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Revitalized Water - Johann Grander Effect Replication

Process and apparatus for the treatment of microorganism
EP0712807

Process for the treatment of microorganisms or a medium contg. them, comprises, either the direct addn. to the microorganism contg. medium, or the indirect effect upon this medium, of a water or medium whose electromagnetic structure has been changed by altering the magnetic nuclear resonance properties and by the formation of super-molecular complexes between the mols. in the vibrating state. The appts. for this process is also claimed, comprising a double-walled vessel whose outer mantle is filled with the altered water or medium, which acts indirectly upon the microorganism medium present in or flowing through the inner section.

[0001] The invention relates to a method and apparatus for the treatment of a medium containing micro-organisms or micro-organisms and specific uses of the inventive method.

[0002] In order to reduce the use of disinfecting agents, preservatives, bactericides, fungicides, and other micro-organisms influencing means and thereby relieve the nutritional cycle the floor and the waste water is constantly looking for new means and methods, the influence of microorganisms without side effects permit.

[0003] The object of the invention is therefore to find a way to side-effects affecting microorganisms, so that the use of disinfectants, preservatives, bactericides, fungicides and similar acting on microorganisms substances can be reduced can be or waive its right to use any .

[0004] The object is achieved in that in the method mentioned in its electromagnetic structure

acts by changing the nuclear magnetic resonance properties and by the formation of supramolecular complexes between the molecules in its vibrational state changed water or medium indirectly to the containing the microorganisms medium or this is added directly. According to the invention, an apparatus to be used, consisting of a jacketed vessel, which is filled in its electromagnetic structure and in its vibration state modified water or medium in the outer jacket, and thus acting without direct contact to the microorganisms in the medium, that in the inner coat or is the inner sheath flows.

[0005] The primary activation of liquids, wherein, while cooling, and entry of the treatment energy, a higher energy content is imposed by converting a portion of the internal energy, is per se known. It has also succeeded in its electromagnetic structure to convert water so that both by modification of the nuclear magnetic resonance properties (change of spin-spin coupling constants) as well as by induction of electro-magnetic vibration condition was modified by formation of supramolecular complexes between individual water molecules. These electromagnetic oscillations are responsible for the emergence of an electromagnetic field at a defined frequency, phase and amplitude, which propagates uniformly in all directions.

[0006] Surprisingly, it has been found that larger particles and groups of molecules are broken down in such a electromagnetic field into small groups of molecules, thereby reducing the viscosity, among other things, pollutant molecules can be resolved and the like. Most surprising is that the energy state of the activated liquid is maintained, that is, does not decay.

[0007] Such fluids have been previously activated, used in a method of reducing the fuel consumption and exhaust gases in internal combustion engines, which is described in EP-A 389 888. In this known arrangement, an activator is used in the fuel supply to the combustion chamber is arranged, having a flow-through of fuel chamber and at least a column filled with a stationary medium chamber, wherein the electromagnetic structure by modifying the magnetic nuclear resonance properties and the vibration state by forming supermolecular complexes between is changed to the molecules.

[0008] Through the above-mentioned electromagnetic field is carried out influence on other liquids, the effect of passing through walls and can thereby reduce molecular groups, so that pollutant molecules are dissolved. This also provides more complete combustion of motor and heating fuels with a drastic reduction in the emission of pollutants takes place. The more complete combustion of fuel can also be saved.

[0009] It is completely surprising that the microorganisms contained in the medium can be changed by the liquid which has been activated in the above manner, outgoing properties.

[0010] The micro-organisms present in the medium usually consist of many individual compounds. These are merging into so-called large colonies because they draw ecological benefits from it. Surprisingly, it was the big colonies in many tiny individual colonies battered by the outgoing of the activated liquid properties. This results in the medium to an increase of total count.

[0011] The advantage of the inventive method lies in the fact that these individual colonies formed by busting to disinfectants and other microbicidal acting media, but also to temperature increases are much more sensitive than the large colonies. The bacteria can

thus be already at very low concentrations of disinfectants in their growth inhibited (bacteriostasis) or completely destroyed (bactericides). This results in a significant saving of disinfectants.

[0012] A growth inhibition or a destruction of microorganisms can be done by that once-battered large colonies flow repeatedly circulated through the device of the invention.

[0013] It is known that the destruction of large colonies are also caused by ultrasound in single colonies. Depending on the exposure time all existing large colonies are destroyed and thus achieved a number of bacteria optimum. Upon further exposure to this high frequency sound energy, what ultimately even to a kill the microorganisms. The curve in a diagram (ordinate: number of bacteria. Abscissa: time of exposure) corresponds to a Gaussian bell curve.

[0014] ie outgoing from the stationary medium of the activated liquid of the inventive arrangement features but differ significantly from the effect of ultrasound: If the sonicated sample immediately afterwards examined bacteriologically, then immediately is a bacterial count increase by the formation of single colonies detectable. Other hand, a flowing medium is passed through the device of the invention and subsequently studied bacteriological immediately, no change from the initial stage is first detectable, which means that large colonies are present in even without decomposition proposed manner.

[0015] but it Makes the medium flowing outside of the area are 24 to 96 hours, then the formation of single colonies and the number of bacteria associated increase after this residence are bacteriologically detectable. It is concluded that the hazards arising from static medium property is not applied in the form of energy to the microorganisms, but in the form of an energy information transfer. From the medium at rest, therefore no energy is radiated. Just so is to explain why after 11 years of observation time (the experiments were started in 1983) which at that time assembled device today still works.

[0016] In the European Patent 389 888 it is stated "that larger particles and groups of molecules are broken down in such a electromagnetic field into smaller groups of molecules."

[0017] This will explain why there is a drastic reduction in the emission of pollutants in motor and heating fuels. Under no circumstances is thus the present invention mentioned here busting microbiological large colonies meant in sensitive single colonies, as power and heating fuels are free of microorganisms.

[0018] In the above-mentioned EP patent is with the destruction of larger particles and molecular groups into smaller groups of molecules refers to the physical transformation of compounds contained in fuel oil to reach the goal of better combustion and a reduction of unwanted emissions.

[0019] The subject invention deals exclusively with the destruction of micro-organisms - ie the conversion of large aggregates into single cells.

[0020] With the present invention demonstrated the influence of the resting medium for microorganisms, it is the first time become possible to also pictorially demonstrate the outgoing of this medium effect using bacteriological methods.

[0021] This change in microorganisms is achieved even if the altered in its electromagnetic structure of water is added directly to a water containing microorganisms. This arrangement, while the bacteriological detection technique used and the results obtained are set out in the form of an example:

[0022] used a system is free-flowing from the tap water, which contains a bacterial count of approximately 10 colony forming units per milliliter with good quality. When bacteria count or colony count the number of 6 is in accordance with the drinking water regulations of each country generally - to 8-fold magnifier magnifying visible colonies set which, peptone from the present in 1 ml of the examined water bacteria in pour plate cultures or by the membrane filter method with nutrient-rich Culture media (1% meat extract, 1% peptone) at a incubation temperature of 20 +2 [deg.] C and 36 +1 [deg.] C after 44 +4 hours of incubation form. In the membrane filter method bacteria-membrane filters are used with a pore size from 0.2 to 0.45 [micro] m and a diameter of 55 mm for the plate count. The water to be analyzed will have filtered through by the membrane filter. The bacteria and fungi in this water remain on the filter. Subsequently, this filter is placed on a culture medium, incubated as described above and then counted the bacteria colonies formed. The membrane filter method is a standard procedure according to DIN 38 411-K5 "Determination of replication-competent bacteria by membrane filter method," corresponds to the German standard methods for water, waste water and sludge (DEV).

[0023] First, a bacteriological output value using the technique described above is determined by the drinking water. Thereafter, 1 ml of sterile water is added to a liter of this drinking water, which was changed in its electromagnetic structure as defined in EP 389 888.

[0024] For the blank determination is introduced into a second vessel 1 liter of this drinking water without any addition. Both vessels will now be available to stand for 12 to 96 hours, covered. It is important that both vessels are at least 10 m apart, so that the vessel inoculated no influence on the blank vessel can occur. After this time a colony count of the two vessels, is carried out by means of the membrane filter process again. It is shown that the bacterial count of at 21 [deg.] C for 44 hours agar plates incubated the inoculated solution is decreased by about 90% compared to the blank. The same applies to the at 37 [deg.] C for 24 hours incubated plates.

[0025] If the agar plate now longer than 44 hours at 21 [deg.] C incubated, then contact to surprisingly new and first tiny colonies which are fully developed after a maximum of 120 hours of incubation. Compared to the colonies of the untreated water these emerging colonies are changed in their appearance: they are either yellow or opaque white colored, much smaller and a colony like the other, ie, species diversity in the appearance of colonies as the untreated water shows, has been lost. The number of bacteria after 120 hours of incubation may be about thousand CFU / ml.

[0026] If the exposure time extended (in this example 12 hours), to several days, then no more starting colonies are usually detected by three days, that is, within the first 44 hours of incubation at 20 to 22 [deg.] C show mostly no more colonies. These occur only after prolonged incubation in the manner described above, the daughter colonies. At 37 [deg.] C incubation temperature occurs even after prolonged incubation, no more colony formation, since the individual colonies formed are very sensitive to temperature.

[0027] According to the invention is explained these microbiological changes as follows: Microorganisms, and specifically bacteria live in a medium, such As water, rarely as a single individual. The merger of several single individuals to a parent structure has advantages in terms of energy use, substrate utilization and survival. If such parent entity is brought into contact with a change in its electromagnetic structure of water, then it can be shown after a residence time above that of a mother colony a number of daughter colonies formed.

[0028] According to the invention could also be demonstrated that these daughter colonies have a much poorer chance of survival and are killed by disinfectants in very low concentrations. These concentrations are considerably lower than those necessary to kill parent colonies. The lower survival of the daughter colonies are also reflected in the fact that they require a much longer incubation period (ie more than 40 hours) to form colonies on agar plates. These daughter colonies are much more temperature sensitive than the parent colonies. At 37 [deg.] C die from it. The formation of such a sensitive daughter colonies is also observed when bakterienhältige liquids with UV rays are charged, but the dose is chosen so that a destruction not yet occurred. This is known from such studies in which the UV lamps were weakened by the formation of deposits in their effect. By sublethal addition of H2O2 can also be observed formation of daughter colonies. These observations are also reports in which the concentration of H2O2 was too low due to an insufficient stability to act inactivating. That daughter colonies can also be formed by a modified in its electromagnetic structure of water, however, is surprising and new.

[0029] For industrial use is selected, a device in which the changes in its electromagnetic structure of water is added directly. Rather, this is filled and sealed in a rigid jacket. This double casing encloses a pipe through which flows the medium to be treated then with a certain speed. In this device, the same phenomena were prepared as described above, observed: decrease in the mother colonies, formation of daughter colonies. If the medium to be treated out in this arrangement in the circuit, then it is possible to reduce after an appropriate dwell time, the daughter colonies even without the addition of disinfectants or ultimately even completely kill.

[0030] From this effect of the altered in its electromagnetic structure of water on microorganisms accumulated a wealth of practical applications can be derived, which will be described below by way of example: Example 1: application in the area of ??the swimming pool.

[0031] A private swimming pool with dimensions of 12 m length, 4 m width, 1.50 m depth, volume, therefore, 72 m <3>, was born on 30 Sampled in July 1994 to raise the bacteriological actual state.

Results: 95 CFU per ml + 1 Mushroom colony on Plate Count Agar, incubation, 22 [deg.] C, 48 hours. 5 CFU per ml at 24 hours of incubation at 37 [deg.] C. pH of 8.2. Chlorine content undetectable. Appearance of water: yet clear incipient algae growth on the pool walls. When the circulator operating the pool water was directly treated with 20 ml of a modified in its electromagnetic structure of water.

[0032] Bacteriological result on 08.03.1994 (three days after seeding) No more mother colonies after 48 hours incubation at 22 [deg.] C, for this is a myriad of small, emerged with

the naked eye just recognizable colonies. After 60 hours of incubation can be about 500 daughter colonies counted out. After 90 hours incubation the plate is completely overgrown and no more single colonies counted. pH of water: 8.0.

[0033] 10/08/1994: Heavily frequented bathing. pH 8.6. The bath water becomes turbid on. Significant growth of algae on the pelvic floor. Bacteriological examination: 6 mother colonies and an uncountable number of daughter colonies. To stop the growth of algae, a disinfectant (Sauerstoffabspalter base to acetic acid) was added and the pH adjusted to 7.0. Disinfectant concentration in the pool water: 0.0005%!

[0034] 08/12/1994: The water is completely clear again. Bacteriological examination: Plate count zero.

[0035] 22/08/1994: Plate count zero. As before, strong bathing. pH 7.1. Water clear.

[0036] 09/20/1994: pH 7.8. The water is turbid, clear algae. Plate count: 3 mother colonies and uncountable daughter colonies.

[0037] Summary of the results: By adding a very small amount (20 ml for 73 m <3>) to a change in its electromagnetic structure of water to the pool water was causing the bacterial counts were reduced during an observation period of two months by 95%. This technique produced daughter colonies were against the added chlorine-free disinfectant on acetic basis so sensitive that a 0.0005% by weight final concentration in the swimming pool was enough to reduce the bacterial count to zero (neither mother nor daughter colonies detectable) and this status despite intense swimming carries (very hot summer of 1994) and in spite of 26 [deg.] C water temperature for 14 days to maintain. Even after 2-month observation period, the information delivered to the water could still be detected by the changes in its electromagnetic structure of water at hand to a range of daughter colonies. Algae growth could not be altered by the addition of such water.

[0038] This experiment for 50 days shows the effects and advantages of the method: Waiver of chlorine-based disinfectants Reduction of disinfectant additive more than 70% Priority use of algicidal agents.

[0039] In spite of an intensive swimming carries (6 persons, about 4 bath daily transitions) and water temperatures up to 26 [deg.] C did not increase after inoculation of the water, the bacterial count. Only the growth of algae was not inhibited by the inoculation. But this made a targeted and in its amount significantly reduced use of chemical means necessary.

[0040] If the pool water inoculated directly, but a double-walled vessel - as described above - built into the circuit of the circulation pump, then the formation of daughter colonies detectable after 7 to 14 days. The fastest and at the same time lasting effect is achieved when the pool water inoculated one hand directly and the other a double jacket vessel is built into the circuit of the circulation pump.

Example 2: odor removal in manure and increasing the fertilizer value.

[0041] The mammalian remote, fresh slurry has a pH between 6.5 and 7.5 and is odorless. Due to the high urea content, the slurry is a very good, bacteriological culture medium. In the

bacterial hydrolysis of urea is first converted to ammonia and carbon dioxide. Only by this microbial conversion manure starts to reek of ammonia. Simultaneously, the pH rises to 10 to 12. The manure is in this state, strongly alkaline, so pflanzenunverträglich and may not be applied agriculturally so. If the ammonia-containing slurry stirred vigorously to supply their oxygen, then the ammonia with the aid of microorganisms (nitrifying bacteria) converts into the pH-neutral nitrate. Through this nitrification, the pH drops back into the neutral range, the manure does not smell and is now perfectly compatible with plants with high fertilizer value.

Experiments have now surprisingly found that by direct inoculation of the manure with a in its electromagnetic structure according to the invention modified water - or by hanging an inventive double coat rod into the slurry pit - or by passing the slurry through a double-walled vessel (built into the cycle of slurry circulation pump) - or by a combination of the specified methods - nitrification occurs much more rapidly than without interference.

[0042] In laboratory studies with the same output manure could at that vessel in which a double-jacketed rod was mounted and the addition was inoculated directly compared to the blank value following can be stated: The pH fell significantly faster in the neutral range. The CO2 evolution was significantly stronger and the nitrate content increased significantly faster.

[0043] Advantages of it:

The period in which odor is possible is drastically reduced. In practical tests, this was a self-detectable for the user experience of success: The manure does not smell! The time before the spreading of manure is shortened.

[0044] Particularly successful were those practical experiments in which the manure 1 pumped, 2 made a direct inoculation and 3 a double-walled rod was permanently installed.

Example 3:

[0045] odor control, bacterial plaque formation and overshooting bacterial growth in pipes with nutrient-rich media with reference to dental chairs.

[0046] Dental chairs have an abundance of water supply, drainage and suction lines. Saliva and blood of patients make the wastewater nutrient-rich. This microorganisms can proliferate particularly strong in the piping system of dental chairs. This may cause an odor. At the same time the risk of infection increases.

[0047] The water for filling the Mundspülglases is automatically removed from the drinking water supply in a storage vessel at 37 [deg.] C heated and pumped into the tumbler as needed. From the literature it is known that this particular mouthwash highly aeruginosae by keeping it warm during the treatment periods and the stagnant standing overnight with Pseudomonas is contaminated with germs. Infections and changes in the oral flora in patients are the result.

[0048] In order to reduce the risk of infection, one tries this water add a disinfectant, such As a stabilized 0.7% hydrogen peroxide solution. This has the disadvantage that the washing water gets an unpleasant taste (after gargle). In bacteriological tests showed that by under-dosing - whether through lack of stabilization of H2O2 concentrate or a faulty metering - the bacterial

content was only slightly reduced. Pseudomonads were often entwikkelt by the under-dosing and resistance had become less sensitive to H2O2. A lasting solution has not yet been found. Although a higher dosage of the disinfectant was able to reduce the number of bacteria in the mouth rinsing, but it was the taste was unacceptable to the patient.

[0049] In addition, especially pseudomonads in flowing systems form bacterial plaque. This consists of several cellulose units, sticky pads adhere very well to the wall and simultaneously form a breeding ground for new pseudomonads. This coating also has the advantage that they are protected from the effect of the added disinfectant for the microorganisms.

[0050] Also from the literature it is known that pipelines, where such bacterial plaque are present, can not be disinfected. Only by mechanical removal of the pads, the bacteria can be eliminated permanently.

[0051] In the case of a dentist, the inventive arrangement in the form of a double-jacketed flow device was installed in those drinking water pipe that leads to the heating storage tank for the mouthwash. Additionally, this reservoir was inoculated with a few drops of the altered in its electromagnetic structure of water. Just three days after this inoculation was bacteriologically the effect detected: There were no mother colonies longer detectable. The daughter colonies after incubation for 60 hours at 21 [deg.] C detectable. Your plate count was about 1500/ml.

[0052] 7 days after the start of the heated reservoir was opened, and found that at the bottom of this vessel detached, bacterial plaque and limestone had accumulated. These were removed and closed the reservoir again. In the following weeks, a steady decrease in the bacterial count of the daughter colonies was observed.

[0053] Two months after the commencement of the bacterial count of the daughter colonies had fallen below 100 CFU / ml. The water had its natural drinking water taste. On the addition of disinfectants could be dispensed with entirely in the sequence.

[0054] After three months, the reservoir was opened again: The walls were clean and free of deposits. A remnant of exfoliated surfaces and lime was observed at the bottom only and removed this. Mother colonies, as these were found in the inflowing water, were no longer detectable in the patient's mouth rinsing.

[0055] In addition to this renovation of drinking water range dental treatment plant was also trying to rehabilitate the water-supplying or other discharge lines bacteriologically. This also affects the suction equipment.

[0056] Recently, shall be installed by legal requirements in the drainage area of ??dental treatment plants so-called amalgam. These are devices that are intended to prevent amalgam radicals as scrap from the manufacture of seals or the boring old amalgam fillings, are flushed into the sewer system. Especially fresh amalgam or glass that is very finely distributed in the boring old amalgam fillings can cause an increase in the soluble mercury content in waste water. Amalgam, the amalgam contained herein may be separated from other waste, for example, built centrifuges. The amalgam is collected in storage vessels, and these are supplied to a recycling process after reaching a certain filling level.

[0057] From a hygienic point of view of the installation of an amalgam separator means an additional flow resistance. The necessary reservoir for amalgam cause sewage stops overnight in these containers, and that it can multiply microorganisms contained strong. This proliferation simultaneously leads to increased mucus and film formation. This switch sensors are coated for the amalgam and make this inoperable. On the other hand, can result in a formation of unpleasant odors in the dental office. Both are undesirable.

[0058] Heretofore, combats the growth of microorganisms and formation of slime and deposits by the addition of disinfectants. To replace pads reinforced one has used often strongly alkaline disinfectant (pH 11 to 12). The plaque formation was thus indeed reduced. This highly alkaline solutions but also gets into the storage vessel of the amalgam separator, ie, where the amalgam to centrifuged residues are kept.

[0059] The fine surface of this amalgam residues and by the strongly alkaline solutions, there was an increased solubility of mercury and thus the opposite has been achieved exactly what we wanted to prevent the installation of an amalgam separator: The amalgam does have the solid amalgam deposited , strongly alkaline disinfectant, however, have a portion of the solid amalgam dissolved again and thus dissolved amalgam entered into the channel. The waste water emission regulations limit the content of soluble mercury in the wastewater with a maximum of 0.01 mg / l. These values ??were exceeded by far.

[0060] jacketed flow vessels were built to novel solution to this problem in all water-supplying pipes of dental treatment unit and in addition the amalgam reservoir of the separator inoculated directly with a change in its electromagnetic structure of water = experimental chair. The second chair of the experimental dentist as had previously been treated with disinfectants = comparison chair. The bacteriological examination was carried out once a week from the waters of the amalgam reservoir in the separator unit.

[0061] One week after the start of the experiment was found when attempting device that has in stock the amalgam separator vessel, above the heavy amalgam residue deposited an abundance of organic deposits. These have apparently replaced lately. Also, the amalgam container itself indicated its walls corresponding release traces of these coverings. The detached coverings were removed. The first bacteriological examination revealed a significant increase of daughter colonies, but in addition were sporadically mother colonies detectable.

[0062] The comparison chair, however, showed no increased formation of detached surfaces. Among the mother colonies were approximately 100 CFU / ml of fluorescent pseudomonads (fluorescence at 366 nm).

[0063] Four weeks after the start of the lines of the experimental chair inside were completely clean, especially the walls of the amalgam reservoir and the sensors in the intake area. During this time there was no failure of the deposition and no odor. After 4 weeks, no mother colonies were detectable. The daughter colonies had a bacterial count of 1000/ml.

[0064] The comparison device, however, showed a slight increase in the mother colonies and the usual deposit formation. 20 g of a powdery disinfecting agent to the agent based on a Sauerstoffabspalters were dosed daily.

[0065] This disinfectant solution was added to 1%, pH 10.0. Mercury content in waste water:

0.03 to 0.1 mg / l

[0066] After 6 months of experiment time, the result remained in the experiment constant stool: a new fouling, no disturbing smell and a strong formation of daughter colonies with more than 1000 cfu / ml. An additional dose of disinfectants was not necessary.

[0067] The inventive apparatus and method described here can show the following advantages in dental treatment units: 1 Extensive waiver to the addition of disinfectants. 2 No resolution of deposited mercury, as described, for As is done by alkaline disinfectant. 3 No odors out of the hoses. 4 No deposit formation and thus ensure trouble-free operation of the treatment unit, in particular the amalgam separator.

Example No. 4:

[0068] Prevention of bacteriological contamination and the change in taste of drinking water that is entrained in tropical destinations in plastic storage containers.

[0069] The purification of drinking water in tropical destinations is a general problem. In order not to rely on sometimes dubious sources of drinking water, is particularly at car travel, the desire to fill native drinking water of good quality in plastic container to have this available for the entire trip. But not even the best drinking water is free of microorganisms, it can cause a severe contamination particularly by elevated temperature and solar radiation, but also favored by the plastic container and possibly contained therein plasticizer. Even algae formation is possible. All this can lead to a Genussuntauglichkeit of drinking water.

[0070] Various methods are known to make drinking water preserved for these purposes. One of these methods is the addition of a product sold under the trademark "Micropur" the company Katadyn Germany GmbH. It consists of a light-stable, water-soluble sodium-silver chloride-complex. This powder dissolves in water completely. After dissociation of sodium chloride, the released silver causes the disinfection of drinking water. The required concentration is 1 g of powder to 100 liters of water. Is a complete disinfection intends to 10 g of powder are to be dosed up to 100 liters of water. The exposure time is given 1 to 2 hours.

[0071] A second possibility is the filtration of water through germ-proof membrane filter. To this end, a hand pump with appropriate filters is offered by the same company.

[0072] Despite the advantages offered by these products is not to overlook the fact that the water is a foreign substance is added in the form of a silver salt. In the filtration process, a device is always carried and the filtration itself is relatively cumbersome. In addition, the filter once used can become contaminated - therefore is placed on a frequent filter replacement value.

[0073] In the case in trial it came to determine whether, to the water of the storage tanks the wholesomeness of drinking water can be obtained even under tropical conditions by the addition of sterile water, which was changed in its electromagnetic structure and in its vibrational state.

[0074] For a four-week vacation in the northern Sahara 12 plastic containers were each filled with 10 liters of perfect, fresh spring water for two travelers.

[0075] The bacteriological examination of this water gave the following values: Plate count at 22 [deg.] C incubation under 5 CFU / ml. Plate count at 37 [deg.] C incubation with 2 CFU / ml. Absence of Escherichia coli, coliform bacteria and enterococci.

[0076] The plastic canister consisted of opaktransparentem polypropylene screw cap with self. For each of these vessels 1 ml of sterile-filtered (0.2 [micro] m) and in its electromagnetic structure was added altered water, sealed the container and shaken. Through the journey time was to ensure that a contact time was assured of at least 3 days. The water containers were transported for reasons of space on the roof rack of the car and were therefore full of sun and exposed to outside temperatures. There were water temperatures up to 42 [deg.] C measured.

[0077] After 4 weeks sojourn under the above conditions was by travelers reported the following: The taste of the water was - apart from the heat - unchanged. The taste was very safe to be assessed especially after a cool night in the morning. In none of the 12 plastic container algae growth could be detected. Extraneous water was not refilled into the container!

[0078] The present in each container after four weeks remaining amount of water (about 50 ml) was also examined bacteriologically and found the following: After 48 hours of incubation at 22 [deg.] C null germs. With 120 hours of incubation at 22 [deg.] C about 30 smallest daughter colonies.

[0079] This demonstrates a good efficiency of the added and modified in its electromagnetic structure of water. At 37 [deg.] C incubation temperature were observed no colony forming units.

[0080] It is essential for the assessment of this practice test are two criteria: At 22 [deg.] C incubation temperature caused no colonies on the agar plate within an incubation period of 48 hours. Tiny daughter colonies were seen only after 120 hours of incubation. Again, the number of colonies was greatly reduced with about 30. At 37 [deg.] C incubation temperature caused either after 48 hours or after 120 hours of incubation colonies on the agar plate. Pathogens and hygienic concern all nuclei are adapted to the human body temperature. To assess the hygienic quality of the water just this incubation temperature is very essential.

[0081] limits for drinking water according to drinking water regulations: maximum of 100 CFU / ml at 22 [deg.] C after 48 hours and maximum of 100 CFU / ml at 37 [deg.] C. for 48 hours.

[0082] To ensure accurate representation of the germ-speed curve after addition of drinking water with a sterile water, which was changed in its electromagnetic structure, has been carried out in the laboratory, the following experiment: The same water that was used for the tropical trip described above were bacteriological voruntersucht and then added to 1 ml of a modified in its electromagnetic structure of water to 10 liters of drinking water. An aliquot of sample was placed in a 1 liter bottle, which was also made from polypropylene. After 3 days standing time at room temperature, in turn, a bacteriological examination was performed while about 2300 daughter colonies at an incubation temperature of 22 [deg.] C observed after 120 hours. After 48 hours at 22 [deg.] C. and after 48 hours at 37 [deg.] C have shown no colony forming units.

[0083] After these three days, the 1 liter bottle was at 37 [deg.] C placed in the incubator, and again carried out bacteriological tests after each week. The following counts for daughter colonies were found: After one week 250 100 After two weeks, three weeks and four weeks 50 10 CFU / ml. Incubation, 22 [deg.] C, 120 hours.

[0084] This experiment shows that the daughter colonies formed are temperature sensitive. Already after one week hold time at 37 [deg.] C could be counted at 90% less colony-forming units than at the beginning of the temperature load.

[0085] The bacterial count during the parallel entrained blank (pure drinking water without additives) the following table shows: Bacterial count course of a drinking water sample at 37 [deg.] C with (sample) and without (blank) Additional Time <sep><sep> Number of colony forming units (CFU) <sep><sep> after 48 h at 22 [deg.] C <sep> after 120 h at 22 [deg.]C <sep> after 48 h at 37 [deg.] C after 3 days at room temperature <sep> Sample <sep> 0 <sep> 2300 <sep> 0 (!) Blank value <sep> 5 <sep> 5 <sep> 2 after 1 week at 37 [deg.] C <sep> Sample <sep> 0 <sep> 250 <sep> 0 (!) Blank value <sep> 3 <sep> 1 <sep> 5 after 2 weeks at 37 [deg.] C <sep> Sample <sep> 0 <sep> 100 <sep> 0 (!) Blank value <sep> 2 <sep> 4 <sep> 8 after 3 weeks at 37 [deg.] C <sep> Sample <sep> 0 <sep> 50 <sep> 0 (!) Blank value <sep> 0 <sep> 1 <sep> 8 after 4 weeks at 37 [deg.] C <sep> Sample <sep> 0 <sep> 10 <sep> 0 (!) Blank value <sep> 0 <sep> 0 <sep> 6

[0086] The advantages of this method: For the preservation of bacteriological quality no chemical additives are necessary. The water retains its natural flavor. By destroying the parent colonies and by the temperature sensitivity of the daughter colonies formed therefrom the bacteriological status of the drinking water is enhanced effect of temperature.

Arrangement to prevent or to remove deposits in pipes.
EP0497754

[PDF]

Arrangement for preventing or removing deposits in pipes or impurities in flowing media such as water, aqueous solutions or gas, characterised in that a chamber (2, 8) through which the flowing medium (1, 9) flows and at least one chamber (3, 10, 11) filled with a stationary medium (4) acting as excitation medium are provided, in the case of the excitation medium the electromagnetic structure being changed by changing the magnetic core resonance properties and the oscillation state being changed by the formation of supermolecular complexes between the molecules.

APPARATUS FOR THE MEDICAL TREATMENT OF LIVING ORGANISMS, PARTICULARLY HUMAN BEINGS.

EP0074363
WO8203177

[PDF]

The apparatus for the medical treatment of living organisms, particularly human beings, comprises at least a rod-shaped magnet (1), preferably a permanent magnet. Preferably however, the magnets form a group of four arranged in parallel between each other and secured at their ends between two front discs (5) made of iron or other magnetizable material. The magnets are enclosed in a sleeve (3) of iron or other magnetizable material. Their poles are connected by one of the front discs (5) to a common contact (4). The distances separating the magnets between each other and with the sleeve (a, b) are substantially equal. Connection cables (6) are connected to the common contacts (4) of the two front discs (5). The sleeve (3) may be surrounded at a distance by a casing (7) made of non-conducting material.

RELUCTANCE MOTOR.
EP0074957

Massage apparatus.
EP0019608