

New Release 『ODEKAKE Series』

Experience the power of natural ingredients (green tea catechin EGCg) with excellent storage stability!!



Do you have such concerns?

It was difficult to put on the mask, so I'm glad I can take it off...

- I'm worried about how far it's okay to leave the wearing of masks to individual judgment.
- Masks are recommended in hospitals, facilities for the elderly, and crowded trains and buses when commuting, Not sure if other places are okay.
- I'm worried about the day when I can completely remove it.

That's why I wonder if there's anything we can all do together that doesn't rely on masks alone!?

ODEKAKE Mist 30ml

Price ¥900 (¥990 tax included)

Oral cosmetics



Points of use

- ① Push about 2~3 times so that EGCg adheres to the oral cavity.
- ② Push to the entire face about once, and use it so that EGCg adheres to the mucous membranes of the nasal cavity and around the eyes.
- ③ If you push it so that it spreads in the oral cavity before bedtime, you can use it as oral care.

Because it is in mist form, EGCg can be contacted directly to the mucosa.

ODEKAKE Tablet 36g(Grape taste)

Price ¥ 800 (¥ 880 tax included)

Foods containing vitamin C



Points of use

Do not chew before going out or between meals, but slowly dissolve it in your mouth and enjoy.
EGCg adheres to the mucous membranes and oral cavity.
The grains are large, so be careful not to get stuck in your throat.

When you go out



※Click here for detailed information and purchase



Natural ingredients

Catechin EGCg

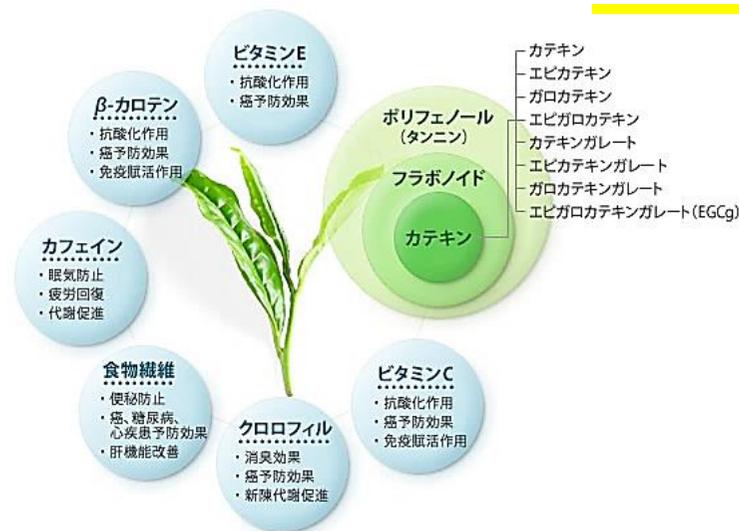
Epigallocatechin gallate

Amazing power !!



The percentage of the main catechins in the green tea extract

カテキンの種類	割合 (%)
(-)Epicatechin (EC) エピカテキン	6.4
(-)Epigallocatechin (EGC) エピガロカテキン	19.2
(-)Epicatechin gallate (ECg) エピカテキンガレート	13.7
(-)Epigallocatechin gallate(EGCg)	59.1



World's first technology

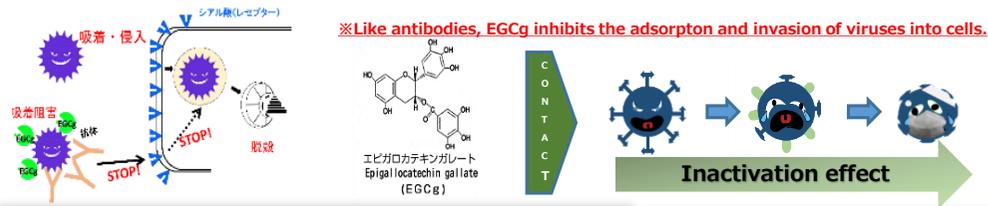
Highly concentrated catechin (EGCg) aqueous solution successfully stabilized

Effects and features of aqueous catechin(EGCg) solutions

New development in inactivation of viruses with natural ingredients (catechin EGCg)!

As a natural ingredient that can be expected to have an antiviral effect, green tea catechin EGCg has been verified and announced as an inactivation effect against viruses not only in Japan but also overseas. A highly concentrated formulation specializing only in this natural ingredient EGCg has been developed, and it has been revealed in a verification experiment by a university research team that binds to viral proteins (spikes, etc.) to prevent invasion into cells and has an inactivation effect against various viruses that repeatedly mutate, including influenza and the new coronavirus.

《Adsorption and invasion of viruses into cells and their inactivation effects》



Overcoming the weakness of catechins!!

《Product features》

1. Even after time has passed (about 9 months), the survival rate of catechin EGCg, which has the highest antioxidant effect and various effects, is 72%, which is a major difference from tea.
2. The product uses ingredients (food additives) that do not contain any chemical substances (e.g., lower alcohol, surfactants, etc.), so you can use it with confidence.
3. Easy to use because you do not feel the original astringency and bitterness peculiar to catechin EGCg.

Incubation period of the virus

■ Novel Coronavirus

The incubation period from infection to onset (incubation period) is about 5 days

■ Omicron

Onset occurs in about 3 days, and 99% of people develop it within 7 days

■ Influenza

It develops in 1~3 days, and fever lasts for about 2~3 days



Trivia : "What is EGCg (epigallocatechin gallate)?"

Epigallocatechin gallate (EGCg) is an ester of epigallocatechin and gallic acid, a type of catechin, also known as epigallocatechin gallate. EGCg is the most abundant (59.1%) catechin, especially in tea, shows strong antioxidant activity, is found in green tea, and is not contained in black tea because EGCg is converted to theaflavin. This EGCg has the highest antioxidant effect among catechins and is known to have the following various effects.

● Antiviral effect

Catechins are effective against both bacteria and viruses. The virus multiplies in cells. When viruses such as influenza enter the body, they have the function of attaching to designated cells, but when catechins are incorporated, the virus becomes difficult to attach to the cells, so it cannot multiply in the cells, and as a result, it is useful for preventing colds.

● Prevention of tooth decay and bad breath

The cause of tooth decay is that mutans bacteria adhere to the teeth and produce acid, which dissolves the enamel on the surface of the tooth and causes tooth decay. Catechins suppress the growth of mutans bacteria, so they can prevent tooth decay.

● Antimicrobial action

Since catechins have an antibacterial effect, they suppress the growth of food poisoning bacteria such as O-157 (enterohemorrhagic Escherichia coli), which causes food poisoning, and H. pylori, which causes stomach ulcers and stomach cancer. It works to prevent food poisoning and stomach ulcers.

- Antioxidant effect
- Anti-cancer effect
- Cholesterol lowering effect
- Effect of suppressing the rise in blood sugar
- Obesity prevention, etc.

Microorganisms

Epigallocatechin Gallate Stabilized by Cyclodextrin Inactivates Influenza Virus and Human Coronavirus 229E

Ryosuke Matsuura¹, Arisa

Kawamura¹, Yasunobu Matsumoto^{1,2}, **Yoshiki Iida³, Masanori Kanayama³**, Masahiko Kurokawa^{4,*} and Yoko Aida^{1,*}

¹Laboratory of Global Infectious Diseases Control Science, Graduate School of Agricultural and Life Sciences, The University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-8657, Japan

²Laboratory of Global Animal Resource Science, Graduate School of Agricultural and Life Sciences, The University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-8657, Japan

³**HPG Co., Ltd., 3-18-9 Hatchobori, Chuo-ku, Tokyo 104-00332, Japan**

⁴Graduate School of Clinical Pharmacy, Kyushu University of Health and Welfare, 1714-1 Yoshino-cho, Nobeoka, Miyazaki 882-8508, Japan * Correspondence:

b2mk@phoenix.ac.jp (M.K.); yoko-aida@g.ecc.u-tokyo.ac.jp (Y.A.)

Abstract: Natural products are attractive antiviral agents because they are environment-friendly and mostly harmless. Epigallocatechin gallate (EGCg), a type of catechin, is a well-known natural antiviral agent that can inhibit various viruses. However, EGCg easily oxidizes and loses its physiological activity. Although this problem can be overcome by combining EGCg with cyclodextrin (CD-EGCg), which makes it stable in water at high concentrations, the antiviral effect of this compound remains unclear. Here, we show that in Madin–Darby canine kidney (MDCK) and MRC-5 cells, CD-EGCg is cytotoxic for 50% of cells at 85.61 and 65.34 ppm, respectively. Furthermore, CD-EGCg mainly shows its antiviral effect during the adsorption step for all four influenza virus strains (median effect concentration (EC50) was 0.93 to 2.78 ppm). Its antiviral effect post-adsorption is less intense, and no inhibitory effect is observed on influenza viruses pre-adsorption. Moreover, human coronavirus 229E (HCoV-229E) was inhibited at the adsorption step in short contact (EC50 = 2.5 ppm) and long contact conditions (EC50 = 0.5 ppm) by mixing CD-EGCg with HCoV-229E. These results suggest that CDEGCg effectively inhibits various viruses that require an adsorption step, and is an effective tool for preventing infection.

詳細は、*Microorganisms* **2022**, *10*(9),

1796; <https://doi.org/10.3390/microorganisms10091796>

Technical Description

A new development in virus inactivation with a natural ingredient - green tea catechin (EGCg)

Patent application 〈Processing technology to stabilize green tea catechins (EGCg) at high concentrations in aqueous solutions〉 started in August 2021

The outbreak of the novel coronavirus (COVID-19) has completely changed social life. While the development of vaccines and therapeutic agents is progressing, the outbreak of new mutant virus strains is requiring increasingly strong preventive measures. In such a situation, green tea catechin (Epigallocatechin gallate, EGCg), as a natural ingredient with potential antiviral effects, has been verified and published for its inactivating effects against viruses in Japan and overseas.

However, catechins and EGCg, which have a strong antioxidant effect, are highly susceptible to oxidative deterioration and lack storage stability, which is a major drawback in the development of various products.

To overcome this lack of stability, a formulation that is stabilized at a high concentration in water has been developed, and verification experiments have shown that it is effective in inactivating various viruses that repeatedly mutate, such as influenza and novel coronaviruses, by binding to viral proteins and preventing them from entering cells. It has also been shown in verification experiments that it has an inactivating effect by binding to viral proteins.

- A research team led by Professor Masahiko Kurokawa, Vice President, Dean of the Faculty of Pharmaceutical Sciences, Kyushu University of Health and Welfare, conducted verification experiments on the inactivation effects of various influenza viruses.

- The inactivation of other viruses, such as the novel coronavirus and SARS virus, was verified by a research team led by the National University.

Effective inactivation of all viruses confirmed

New development in preventive measures

HPG Co., Ltd. (Chuo-ku, Tokyo; Masanori Kanayama, President) has successfully developed a water-soluble formulation technology of highly concentrated catechin EGCg with excellent storage stability and has started to apply for a patent as the world's first processing technology to stabilize the product at a high concentration in aqueous solution.

Currently, this aqueous solution formulation is stabilized at a high concentration of 10,000 ppm, and the concentration can be easily adjusted by dilution. In addition, since all the components that stabilize the product are food additives approved by the Ministry of Health, Labor and Welfare, there is no need to worry about adverse reactions if they enter the body, and children and the elderly can take the product through oral care without anxiety. Furthermore, depending on the concentration added, if the concentration shows an inactivation effect, there is almost no damage to the original taste, aroma, or color of existing products due to astringency, bitterness, or discoloration peculiar to catechin EGCg, and the product can be used in a variety of fields.

- Potential of highly concentrated catechin, EGCg pharmaceutical preparations

At present, there are a variety of products on the market to prevent viral infections, but since this technological product is highly effective against bacteria as well as viruses, it can be used as a substitute for alcohol products that can cause rough hands, in the kitchen and food handling fields, and as a preventive measure against not only human but also bird flu and swine flu.

Summary of verification data from the Kurokawa Research Team

Green tea is rich in catechins, and epigallocatechin gallate (EGCg), one of the catechins, is known to have an antiviral effect by inhibiting the adsorption process of the virus to cells during the replication process. In this study, we examined the anti-influenza effect of EGCg and its mechanism of action by performing plaque reduction assay using MDCK (Madin-Darby canine kidney) cells against four kinds of influenza A and B virus strains in vitro. They investigated the anti-influenza effect of EGCg by performing plaque reduction assay using MDCK (Madin-Darby canine kidney) cells. As a result, they confirmed that EGCg inhibited the adsorption or entry process of virus particles into the cells for four kinds of influenza virus strains.

Profile of Masahiko Kurokawa:

Vice President, Dean, Director of Pharmaceutical Sciences, Kyushu University of Health and Welfare

Professor, Department of Biochemistry, Graduate School of Medical and Pharmaceutical Sciences

Research Description:

We have been conducting research on the development of new antiviral drugs from traditional medicines and supplements, the pathogenesis of viral infections and the analysis of host immune defense mechanisms, as well as basic research on viral vectors for gene therapy. In addition to these studies, we have been conducting research to prove and analyze the exacerbation of infectious diseases caused by exposure to environmental chemicals in the fetal and neonatal period and metabolic syndrome using virus-infected animals as research that can contribute to the maintenance and improvement of QOL. In recent years, we have been conducting research on elucidation of pathological mechanisms of infectious diseases and lifestyle-related diseases, development of novel preventive and therapeutic methods, and risk assessment of environmental chemicals on host immune mechanisms by using knowledge and experimental techniques in biochemistry, molecular and cellular biology, genetic engineering, bacteriology, virology, and immunology. For these research, we have established a collaborative research system with internal and external researchers (universities, research institutes, and companies), with the aim of contributing to the maintenance and improvement of the quality of life of the people by efficiently returning the research results to society.

Summary of verification data of the National University Research Team

As typified by the term "Infectious disease panic," various infectious diseases continue to inflict serious damage on life, society, and the economy. In recent years, attention has been focused on the antiviral effects of various materials, and plant-derived ingredients such as EGCg have been actively studied. In this study, the antiviral effect of EGCg against human coronavirus (HCoV)-229E, which is closely related to SARS-CoV-2 and causes cold symptoms in humans, was measured using 50% Tissue Culture Infectious Dose (TCID50) was used as an indicator. The results showed that EGCg at a low concentration of 10 ppm had a certain inhibitory effect on the infection due to the synergistic effects of direct inactivation and adsorption inhibition.