

## Aqueous solution containing substance extracted from humic soil

### Abstract

**PROBLEM TO BE SOLVED:** To simply provide an aqueous solution containing substances extracted from humic soil, having various useful actions, such as an antibacterial and bactericidal action, a virus-inactivating action, an anti-oxidizing action, an anti-eroding action, an internal purifying action, a fat-decomposing action, an alcohol-decomposing action, a surface-activating action, and a cholesterol-decomposing action. **SOLUTION:** This aqueous solution containing substances extracted from humic soil comprises a filtrate which is obtained by adding water to humic soil to extract, then filtering the obtained extract with a filter of 0.1-0.3  $\mu\text{m}$  in opening. Therein, a ratio of the humic soil to the water in the extraction is 1:3 to 1:5 (in a ratio of weight to volume).

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### Claims (4)

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[Claims] 1. A humus soil-containing substance-containing aqueous solution comprising a filtrate obtained by extracting water by adding water to the humus and filtering the obtained extract using a 0.1-0.3  $\mu\text{m}$  filter. liquid. 2. The aqueous humus extract-containing liquid according to claim 1, wherein the humus is obtained through two drying steps of coarse drying and precision drying. 3. The ratio of humus to water in the extraction is 1: The humus extract-containing aqueous liquid according to claim 1 or 2, wherein the aqueous liquid is 3 to 1: 5 (weight / volume ratio). 4. The aqueous liquid containing a humus extract substance according to claim 1, wherein the pH is 2.50 to 2.99.

### Description

translated from Japanese

#### DETAILED DESCRIPTION OF THE INVENTION

[0001]

**TECHNICAL FIELD** The present invention relates to an aqueous liquid containing a humus extract substance. For more details, The present invention relates to an aqueous liquid containing a humus extract substance having a virus inactivating action, an antioxidant action, an anticorrosive action, a purifying action in the body, a lipolytic action, an alcoholysis action, a surfactant action, a cholesterol decomposition action, and the like.

[0002]

2. Description of the Related Art Humus soil is usually formed by deposits of seagrass, plants, algae, fish and shellfish, and other inorganic substances deposited on the seabed, lakes and swamps more than 5 million years ago by anaerobic microorganisms. It has been decomposed, synthesized and organized, and exists, for example, as a layer of about 10 m underground about 20 m.

[0003] Japanese Patent Publication No. Sho 62-3806 discloses a humic acid aqueous solution obtained by extracting humic acid in humus with water. It is described that a humic acid aqueous solution, which has been filtered through a filter described above and adjusted in concentration and adjusted to pH 2.0 to 5.0, is used as a disinfectant for food preservation.

[0004]

In the production of the aqueous solution of humic acid described in the above publication, the properties of the aqueous solution of humic acid change because of the heat sterilization. In other words, humus soil is composed of many components such as amino acids, vitamins, proteins, enzymes, and minerals. It can be easily inferred that heating alters amino acids and proteins, and also alters and denatures humic substances. . Therefore, in the case of the humic acid aqueous solution, there is a problem as to how much the preferable properties of the original humus are maintained.

[0005] Therefore, this humic acid aqueous solution which has been subjected to the heat treatment exhibits a bactericidal action due to a mineral component which is not significantly changed by the heat treatment and a pH value of 2.0 to 5.0. Effects of amino acids, proteins, vitamins, etc. (for example,

Metabolic activation of the skin, etc.) cannot be expected, and it does not have an excellent anticorrosion effect, a dissolution effect for heavy metals and harmful chemicals, and a cholesterol decomposition effect.

[0006] Despite the heat treatment, 2

Storage stability is poor, such as browning only after storage for up to 3 months.

[0007]

DISCLOSURE OF THE INVENTION The present invention provides an aqueous liquid containing a humus extract substance by a simple method while retaining the inherently desirable properties of humus (for example, various useful actions such as antibacterial and bactericidal actions). A filtrate obtained by adding water to the humus soil and performing extraction, and filtering the obtained extract using a 0.1-0.3  $\mu\text{m}$  filter. Humid soil extract-containing aqueous liquid (Claim 1); The aqueous liquid containing a humus extract substance according to claim 1, which is obtained through a drying step in a step (claim 2), wherein the ratio of humus to water in the extraction is 1: 3 to 1: 5 (weight). The humus extract-containing aqueous solution (claim 3) according to claim 1 or 2, wherein the pH is 2.50 to 2.99. The present invention relates to an aqueous liquid containing a humus extract substance according to claim 1, 2 or 3 (claim 4).

[0008]

BEST MODE FOR CARRYING OUT THE INVENTION The humus used in the present invention may be any of the humus collected from any of them, but the humus collected from Karabi Nishi, Moriyama-machi, Kitakoko-gun, Nagasaki is particularly preferred.

The collected humus soil contains water and is sticky like soil taken from a paddy field. The humus soil is subjected to two drying steps, coarse drying and precision drying, before being subjected to the extraction step. You. In the drying process, the humus soil is dried and subdivided, and the function of aerobic microorganisms is activated to suppress the function of anaerobic bacteria. It is considered that vitamins and enzymes are activated (aged). This is considered to provide beneficial effects such as an antioxidant effect and an anticorrosion effect. By performing the drying process in two stages, it is possible to homogenize the components, remove mud other than humus, and obtain a stable corrosive soil extract-containing aqueous liquid with less variation in pH during extraction. In the rough drying, first, the collected humus with a diameter of about 5 to 50 cm is mixed with humus such as concrete, and is then rained and dried in a sunshine state (sunshine) for six months to one year. It is performed by During this time, it is preferable to turn over the humus soil as appropriate so that the whole can be well exposed to the sun. This process turns the humus into a dry mass. Next, it is further dried in a greenhouse (precision drying). This drying can be for a minimum of one month, usually 1. It takes place for 5 to 2 months. As a result, the lump is further dried, and the lump is further pulverized by a cultivator or the like to make the lump of sand. The term "humus" as used in the present invention refers to a dried and obtained humus, Humus soil that has been ground. Such humus soil is commercially available, for example, from Karako Sangyo Co., Ltd., packaged under the trade name of FCM powder.

Table 1 shows an example of the properties of the obtained humus.

[0011]

[Table 1]

The humus extract-containing aqueous solution of the present invention is obtained by extracting the humus with water. The water used for the extraction may be any water, for example, groundwater, well water, Tap water, purified water, distilled water, and the like can be used. In particular, in order to obtain an extract having a low pH, water containing a large amount of minerals is preferable, and groundwater or well water containing minerals is preferable in terms of not containing a chlorine-based disinfectant.

The extraction can be performed by stirring the humus and water. The temperature at the time of extraction is usually room temperature. The stirring time is usually 1 to 3 hours, preferably 2 to 3 hours.

The preferred ratio of humus to water used is:

The ratio is 1: 1 to 1: 5, more preferably 1: 3 to 1: 5, particularly 1: 5 (weight / volume ratio). If the amount of water is less than the above range, the yield of the extract for the humus used is reduced, and even if the amount is reduced, the obtained pH does not become lower than a certain value, so it is meaningless. on the other hand, If the amount of water is more than the above range, the pH of the resulting extract will be higher than 2.99, and depending on the type of bacteria or virus, sterilization, sterilization, antiviral effects, etc. will not be sufficient, and applications will be limited. Cases arise. However, even when the pH of the obtained extract is high, or when the extract having a low pH is diluted into a solution having a high pH, it can be used for applications where a high pH is acceptable. Even in this case, The aqueous solution of humic acid described in JP-A-3806 can be used for a wider range of applications than those having the same pH.

After completion of the stirring, 2 to 4 weeks, preferably about 3

After allowing to stand for a week to settle suspended particles, the supernatant is separated by a separation method usually used in a filtration step such as decantation, suction, and preliminary filtration using a bag filter of 50 to 100  $\mu\text{m}$ . The suction port is placed 5 to 10 cm above the interface between the supernatant and the humus layer, and in the case of suction, the supernatant can be sucked at a high yield without sucking the humus layer. .

Next, the extract is filtered using a filter of 0.3  $\mu\text{m}$  or less. By performing this filtration, it is possible to remove various bacteria, to remove suspended matters, suspended matters, or insoluble substances that precipitate with time, and to obtain clear fresh water suitable for beverages. An extract as described above cannot be obtained with a filter having a pore size larger than 0.3  $\mu\text{m}$ .

The pore size of the filter used is 0.3  $\mu\text{m}$  or less, preferably 0.2  $\mu\text{m}$  or less, and the lower limit is 0.1  $\mu\text{m}$ .

m. The filter medium of the filter is not limited as long as it does not affect the filtrate, and specific examples include nylon, polypropylene, and polyvinylidene fluoride. Among these, polyvinylidene fluoride is preferred.

The filtration can be carried out under pressure or under reduced pressure, but is generally carried out under pressure. The method is carried out, for example, by setting a cartridge of a membrane filter made of the above-mentioned material in a housing, connecting the cartridge to a pressurized tank, and feeding it at a pressure of  $2 \text{ kg} / \text{cm}^2$  or less.

Performing preliminary filtration before performing this filtration is preferable from the viewpoint of improving filtration efficiency and reducing the load on the filtration device. In practice, it is sufficient to filter with a bag filter of 50 to 100  $\mu\text{m}$ .

The filtrate obtained preferably has a pH of 2.50.

2.99, furthermore pH 2.85 to 2.95, especially pH 2.9. If the pH is less than 2.50, it is not usually obtained. If it exceeds 2.99, sterilization, sterilization and antiviral effects may not be sufficient depending on the type of bacteria or virus, and the anticorrosive effect may not be obtained. It causes a decrease in antioxidant power. It is difficult to obtain a filtrate having a pH lower than the above range by means other than altering the extract such as adding an acid (for example, hydrochloric acid) or heating. For example, even if the pH is lowered by adding an acid (for example, hydrochloric acid) to a substance having a high pH, the performance is inferior to that having the same pH without any action.

The aqueous solution containing the humus extract extract of the present invention obtained as described above contains humic acid, fulvic acid, humic and other substances constituting humus, lipolytic enzymes such as lipase, and alcohol. It contains enzymes such as alcohol degrading enzymes such as dehydrogenase, proteins, amino acids, fatty acids, organic acids, vitamins, minerals, reducing substances and the like.

Humic acid, also called humic acid, is a component that forms the majority of organic and coalaceous materials in soil.

Although the chemical structure of humic acid is unknown, it is a condensate of a polyhydric phenol type aromatic compound and a nitrogen-containing compound, and has a phenolic hydroxyl group and a carboxyl group. However, humic acid cannot be conclusively determined because the molecular weight and constituents vary greatly depending on the degree of progress of the humus.

It is considered that 0 to 55% is composed of a compound having an amino acid, hexosamine, polycyclic aromatic, and an oxygen-containing functional group, and the rest is considered to be a compound having an unknown chemical structure and having many double bonds.

Since the aqueous liquid containing a humus extract of the present invention contains the above-mentioned substances, it has an antibacterial / bactericidal action, a virus inactivating action, an antioxidant action, an anticorrosive action, a purifying action in the body, and a lipolysis. In addition to its action, alcohol-decomposing action, surface-active action, cholesterol-decomposing action, etc., it has active oxygen inactivating action, heavy metal dissolving action, toxic chemical substance dissolving and neutralizing ability.

These effects are obtained by enzymes synthesized by microorganisms, enzymes obtained by decomposition of dead microorganisms, amino acids synthesized by microorganisms from the remains of grassy plants that first form humus, protein,

Vitamins and enzymes are obtained by mutual interaction between minerals such as magnesium, calcium, sodium, potassium, and aluminum deposited by igneous rocks. Above all, especially mineral as aluminum,

It contains a large amount of ions such as magnesium, sodium, and calcium.

Since the value increases, it is considered that the disinfection mechanism of the aqueous solution containing the humus extract substance of the present invention largely affects the low pH and minerals exhibited by the humic acid.

The aqueous liquid containing a humus extract material of the present invention can be used as it is, or can be appropriately diluted according to the intended use. When drinking

You can drink it without dilution, or you can drink it after diluting it 2- to 500-fold.

When drinking the aqueous liquid containing a humus extract substance of the present invention, it is preferable to further pass through a cation exchange resin to remove aluminum ions. At this time, other cations are also removed.

The aqueous humus extract-containing liquid of the present invention can be used as it is in the form of a stock solution, for example, in the following manner.

When used as an antibacterial agent or a bactericide, for example, a hand washing soap tank containing the aqueous solution containing the humus soil extract of the present invention is provided in a hand washing room at the entrance of a cafeteria, etc. Can be performed. Further, sterilization can be performed by putting the aqueous solution containing the humus soil extract of the present invention into a spray-type container and spraying it on tableware, cooking utensils, fingers, and the like.

Washing and disinfecting fresh foods before cooking is effective in preventing food poisoning and hygiene, and leads to improved freshness of foods. Gargle with a moderately diluted aqueous solution is effective against stomatitis, alveolar pyorrhea, influenza, colds and the like. If used in cosmetics, acne, atopic skin, Effective for rough skin. Examples of bacteria that can be targeted include Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa, Legionella bacteria, Salmonella bacteria, Vibrio parahaemolyticus, various other gram-positive and gram-negative bacteria, fungi, and the like.

When used as a virus inactivating agent, for example, for herpes virus and influenza virus, it is a stock solution to 2-fold dilution, and gargle can be used to prevent infection, and AIDS virus can be used for drinking or topical washing. This leads to infection prevention and prevention.

When used as an antioxidant, for example, when it is added to foods, drinking water and drinks for the purpose of preventing oxidation and decay, it is possible to safely extend the life of the product. In addition, when used in the cosmetics field, it is possible to prevent oxidative deterioration of a compounding base (particularly an oily base).

For other industrial uses, it can be used as cleaning and lubricating water for rust-prone parts.

When used as an anti-corrosion agent, when added to foodstuffs, drinking water and drinks, an anti-corrosion effect as well as an anti-oxidation effect can be obtained. Low pH for bacteria, mold and bacteria

Since it is impossible to survive in the H region, their occurrence can be stopped. When used in cosmetics, it acts as a natural anticorrosion agent and can be used in place of parabens and others.

When used as a lipolytic agent, since it contains a lipolytic enzyme represented by lipase, it can reduce body fat and promote the burning and decomposition of fats excessively consumed such as fatty liver and hyperlipidemia. It is considered possible. It is particularly desirable to drink after taking too much oil.

When used as an alcohol-decomposing agent, it contains an alcohol-decomposing enzyme such as alcohol dehydrogenase. If the alcohol is used at about 10-fold dilution after drinking, the alcohol taken in can be rapidly decomposed and the hangover can be prevented. It is thought that it is possible. It may also be possible to normalize weak liver function.

When used as a surfactant, the components contained in the aqueous humus extract-containing liquid of the present invention are only naturally occurring substances. A substitute for activators. Further, when used in cosmetics, the amount of cationic surfactants, anionic surfactants, and nonionic surfactants currently used in the production of emulsions, creams, and the like can be reduced or substituted. In addition, to stains made with soy sauce etc.,

For example, the undiluted solution can be used as a stain remover.

When used as a cholesterol decomposer,

Fatty acids, organic acids, in the aqueous liquid containing the humus soil extract material of the present invention,

Since it contains enzymes such as lipase and the like, it is thought that if it is appropriately diluted and drunk, it acts directly on the liver to enhance its function and can burn and degrade cholesterol. If blood cholesterol is broken down,

It is considered that the blood can be used for preventing blood coagulation, such as lowering the viscosity of blood and improving blood flow.

Urease enzyme activity is measured in neuralgia, rheumatism,

To promote the reduction of uric acid level seen in gout and the like, they have a common action of relieving pain, and by mixing about 10 cc with 100 cc of water and drinking, it leads to improvement such as elimination of pain.

When used as an active oxygen inactivator, the reducing substance contained in the aqueous humus extract-containing liquid of the present invention is appropriately diluted in order to inactivate active oxygen which causes aging of the human body. By drinking it, oxidation in the body, so-called aging, can be prevented.

Further, the aqueous liquid containing a humus soil extract substance of the present invention can be used in various other industries as described below.

When used in the cosmetics industry, for example, cosmetics having a moisturizing effect, cosmetics having an inhibitory effect on acne, pimples and inflammation, cosmetics for the purpose of activating metabolism, cosmetics having excellent antioxidant power, Cosmetics that use themselves as natural surfactants and / or natural anticorrosives, additive-free, fragrance-free and colorless cosmetics, cosmetics whose cosmetic ingredients are detoxified or reduced, cosmetics without skin irritation, secretions Cosmetics or etiquette goods having a deodorant effect for the purpose of adjusting the scalp, anti-aging shampoo, rinse,

A treatment, a hair growth or growth agent, a cosmetic containing natural minerals, a low pH weakly acidic cosmetic, and the like can be produced.

When used in the food industry, sterilization, sterilization and freshness maintenance of fresh food, washing of food equipment, Sterilization and sterilization, antioxidation of general foods, non-addition of antioxidant foods, detoxification and mitigation of food additives, extension of food preservation period, prevention of deterioration and deterioration of foods, stabilization of the effects of products using microorganisms In addition, effects such as enhancement, sterilization and sterilization in a manufacturing plant, and improvement of taste by adding to products are exhibited.

When used in the medical field, prevention of nosocomial infection, cleaning and disinfection of equipment, cleaning of the oral cavity, reduction of bad breath provided therefor, prevention of bedsores in hospitalized patients, hygiene management of bedridden patients, disinfection and sterilization of fingers It has the effects of washing the bladder, washing the anal cavity, washing the operating room and sterile room, and sterilizing the clothes, hats and shoes of healthcare workers.

When used in agriculture, disinfection and sterilization in organic cultivation, promotion of germination, rooting and growth of crops, improvement of soil, enhancement of resistance to pests and diseases, improvement of productivity, and reduction of fertilizer cost Effects such as reduction, cultivation of nutritious crops, and decomposition and neutralization of harmful substances contained in chemical fertilizers and pesticides are exhibited.

When used in the fisheries and aquaculture industries, effects such as the maintenance and improvement of freshness of fishery products, the improvement of meat quality, the improvement of disease resistance, the promotion of growth, the improvement of color and luster, and the replenishment of micronutrients are exhibited. You. In the livestock industry, improvement of meat quality, improvement of disease resistance, and reduction of feces and urine odor have been observed.

In addition, to prevent infection in places where there are many people such as schools, kindergartens and daycare centers, it is used as handwashing water and gargle water, as sterilized / sterilized water for kitchens, or for indoor sterilization, sterilization and purification. It can be used for the purpose, for the purpose of water quality maintenance, anti-corrosion and sterilization of water tanks, for the purpose of industrial waste treatment, for the purpose of sludge, dioxin and PCB decomposition.

As described above, the aqueous liquid containing a humus extract substance of the present invention can be diluted and used in the food industry, the medical industry, the cosmetics industry, the agricultural industry or each household. For example, when diluted 10-fold, the pH becomes 3.65. However, since it is effective against general bacteria other than viruses and most bacteria that cause food poisoning, undiluted solution (for example, pH2 .9) has almost the same effect. When diluted 100 times, The pH is 4.35. In this case, the sterilization effect varies, and the effective range is narrowed. However, since the Staphylococcus aureus and the like can be 100% sterilized, dilution according to the purpose of use is desirable. When diluted 500 times, the pH becomes 4.68. In this case, it is more desirable to use for the purpose of sterilization and disinfection rather than the sterilization effect. This dilution ratio has wide application in household use and in the cosmetics industry. In addition, by using, for example, a 10- to 50-fold dilution for wiping the buttocks of a baby, rash prevention, disinfection of the buttocks, and the like can be performed.

[0045]

EXAMPLES Hereinafter, the aqueous liquid containing a humus extract substance of the present invention will be described in more detail with reference to examples, but the present invention is not limited thereto.

Example 1 A humus was collected from a wetland named Karabi Nishi, Moriyama-machi, Kitakoko-gun, Nagasaki Prefecture. The collected humus was allowed to dry on concrete for about one year. It was then further dried in a greenhouse for 1.5 months. The obtained humus was pulverized into particles having a particle size of about 0.01 to 0.5 mm.

About 140 kg of the obtained humus soil is put into a 1-ton tank (made of polyethylene) (the capacity when put into the 1-ton tank is about 0.6 m<sup>3</sup> ), and water (mineral water collected at the foot of Mt. Aso) 700 liters were added. This was stirred at room temperature for about 2 hours using a bamboo spatula, allowed to stand for 3 weeks to settle suspended particles, and then a supernatant of pH 2.7 was sucked out by a pump and taken out. The amount of the supernatant liquid taken out was about 600 kg.

After the obtained extract was pre-filtered with a back filter, the filter (pore size: 0.2 μm, trade name: filter cartridge 0.2 μm) MCY444 0NFPH4, manufactured by Nippon Pall Co.) An aqueous liquid containing the humus soil extract material of the present invention of 2.9 was obtained. Table 2 shows the properties of the obtained extract.

[0049]

[Table 2]

The obtained extract is allowed to stand at room temperature for a long time (6 to 12). Months) Even after storage, there was almost no change.

Comparative Example 1 An aqueous solution of humic acid (stock solution) described in JP-B-62-3806 was stored at room temperature for 2 to 3 months, and it turned brown. This indicates that the aqueous solution of humic acid described in JP-B-62-3806 is not suitable for long-term storage, and that the aqueous solution containing humus extract-containing substance of the present invention has better storage stability.

Experimental Example 1 (Antioxidant Action) A liquid was prepared by mixing the extract obtained in Example 1 and purified water at a mixing ratio shown in Table 3. F in each 15ml eSO<sub>4</sub> · 7H<sub>2</sub> O was added 0.05 g, was dissolved (liquid color: colorless). After leaving it at room temperature for 50 days, the change of the solution was observed. Table 3 shows the results. Compared with the liquid A, a yellow color liquid B, and that the color of the liquid C and liquid D were substantially colorless and colorless respectively, FeSO<sub>4</sub>

It can be seen that the oxidation of is prevented.

[0053]

[Table 3]

Experimental Example 2 (Anti-corrosion) Three kinds of liquids were prepared: the extract obtained in Example 1 as it was (undiluted solution), a 10-fold diluted solution and a 50-fold diluted solution with purified water. Take 250 ml of each of the three liquids, put nails (length 10 cm, made of iron) into each, ° C), and the properties of the solution were examined after 0, 20, and 40 days. The pH was measured by a glass electrode method, and the oxidation-reduction potential was measured by a platinum electrode method. Table 4 shows the results.

[0055]

[Table 4]

In all three examples, the pH increased with the passage of time and the oxidation-reduction potential decreased. However, when the stock solution, the 10-fold diluted solution and the 50-fold diluted solution were compared, the oxidizing power decreased in proportion to the dilution ratio. You can see that. That is, it can be seen that the undiluted solution shows a rapid decrease in oxidizing power in the reaction with iron (inorganic), and then a reducing action occurs.

Further, when each solution is left for 50 days, 1 The color of the solution was brownish in the 0-fold dilution and the 50-fold dilution, but nails could be recognized, and the color of the solution was pale ocher in the undiluted solution.

Comparative Example 2 An aqueous solution of humic acid described in JP-B-62-3806 (stock solution, pH 2.8) at room temperature in the same manner as in Experimental Example 2.

After leaving for 3 days, no progress of corrosion was observed for the first 3 days, but the whole aqueous solution turned brownish from around the 7th day, and the progress of corrosion was accelerated. It was invisible. From this fact

It can be said that the aqueous solution containing a humus extract substance of the present invention has a better anticorrosion effect than the aqueous solution of humic acid described in JP-A-3806.

EXPERIMENTAL EXAMPLE 3 (Corrosion-preventing action) Tap water, electrolytic oxidized water and electrolytic reduced water (pH 6.0 respectively) collected from household ion exchange equipment (trade name: Trim Ion TI-7000, manufactured by Nippon Trim Co., Ltd.) 3 and pH 8.2), commercially available alkaline water (pH 9.1, trade name: Seiryu water, manufactured by Seiryu), and the extract obtained in Example 1 with tap water 6-fold and 21-fold. A push pin and a clip were placed in each of the six vials containing the diluted aqueous solution and allowed to stand at room temperature (25 ° C.) for 50 days to examine the degree of corrosion. Table 5 shows the results.

[0060]

[Table 5]

In tap water and electrolytically oxidized water, the progress of corrosion was remarkable, and in electrolytically reduced water, almost no reduction action was observed. It is also considered difficult to stop the progress of corrosion with commercially available alkaline water. In comparison with these, when the diluted solution of the extract obtained in Example 1 was used, after a certain degree of corrosion occurred, the progress of the corrosion was stopped. Therefore, it is understood that the anti-corrosion effect is excellent.

Experimental Example 4 (Antibacterial / Bactericidal Action) Escherichia coli (Escherichia coli IFO 3972) and Staphylococcus aureus IFO 1273 were used as test bacteria.

2) was used. The test bacterium cultured on an NA medium (standard agar medium (manufactured by Eiken Chemical Co., Ltd.) at 35 ° C. for 16 to 24 hours) was inoculated again into the NA medium and cultured at 35 ° C. for 16 to 20 hours. The cells were uniformly dispersed in purified water to prepare a bacterial solution in which the number of cells per ml was about  $10^7$ .

The extract (stock solution) 100 obtained in Example 1

After adding 1 ml of the bacterial solution to the mixture, the mixture was stored at 25 ° C.

The viable cell count after 4 hours and 48 hours was measured by an agar plate culture method (cultured at 35 ° C. for 2 days) using an SA medium (standard agar medium (manufactured by Eiken Chemical Co., Ltd.)). In addition, as a control, a test in which a bacterial solution was inoculated into a phosphate buffer was similarly tested. Table 6 shows the results.

[0064]

[Table 6]

In both *E. coli* and *Staphylococcus aureus*, the viable cell count was almost 0 after 24 hours and was 0 after 48 hours, indicating that this extract has an excellent bactericidal effect.

Experimental Example 5 (In Vitro Inactivating Activity of AIDS Virus) A virus solution was prepared using AIDS virus (HIV-1 (IIIB strain)) and serum derived from fetal bovine so that the serum concentration was 10%. Equal amounts of this virus solution, the extract obtained in Example 1, distilled water, and culture solution (bovine serum added to a basic medium consisting of low-molecular nutrients, balanced salts and a buffer system) were used. By mixing, three kinds of mixed liquids were obtained.

The mixture was allowed to stand at room temperature (20 ° C.).

After 30 minutes, 30 minutes and 120 minutes, the mixture was diluted with the culture solution to various dilution ratios shown in Table 7. After infecting MT-4 cells (bovine-derived lymphocyte cells susceptible to HIV) with the AIDS virus using the obtained diluent, the cells are observed under a microscope on the fourth day. Was quantified.

The infectious titer represents the titer (strength) of a virus using biological activity as an index, and the unit amount is usually the minimum amount of a virus solution that can be infected and developed in a susceptible host. Here, infectious units (CC ID<sub>50</sub>). CCID<sub>50</sub> is a unit of viral infectivity, but which may be considered to represent the 1CCID<sub>50</sub> approximately one infectious particle. Table 7 shows the results.

[0069]

[Table 7]

In a mixture of equal amounts of the virus solution and the extract,

Standing and after 0 minutes already observed decrease in viral infectivity, and after 30 minutes inactivated 98.6% of the virus further detection limit after 120 minutes (1000CCID<sub>50</sub> /

ml). However, at a dilution ratio of 20 times, the effect on cell growth was observed, and it was difficult to accurately determine virus growth (\* in the table).

\*\*).

Experimental Example 6 (Cholesterol / lipolytic action) A slightly obese but healthy male (blood cholesterol level 3)

00mg / dl or more, neutral fat around 280mg / dl) 5 people,

The extract obtained in Example 1 was diluted 10-fold (p

H3.65) was ingested daily for 1-2 months in an amount of 300-500 cc per day. After the test period, all subjects had cholesterol levels reduced to 150-170 mg / dl and triglycerides also reduced to about 100 mg / dl. On the other hand, for comparison, the humic acid aqueous solution described in JP-B-62-3806 was diluted 10-fold (pH Using 3.65), another cholesterol level of 250 to 30 was similarly tested in another five patients with similar symptoms.

It was 0 mg / dl, and even the neutral fat was 230-250 mg / dl.

Since the aqueous liquid containing humus extract substance of the present invention was not heat-treated, it contained lipase, which indicates that it has a cholesterol / lipolytic effect. On the other hand, in the case of heat treatment, amino acids and proteins were destroyed by heat of 55 ° C. or more, and lipase lost its activity, and thus did not have cholesterol / lipolytic activity.

Experimental Example 7 (Effects on Neuralgia, Gout and Rheumatism) The extract obtained in Example 1 was diluted 10-fold into 6 males and females (50-65 years old) with arthralgia, gout and rheumatism (pH 3.65) at a dose of 500-1000 cc per day for 60 days. He had been unable to walk due to pain in his knee joints for about eight years after drinking 63

The old man remained unchanged for the first 30-45 days, but after 50 days the pain began to resolve and no pain occurred thereafter, allowing him to walk regularly. In addition, a 56-year-old woman who had been suffering from gout for 10 years and could not walk without slippers was able to walk,

Pain was already gone 4 days after drinking, walking was possible 7 days later, and the pain did not recur thereafter. The woman who had rheumatism had no pain

already 4 days after drinking and was able to walk one week later, and the pain did not recur. Everything was fine except for one rheumatic 65-year-old man who had some pain.

On the other hand, for comparison, a 10-fold diluted humic acid aqueous solution described in Japanese Patent Publication No. 62-3806 (p. H3.6) was similarly tested on another six patients with similar symptoms, and only one man had some pain after one month; The symptoms were the same as before drinking.

From these results, it can be seen that the aqueous liquid containing a humus extract substance of the present invention is effective for neuralgia, rheumatism, gout, and the like due to the large enzymatic activity of urease and lipase.

Use Example 1 (Manufacture of Body Soap) The extract obtained in Example 1 was added to a commercially available body soap (trade name: Tears of Flora, manufactured by Clover Co., Ltd.). 6 6% was blended to obtain a weakly acidic and preservative body soap.

When the obtained body soap was used, the texture was mild and a moist feeling was obtained. By using the aqueous liquid containing the humus soil extract substance of the present invention, a weakly acidic product can be easily produced without using any preservative.

Use Example 2 (Production of a serum) The extract obtained in Example 1 was mixed with a commercially available serum (trade name: Lermas, manufactured by Taiyo Pharmaceutical Co., Ltd.) at a ratio of 6%. The contained serum was obtained. When this serum was applied to 18-30 year old sensitive skin, atopic constitution, allergic constitution or acne-purified skin, the redness of the face peculiar to acne skin, allergic skin and atopic skin disappeared, and itching disappeared.

Use Example 3 (Production of Shampoo) A commercially available shampoo (trade name: Ken Ramad Shampoo, manufactured by Cosme Bose Co., Ltd.) was used for the extract obtained in Example 1. Was added at a ratio of 5% to obtain a weakly acidic shampoo. When this was used for shampooing, results such as shiny hair and firmness of hair were obtained.

Use Example 4 (Production of Diet Water) The extract obtained in Example 1 was appropriately diluted 2 to 10 times, and 30 to 50 cc per day was drunk for 30 days. A 2 kg weight loss was seen (4 of 5 cases). However, when the amount of the extract is small (3 (Less than 0 cc), no significant weight loss effect was observed. Therefore, it seems that the effect appears in proportion to the amount of the undiluted extract.

[0081]

The aqueous liquid containing a humus extract substance of the present invention comprises:  
Since it can be manufactured without heat sterilization, it can be easily manufactured. In addition, humic acid, humic acid, and various enzymes and organic substances contained in the humus are present in the aqueous liquid as they are without denaturation, so they have not only antibacterial and bactericidal activities, but also virus inactivating and antioxidant activities. , Anti-corrosion,  
It has beneficial effects such as body cleansing, lipolytic, alcoholic, surfactant and cholesterol degrading effects. In addition, the aqueous liquid containing a humus extract substance of the present invention has excellent storage stability.

[Procedure amendment]

[Submission date] February 15, 2000 (2000.2.15)

[Procedure amendment 1]

[Document name to be amended] Statement

[Correction target item name] Claims

[Correction method] Change

[Correction contents]

[Claims]

[Procedure amendment 2]

[Document name to be amended] Statement

[Correction target item name] 0007

[Correction method] Change

[Correction contents]

[0007]

DISCLOSURE OF THE INVENTION The present invention provides an aqueous liquid containing a humus extract substance by a simple method while retaining the inherently desirable properties of humus (for example, various useful actions such as antibacterial and bactericidal actions). The heat sterilization obtained by adding water to the humus soil, performing extraction, and filtering the obtained extract using a 0.1-0.3 μm filter. 2. The humus soil according to claim 1, wherein the aqueous humus extract-containing aqueous solution comprising unfiltered filtrate (claim 1) and the humus soil are obtained through two drying steps of coarse drying and precision drying. Extractable substance-containing aqueous liquid (Claim 2), the ratio of humus to water in extraction is 1: 3 to  
The humus extract-containing aqueous liquid (Claim 3) according to claim 1 or 2, wherein the ratio is 1: 5 (weight / volume ratio), and the pH is 2.50 to 2.99. The present invention relates to the aqueous liquid containing a humus soil extract material described in claim 4.

— 続 き Continued on the front page (51) Int.Cl. <sup>7</sup> Identification symbol FI Theme coat <sup>\*</sup>  
(Reference) A61P 29/00 A61K 31/00 629 4H003 31/18 629A 4H011 // A23L 3/3454 631M 4H025 A61K 7/00 A23L 3/3454 4H026 7/075 A61K 7/00 M 4H059 7/50 7/075 35/02 7/50 35/60 35/02 B01F 17/52 35/60 C09K 15/34 B01F 17/52 17/50 C09K 15/34 C11B 5/00 17/50 K C11D 3/38 C11B 5/00 7/40 C11D 3/38 C09K 101: 00 7/40 F term (reference) 4B021 MC01 MC03 MK03 MP01 MP02 4C083 AA021 CC04 CC23 CC38 DD23 DD27 EE12 4C087 AA02 AA04 BB29 CA06 MA17 NA03 ZA08 ZB15 ZB33 ZB35 ZC21 ZC31 ZC33 4C088 AA12 AB00 AD01 AD06 BA09 CA05 MA52 NA14 ZB33 ZB35 ZC33 4D077 AA04 AA09 AB08 AB10 AB11 BA 07 CA02 DA02Y DA02Z DC13Y DC50Y DD62Y DD70Y DE04Y DE06Y DE08Y DE10Y DE15Y 4H003 BA12 DA02 DA05 DA17 EB39 EB43 FA02 FA21 FA34 4H011 AA02 4H025 BA01 4H026 AA08 AA10 AB04 4H059 BA14 BB13 BB18 BB13 BB18 BB13 BB18 BC

Publication number	Priority date	Publication date	Assignee	Title
<a href="#">JP2006111537A</a> *	2004-10-12	2006-04-27	Marinekkus:Kk	Carcinostatic composition and food containing the same
<a href="#">JP2006232785A</a> *	2005-02-28	2006-09-07	Univ Of Tsukuba	Type i allergy inhibitor using fulvic acid and method for inhibiting onset of type i allergy
<a href="#">JP2006273734A</a> *	2005-03-29	2006-10-12	Enzyme Kk	Humus, humus extract solution, moisturizing liquid, their manufacturing method and use
<a href="#">JP2006327978A</a> *	2005-05-25	2006-12-07	Myubio Co Ltd	Hair grower
<a href="#">JP2006335687A</a> *	2005-06-02	2006-12-14	Myubio Co Ltd	Oral composition
<a href="#">JP2007518860A</a> *	2004-01-26	2007-07-12	ザンダー・コーポレイション・リミテッド	Medicated soap
<a href="#">JP2010270063A</a> *	2009-05-21	2010-12-02	Wack Planning Kk	Hairdressing beauty treatment agent using marine humus soil extract
<a href="#">JP2011074047A</a> *	2009-10-02	2011-04-14	Enzyme Kk	Process of humus extract
<a href="#">JP2012171921A</a> *	2011-02-22	2012-09-10	Kose Corp	Collagen gel contraction promoter
<a href="#">JP2012171937A</a> *	2011-02-23	2012-09-10	Kose Corp	Singlet oxygen-eliminating agent
<a href="#">JP2013032298A</a> *	2011-08-01	2013-02-14	Kinki Univ	Aqueous solvent extract of marine humus and its application
<a href="#">JP2015110760A</a> *	2013-10-31	2015-06-18	恭子 柿澤	Composition for cleaning
<a href="#">JP2015147702A</a> *	2014-02-05	2015-08-20	株式会社A o i	Method of producing activated fulvic acid and aqueous solution comprising activated fulvic acid
<a href="#">KR20160031358A</a> *	2014-09-12	2016-03-22	주식회사 담채원	Manufacturing methed of kimchi improving a preservation ability
<a href="#">JP2016124816A</a> *	2014-12-26	2016-07-11	株式会社コーセー	Epidermal turnover-promoting agent
<a href="#">JP6125681B1</a> *	2016-02-16	2017-05-10	株式会社フラット・フィールド・オペレーションズ	Cooking rice method and cooked rice
<a href="#">JP2020048468A</a> *	2018-09-26	2020-04-02	エンザイム株式会社	Cultivation method of aquatic animal
<a href="#">KR102132577B1</a> *	2020-01-29	2020-07-09	우창수	Odor reduction composition and method for manufacturing the same
<a href="#">JP7055311B1</a> *	2021-11-14	2022-04-18	株式会社日本ソフケン	Manufacturing method of humic substance solution and humic substance
<a href="#">WO2022102612A1</a> *	2020-11-13	2022-05-19	株式会社日本ウエルネス	Sterilizing/virus-inactivating agent for toothbrush
<a href="#">KR20220083471A</a> *	2020-12-11	2022-06-20	주식회사 네오맥스연구소	Method and apparatus for cultivating sprout ginseng using aeroponics
Family To Family Citations				

\* Cited by examiner, † Cited by third party, ‡ Family to family citation

## Similar Documents

Publication	Publication Date	Title
<a href="#">JP3507347B2</a>	2004-03-15	Aqueous liquid containing humus extract material
<a href="#">EP1049378B1</a>	2004-02-25	An antimicrobial composition
<a href="#">CN103922447A</a>	2014-07-16	Novel environment-friendly bactericide composition and preparation and using method thereof
<a href="#">CN101188994A</a>	2008-05-28	Oral health care drink and method for reducing malodors
<a href="#">JP2008007451A</a>	2008-01-17	Sterilizer
<a href="#">CA2620431A1</a>	2007-03-01	Controlled-acidity composition
<a href="#">CN105873442A</a>	2016-08-17	Acid-solubilized copper-ammonium complexes and copper-zinc-ammonium complexes, compositions, preparations, methods, and uses
<a href="#">CN109777639A</a>	2019-05-21	It is a kind of for air-conditioning and the disinfection of general object hard surface and the preparation of hygiene and preparation method thereof
<a href="#">AU2008278002A1</a>	2009-01-22	Diaphragm analysis method and use of products obtained using the method
<a href="#">CN102525841A</a>	2012-07-04	Marine organism bacterium-removal oral care liquid

<a href="#">JP2005508826A</a>	2005-04-07	Adduct having acidic solution of poorly soluble Group IIA complex
<a href="#">CN104207957A</a>	2014-12-17	Fibroin care solution with functions of contracting genitals and whitening, and preparation method thereof
<a href="#">JP2003277203A</a>	2003-10-02	Antibacterial agent based on phlorotannins
<a href="#">TWI277393B</a>	2007-04-01	Acidic solution of sparingly-soluble group IIA complexes
<a href="#">JP2004509636A</a>	2004-04-02	Water-based disinfectant / disinfectant for food
<a href="#">KR101297712B1</a>	2013-08-20	Biocide/disinfection agent containing hypochlorous acid water and soy protein
<a href="#">AU774058B2</a>	2004-06-17	Acidic solution of sparingly-soluble group IIA complexes
<a href="#">CN101537000A</a>	2009-09-23	Multi-purpose disinfectant
<a href="#">WQ2002045515A1</a>	2002-06-13	Lemon extract and treatment methods
<a href="#">JP5314555B2</a>	2013-10-16	Method for producing humus extract
<a href="#">CN101548683B</a>	2013-02-13	Liquid disinfectant and method of producing the same
<a href="#">CN105326875B</a>	2019-04-16	A kind of natural nonreactive moisturizing disinfectant liquid for skin and preparation method thereof
<a href="#">JP2006327978A</a>	2006-12-07	Hair grower
<a href="#">KR19980013754A</a>	1998-05-15	Sterilization preparation with phytic acid

## Priority And Related Applications

### Priority Applications (1)



Application	Priority date	Filing date	Title
<a href="#">JP30884098A</a>	1998-10-29	1998-10-29	Aqueous liquid containing humus extract material

### Applications Claiming Priority (1)



Application	Filing date	Title
<a href="#">JP30884098A</a>	1998-10-29	Aqueous liquid containing humus extract material

## Legal Events



Date	Code	Title	Description
2003-12-25	A61	First payment of annual fees (during grant procedure)	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: A61 <b>Effective date:</b> 20031218
2003-12-26	R150	Certificate of patent or registration of utility model	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R150
2004-02-18	S202	Request for registration of non-exclusive licence	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R315201
2004-02-24	R350	Written notification of registration of transfer	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R350
2004-07-08	S212	Written request for registration of transfer of non-exclusive licence	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R315213
2004-07-28	R360	Written notification for declining of transfer of rights	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R360
2004-08-10	S303	Written request for registration of pledge or change of pledge	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R316303
2004-08-11	R360	Written notification for declining of transfer of rights	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R360
2004-08-11	R371	Transfer withdrawn	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R371
2004-09-13	R360	Written notification for declining of transfer of rights	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R360
2004-10-06	R371	Transfer withdrawn	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R371
2004-10-27	S212	Written request for registration of transfer of non-exclusive licence	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R315213
2004-11-04	R350	Written notification of registration of transfer	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R350



2004-12-27	S303	Written request for registration of pledge or change of pledge	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R316303
2005-01-07	R350	Written notification of registration of transfer	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R350
2005-04-06	S111	Request for change of ownership or part of ownership	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R313113
2005-05-09	R360	Written notification for declining of transfer of rights	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R360
2005-05-30	R360	Written notification for declining of transfer of rights	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R360
2005-05-30	R371	Transfer withdrawn	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R371
2005-06-03	R350	Written notification of registration of transfer	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R350
2005-08-08	S111	Request for change of ownership or part of ownership	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R313113
2005-08-16	R350	Written notification of registration of transfer	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R350
2006-02-20	S202	Request for registration of non-exclusive licence	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R315201
2006-02-28	R350	Written notification of registration of transfer	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R350
2007-01-09	R250	Receipt of annual fees	<b>Free format text:</b> JAPANESE INTERMEDIATE CODE: R250
2007-06-20	FPAY	Renewal fee payment (event date is renewal date of database)	<b>Free format text:</b> PAYMENT UNTIL: 20091226 <b>Year of fee payment:</b> 6
2009-12-26	LAPS	Cancellation because of no payment of annual fees	

### Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
substance		title,claims,abstract,description	39	0.000
soil		title,claims,abstract,description	31	0.000
aqueous solution		title,claims,abstract,description	29	0.000
water		claims,abstract,description	41	0.000
filtration		claims,abstract,description	12	0.000
extraction		claims,abstract,description	11	0.000
filtrate		claims,abstract,description	7	0.000
humus		claims,description	82	0.000
liquid		claims,description	43	0.000
drying		claims,description	15	0.000
solution		abstract,description	26	0.000
anti-bacterial		abstract,description	15	0.000
anti-oxidating		abstract,description	3	0.000
<a href="#">Show all concepts from the description section</a>				

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