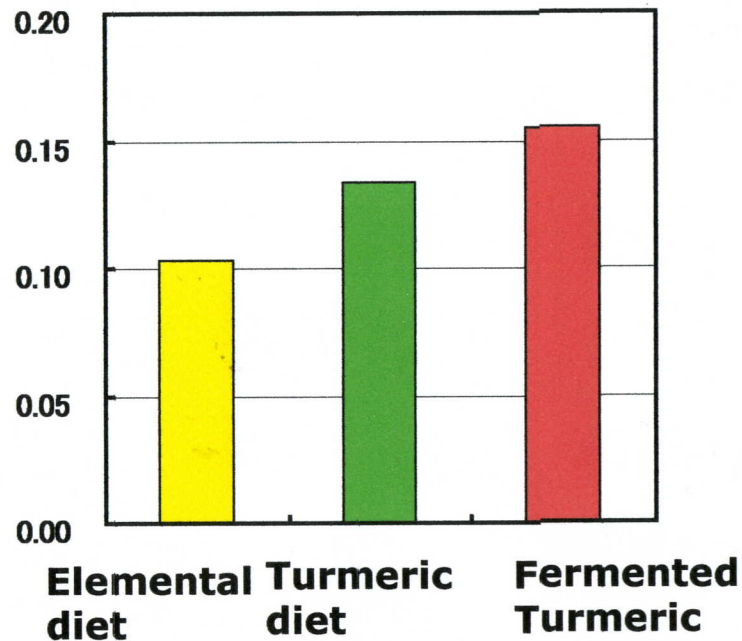
(mg/100g) SELENIUM



Mineral contents in our products was increased by using morasses with full of minerals for fermentation processes.

Secret of the power against hangover

Δ OD Value/Minute



Laboratory animal : Rat (N=5)

Experimental diet group : Elemental diet, Turmeric diet, Fermented turmeric diet

Feeding Time:28days

Measure the amount of ALDH in liver after feeding simultaneously ethanol and each experimental diet.



Fermented turmeric diet has shown that decomposition power against acetaldehyde cause of hangover is highest.

Secret of the power against hangover(2)

Subject : Healthy male (3 Volunteers)

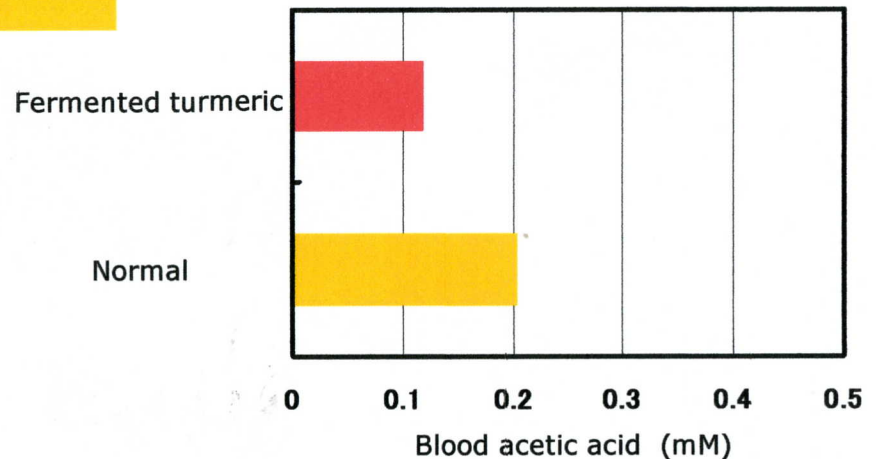
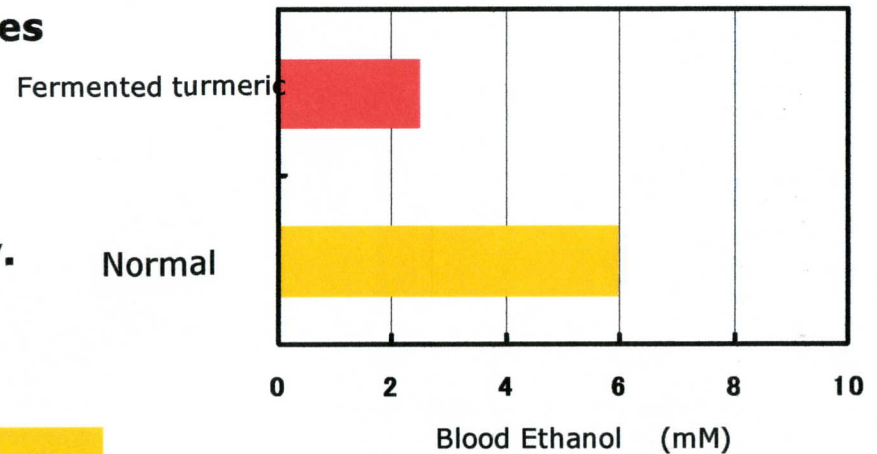
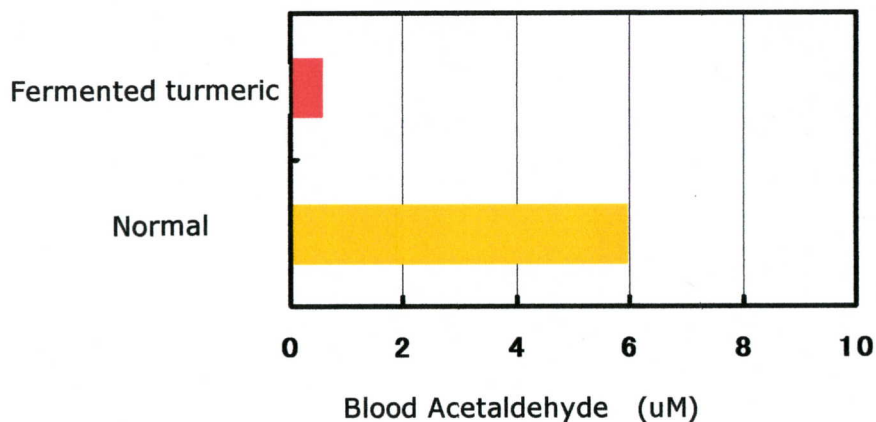
Method : Have subject drink sake in 30 minutes when stomach is empty.

With fermented turmeric ; Intake fermented turmeric after drinking sake.

Without fermented turmeric ; Drink sake only.

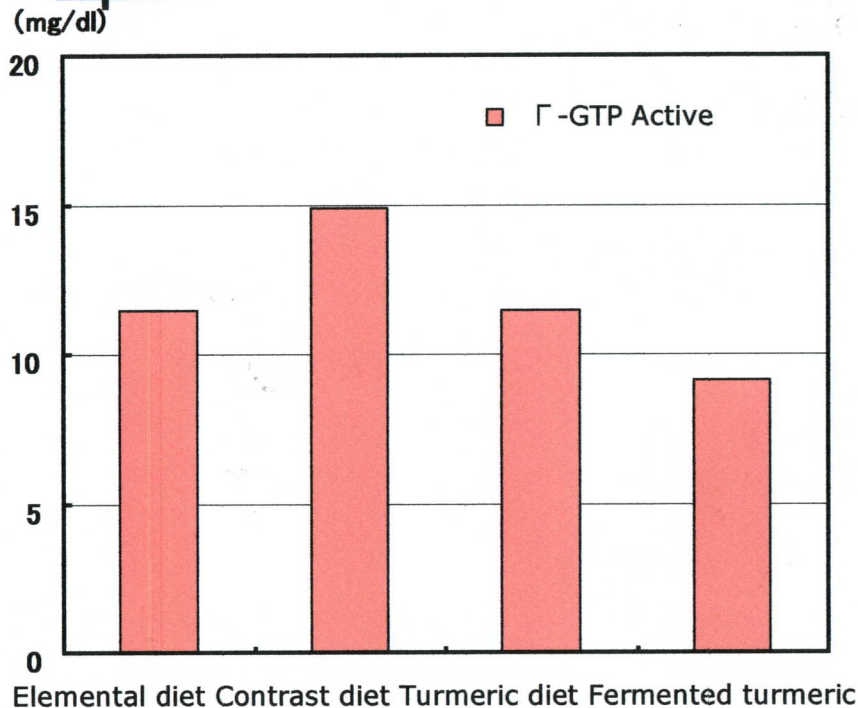
Measurement items : Ethanol in blood, Acetaldehyde, acetic acid

Taking fermented turmeric makes metabolizing alcohol faster.



**Measured by Ryukyu Bio-resource Development Co., Ltd.
April 20-25, 2000**

Liver function enhancement



Laboratory animal : Rat (N=6)

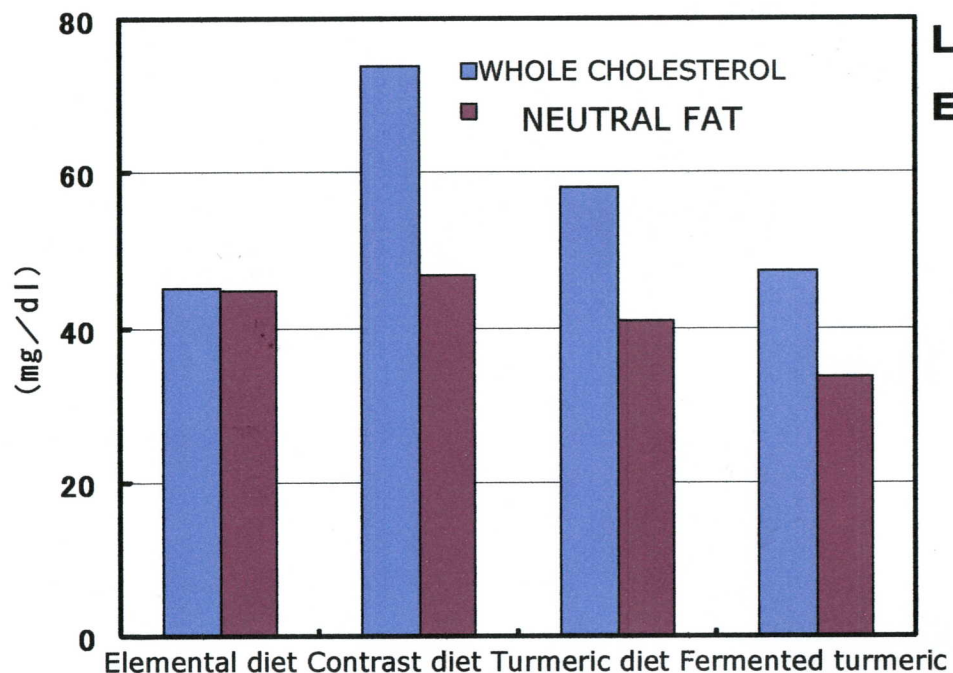
Experimental diet group :

- Elemental diet: (Normal diet)
- Contrast diet
(High fat and high cholesterol diet)
- Turmeric diet
(Contrast diet + Turmeric)
- Fermented turmeric diet
(Contrast diet + Fermented turmeric)

Feeding duration : 28 days

By dosing fermented turmeric, protective effect was shown for hepatopathy caused by high-fat and high-cholesterol meal. On both GOT and GPT, the result was same.

Inhibitory effect against serum whole cholesterol and neutral fat



Laboratory animal : Rat (N=6)

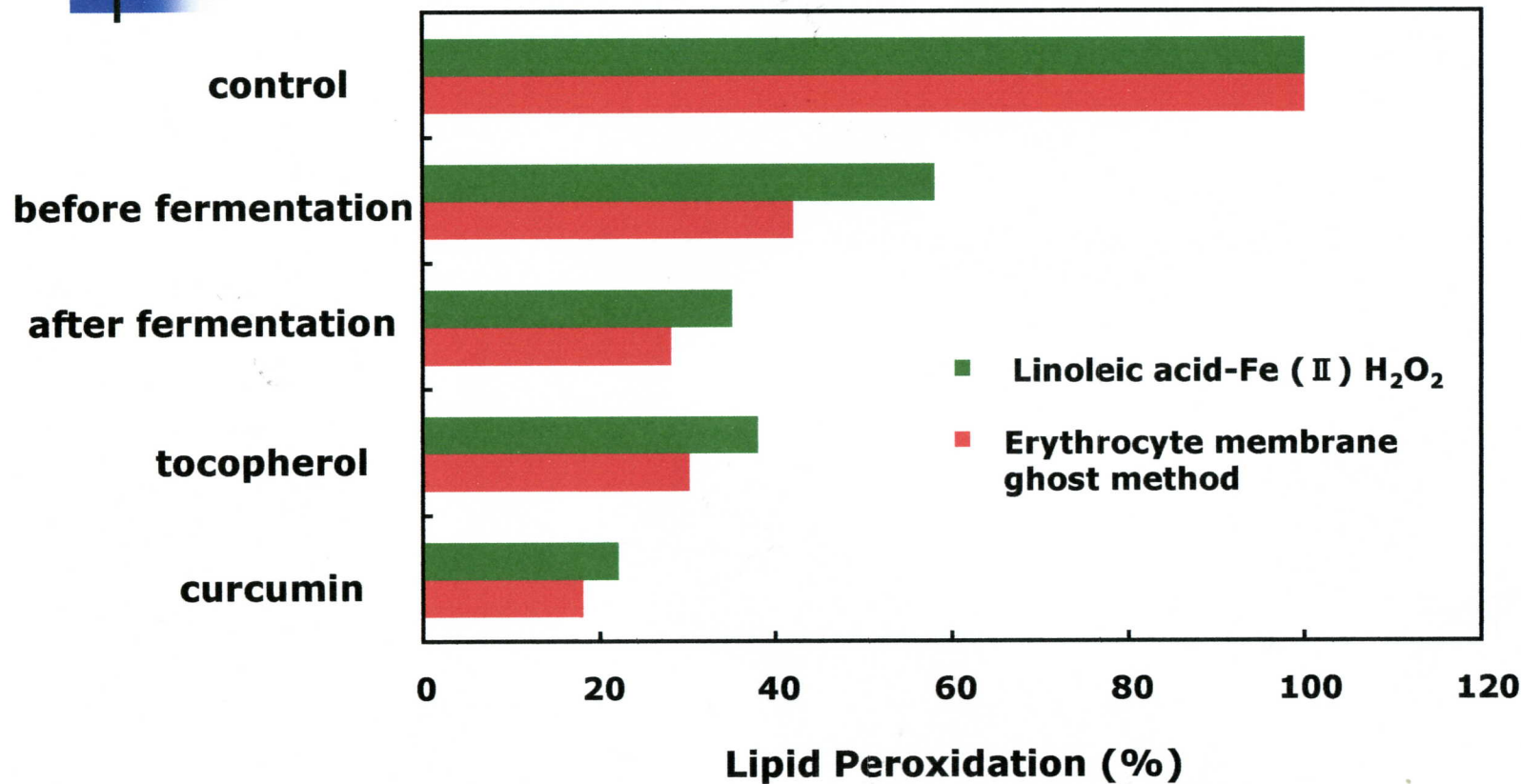
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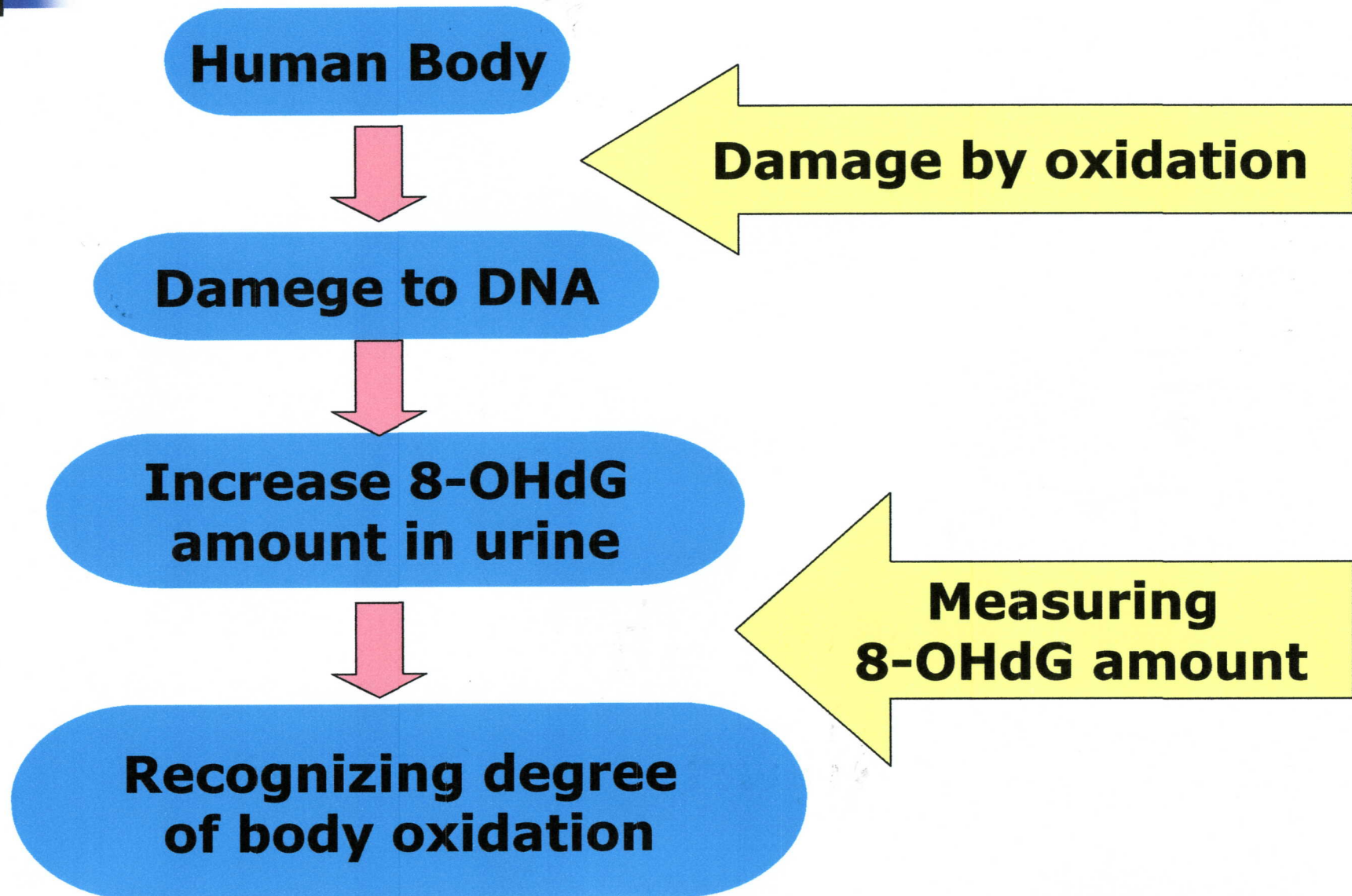
As a result, fermented turmeric showed inhibitory effect against serum whole cholesterol and neutral fat (triglyceride) rising.

Fermented turmeric increased unoxidation



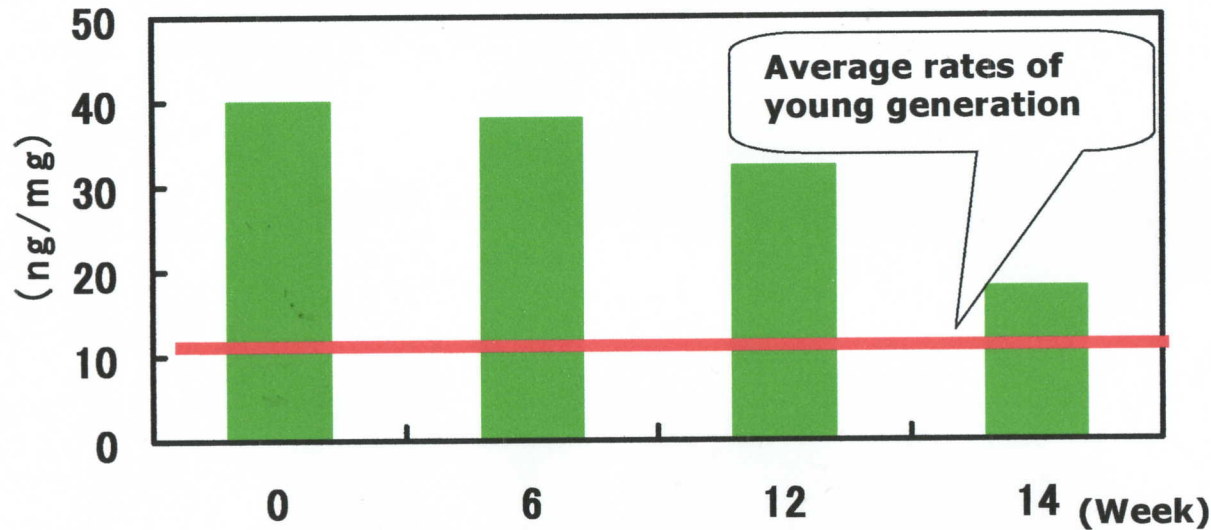
1.6 times increase of linoleic acid-Fe(II)H₂O₂, 1.4 times increase of erythrocyte membrane ghost line, both regarding UNOXIDATION RATE.

What is 8-OHdG?



Indication of anti-aging power

8-OHdG amount in URINE



< EXPERIMENTATION >

object : elderly patients in hospital

Average age : 90years old

numbers : 10 people

Intake duration : Twelve weeks

The amount of intake fermented turmeric : 2.0g/day

Items measured : serum, lipid peroxide, 8-OHdG in urine (showing the degrees of oxidation)

According to taking fermented turmeric, we observed 8-OHdG (which shows degrees of oxidation) rates would down to near average rates of young generation's. When using this measure as aging degree, these elderly was **rejuvenated almost 30 years** by taking fermented turmeric.



Merits and effects and fermentation

- **Reduce bitter taste**
 - Everyone can take our products without bitterness.
- **Absorptive power-up**
 - No waste of active ingredient
- **Mineral increase**
 - Take minerals easily
- **Antioxidant power-up**
 - Prevent aging and hyperlipemia
- **Cholesterol and neutral fat control**
 - Keep away from life-style related decease
- **GOT, GPT and γ -GTP control**
 - Keep good function of liver
- **Fast** → Keep good function of liver



**We recommend our product to
individuals below...**

- **Precaution to illness from lifestyle.**
- **All smokers and drinkers !**
- **Prevention of aging !**
- **Individuals with constipation !**
- **For cosmetic treatment and
keeping up your health !**



What is hepatitis?

- **Type A Hepatitis**
 - **Route of infection : Insanitary food**
 - **Number of infection : 12,000 per year
(Including dozens of deceased people)**

- **Type B Hepatitis**
 - **Route of infection: Mother, Sex**
 - **Number of infection: 2million per year
(Including thousands of deceased people)**



What is hepatitis? II

- **Type C Hepatitis**
 - **Route of infection: Same as hepatitis B**
 - **60% becomes chronic -> Cirrhosis, Liver cancer**
- **Fulminant hepatitis**
 - **The most terrible hepatitis with 70% of death rate**
 - **Cause is unknown**



Reference value of liver

- **GOT : 5-35**
- **GPT : 5-25**
- **γ -GTP : Less than 40**

Usefulness in type B chronic hepatitis treatment

**Tested at :
NOMURA DYGESTIVE ORGAN and INTERNAL MEDICINE HOSPITAL**

 **Infection from mothers**

**Dosing fermented turmeric tablet (20 tablets / day),
interferon, ursodeoxycholic acid
14 patients**

 **One year later**

**Value that shows liver function and hepatitis
was normalized**



Usefulness in type C chronic hepatitis treatment

Tested at :

NOMURA DIGESTIVE ORGAN and INTERNAL MEDICINE HOSPITAL



35 Patients



**Dosing fermented turmeric tablet (20 tablets / day)
Interferon, Rivabirin (Anti virus agent)
Ursodeoxycholic acid (Liver protective)**



**Negative value of Virus 82%
Normalization rate of GOT, GPT 88%**

Case1 : Infected Type C hepatitis by blood transfusion

Degree of virus activity :

HCV-RNA	1071.3KIU/ml
GOT	152IU/L
GPT	44IU/L



Antiinflammatory agent + Ursodesoxycholic acid
↓ **The value goes up and down**

Interferon+ Fermented turmeric tablet
(20tablets/day)

↓ **6 months later**

One month later, the value became almost normal.

HCV-RNA	Undetectable
GOT	20IU/L
GPT	13IU/L



Case2: The patient infected with type C by piercing

HCV-RNA	291.9 KIU/ml
GOT	79IU/L
GPT	194IU/L



**Antiinflammatory agent,
Ursodesoxycholic acid, Interferon,
Fermented turmeric tablet**



↓ 6 months later

HCV-RNA	Undetectable
GOT	20IU/L
GPT	15IU/L

One month later, the value became almost normal.



Result of dosage test for hepatitis patient

- **60% of usefulness and efficacy was shown**
(By simultaneous dosing of both medicines and fermented turmeric tablets)
- **No side effect**
- **Depressed the side effect of drug**
- **Improvement of the QOL**