Process for the preparation of a pharmaceutical preparation and use thereof for the treatment of certain diseases

Classifications

A61K35/10 Peat; Amber; Turf; Humus

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DE4316347C1
Germany

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Other languages: German

Inventor: Ina Dr Levi

Worldwide applications

1993 ~~DE~~

Application DE4316347A events

1993-05-15	Application filed by Ina Dr Levi
1993-05-15	Priority to DE4316347A
1994-08-18	Application granted
1994-08-18	Publication of DE4316347C1
2013-05-16	Anticipated expiration
Status	Expired - Fee Related

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Claims (8)

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translated from German

1. A method for producing a pharmaceutical preparation with the following steps in the order given:
Disintegrating peat material; Sterilization of the disintegrated peat material; Drying the disintegrated sterilized peat material to a residual moisture of at least 20-25%; Swelling of the material obtained with water for 24-72 hours; Extracting the swollen peat material by steam distillation to obtain a distillate; alkaline digestion of the remaining residue from steam distillation; at least one centrifugation after the reaction mixture has cooled; Separating the supernatant liquid after centrifugation; Neutralize the supernatant liquid with acid; Removal of the salt formed by the neutralization by dialysis; Bringing together the supernatants: liquid and distillate from steam distillation; and packaging of the mixture for use as an injectable, orally administrable or externally applicable therapeutic agent. 2. The method according to claim 1, characterized in that to digest the solid residue after the Steam distillation NaOH in a concentration of 10- 25% by weight, based on the residue and water content, is used. 3. The method according to any one of claims 1 or 2, characterized characterized in that the alkaline digestion of the Residue from steam distillation Slurry with an aqueous alkaline solution, Boil and let the slurry boil for at least 5, but at most 100 min, fill up with hot water Water to 1.5-5 times the volume and autoclaving, preferably at a pressure of 2.5 bar and 150 ° C, he follows. 4. use of a pharmaceutical preparation, produced according to one of claims 1 to 3 Treatment of diseases caused by retroviral. 5. Use according to claim 4, for the treatment of asymptomatic HIV infection and systemic opportunistic infections in full screen AIDS. 6. use of a pharmaceutical preparation, produced according to one of claims 1 to 3, for Treatment of hepatitis B infections. 7. use of a pharmaceutical preparation, produced according to one of claims 1 to 3, for Treatment of malaria. 8. use of a pharmaceutical preparation, produced according to one of claims 1 to 3, for Cancer treatment.

Description

translated from German

The invention relates to a method for producing a pharmaceutical preparation and uses thereof to treat certain diseases, such as retroviral diseases caused, such as B. asymptomatic HIV Infections and systemic opportunistic infections with full screen AIDS, hepatitis B infections; Malaria and Cancer.

The designated as the new scourge of humanity, with the Acronym AIDS (acquired immunodeficiency syndrome) Disorder of the cellular immune system, which first appeared in 1981 the U.S.A. is caused by today uniform as HIV (human immunodeficiency virus) designated retroviruses. HIV infection does not have to necessarily lead to AIDS, and epidemiological data suggest that HIV-positive Carrier more than 5 years without symptoms and without Can live impairment of their health status; however, they are considered potential virus eliminators and potential virus carriers.

So far, only drugs have been used to combat HIV high cytotoxicity and a number of others serious side effects have become known. In addition, the known preparations have in common that they have an inhibition of the course of the disease with them bring, but not free the patient from HIV can.

Problems with the in some cases are very similar Fighting other retroviral-caused Diseases and systemic opportunistic Infections with full screen AIDS or illnesses caused by Hepatitis B virus or plasmodia (malaria) attributed are, as well as for known cytostatics to fight cancer.

The invention is therefore based on the object of active substances to specify the one with the least possible side effects complete therapy of the diseases mentioned enable.

According to the invention, this object is achieved by a method for Production of a pharmaceutical preparation with the following steps in the order given:

Disintegrating peat material; Sterilization of the disintegrated peat material; Drying the disintegrated sterilized peat material on a Residual moisture of at least 20-25%; Swelling of the obtained Material with water for 24-72 hours; Extract the swollen peat material by steam distillation; to obtain a distillate; alkaline digestion of the remaining residue from steam distillation at least one centrifugation after cooling the Reaction mixture; Separate the excess liquid after centrifugation; Neutralize the excess Liquid with acid; Removal of the by the Neutralization of salt formed by dialysis; Merging the supernatant liquid and the Distillates from steam distillation; and packaging the mixture for use as injectable, orally or externally applicable therapeutic agent.

Preferred embodiments of the invention Procedures result from subclaims 2 and 3.

The invention further relates to the use of the Pharmaceutical preparation according to the invention for Treatment of diseases caused by retroviral, such as e.g. B. asymptomatic HIV infections and systemic opportunistic infections with full screen AIDS; to Treatment of hepatitis B infections; for the treatment of Malaria; and to treat cancer.

The invention is based on the surprising finding that it succeeds to the listed diseases effectively combat, with the greatest possible destruction of the Pathogens such as B. HIV, HepB viruses or Plasmodia (malaria pathogen), and / or inhibition of Multiplication of cancer cells by one according to the Pharmaceutical processes produced according to the invention Preparation in a therapeutically effective amount is used.

Peat is a predominantly vegetable, one at a time small part also formed from animal organisms Material. In his deposit, the bog, takes place the biochemical process of peatification (humification) dead plants in sedimentary deposits since about 8,000 to 10,000 years ago. The first peat formations started around 12,000 years ago in the post-ice age. they are still not in undisturbed bogs completed.

Raised bogs are independent of source, ground or stagnant water, they only live on rainwater and have an autonomous water regime. The peat bogs are very homogeneous, low in oxygen, low in lime and nitrogen and very angry. The biology deviating from the bog and Chemistry of the transitional peatlands and peatlands other forms of maintenance; while in bog only the proteins survive, takes place in transitional bog and Niedermoortorfen a chemical transformation of Body white.

The tanning effect of peat is well known, though this essentially on the one hand to those contained in the peat Humic substances, on the other hand to those contained in the peat Tannins can be attributed.

The potential of peat as a source of therapeutic effective connections have so far hardly been developed. From However, some of the ingredients in peat are already known therapeutic use.

DE-OS 22 06 570 describes the use of (+) - Catechin in oral, rectal and parenteral Treatment of liver affections. From DE-OS 36 03 576 is the use of tannins on tannins or Catechin base and / or of isolated chlorogenic acid, or their physiologically tolerable derivatives as Agents for reducing gastric acid secretion and / or known to protect the gastric mucosa. DE-OS 36 03 227 describes a pharmaceutical preparation for Treatment of inflammatory and allergic diseases of the Gastrointestinal tract, lungs and skin, as well of diseases with an increased histamine content in the Blood goes hand in hand with this pharmaceutical preparation a mixture of (+) - catechin and Contains ascorbolysinate. From DE-OS 30 31 710 is finally the use of a reaction product from (+) - Catechin with an essentially equimolar amount on L-lysine or L-arginine and on hydrochloric acid, acetic acid, Ascorbic acid or an equivalent amount of Citric acid for the treatment of degenerative Diseases of the connective tissue have become known.

DE-OS 39 03 773 describes the bacteriocidal or bacteriostatic activity of coal made Humic acid, salts or derivatives thereof. From the DE-OS 37 07 909 is the use of low molecular weight alkali or ammonium salts of humic acids as a remedy in the Wound healing or for the production of highly effective Moor baths became known. DE-OS 37 07 910 describes the same use of low molecular weight Alkali aluminates made by another process are manufactured.

EP 0 313 718 describes a process for the production a low molecular weight huminate fraction known is obtained by adding to an aqueous suspension products containing humic an alkaline with stirring active substance is metered in such that the pH 7 the suspension is not exceeded until constancy of the pH is stirred further, then sedimented and the largely solids-free solution separated and then is centrifuged and the resulting clarified solution is subjected to ultrafiltration. Another one comparable process is also described in EP 0 117 223.

Methods for obtaining are from WO 92/16216 bioactive products from peat have become known essential to the reverse osmotic treatment of a highly concentrated aqueous solution of inorganic salts based on alkaline hydrolysis from peat material won.

DE-OS 38 30 333 is a pharmaceutical Composition for external treatment of herpes Bladder disease caused by viruses has become known Potassium or sodium sulfide and humic acid, their salts or corresponding proportions of peat soil or moor extract in contains liquid phase.

In contrast, it is completely unexpected that the in the present application claimed pharmaceutical Preparation, retroviruses, such as B. HIV, HepB viruses and Completely destroy plasmodia and in the case of cancer at least reduce the spread of canker sores can. In vitro tests have shown that with the completely non-toxic and 100% cell-available pharmaceutical preparations according to the invention, a 100% destruction of HIV and plasmodia can be effected can. There are also in vitro test results and indications of the effectiveness of the invention Active substances in the fight against other retroviruses and Hep B viruses, in the treatment of systemic opportunistic infections in full screen AIDS, as well as for the inhibitory effect in tumor lines.

It should be emphasized that through the first use of such pharmaceutical preparation in one therapeutic preparation for therapy of the listed Diseases in human medicine with few side effects Results can be obtained that are best on superior to known therapeutic agents in this area are. The special synergistic is also to be noted Effect of substances extractable from peat, the The method according to the invention their extensive transfer ensure in pharmaceutically active substances.

Further features and advantages of the invention result from the description below, in which Exemplary embodiments are explained in detail.

example

For the manufacture of a pharmaceutical preparation according to The invention used freshly bog raised peat. It should be noted that with comparable Results also other types of peat in particular Transitional bog and peat bog were used.

The peat material was first disintegrated and, if necessary, freed from coarse components by means of a vibrating screen. After an optional sterilization by gamma Irradiation using cobalt 60 at one dose of 10-50 kGy occurred at below 80 ° C Vacuum drying to a residual moisture of at least 20 25%.

The material thus obtained was constantly mixed with water Stir swollen for 24-72 hours. Then was a steam distillation carried out, the Distillate was collected and stored. Tests with this Distillate already showed a remarkable one Physiological effectiveness (about 50% of the effect of the final preparation).

The residue from the steam distillation was subsequently open-minded, with an addition of solid NaOH in an amount of 10-25 wt .-%, based on the residue along with water content was under Setting a final humidity of 80-90%. Of course, other basic ones can also be used Materials such as KOH and the like for the basic Digestion can be used.

The slurry produced was under constant Stir to boil, at least 5, but at most Let boil for 100 min and then warm up with hot water 1.5-5.0 times the volume filled and autoclaved, preferably at a pressure of 2.5 bar at 150 ° C. After cooling, the supernatant liquid separated and centrifuged for 40 minutes at 8-10 rpm.

The process was repeated again with the separation of the Repeated liquid.

The supernatant liquid from the Centrifugation (s) with acid, such as. B. HCl, neutralized. The salt formed, e.g. B. NaCl preferably removed by dialysis.

Then the distillate from the Steam distillation is added to the solution and on set a pH of 6-7. Then it will be fed physiological saline and the The entire mixture is sterilized and finally ampouled. The pharmaceutical thus manufactured Preparation is easily injectable.

Toxicity and tolerance

Although not singular, but multifactorial effects after administrations are expected to be as Potentially effective ingredients, especially those in the Acids mentioned claims come into consideration.

These natural organic acids have several important properties.

There are none when administered orally to experimental animals Sensitization in the form of allergic reactions, Resistance, toxic side effects in organ systems and Residues in the tissues.

The acute LD50 i.p. in rats is 255.0 mg / kg.

The prenatal-toxic studies on laboratory rats show that under the influence of these acids none macroscopically visible malformations, retardations and no carcinogenic, embryotoxic and teratogenic Damage occurred.

The investigated preparation has high oral tolerance on, and the oral application is in prophylactic, and therapeutic level in this regard as harmless to assess.

The pharmacodynamic functions of these acids result emerge from their chemical, biochemical, toxicological and metabolic physiological properties.

After oral intake, these acids act in the gastrointestinal Tract anti-inflammatory and protective.

The preparation has a virucidal, antibacterial and throphic effect. It is odorless and tasteless, contains no annoying Particles and completely dissolves in water after stirring.

Its oral application is compared to others Medicines rated as very good.

The animals took the mixed drinks in prophylactic and therapeutic dose after a brief adjustment without complications. The required was thus achieved Amount of medication in a well dosed and of Application form free of stress factors without any problems in the gastrointestinal tract of the animals.

Effectiveness test HIV

The effectiveness tests of according to the example manufactured preparation were in the institute for molecular biological diagnostics (DIAGEN, D-4010 Hilden, Max-Vollmer-Straße 4) in specially for the Effectiveness testing of HIV developed in vitro Test systems carried out.

The toxicity test was carried out according to the known methodology carried out: The substances were in final concentrations of 1: 100, 1: 1000, 1: 10,000 and 1: 100,000 with no infected lymphocytes. After four days was the proliferative activity of the cells in the MTT test quantified. The results listed below relate to proliferation activity untreated control cells.

Lymphocytes with HIV were used for the viability test infected and also for four days in the presence of the Cultivated substances. The viability of the cells was assessed with examined the trypan blue exclusion test; it became the percentage of living cells determined.

The preparation from the example in a final dilution of 1: 100 each to potential Tested anti-HIV activity. For this purpose, humane Lymphocytes de novo infected with HIV and in for 4 days Cultivated presence of substances. After 2, 3 and 4 days the synthetic HIV core protein p24 measured by ELISA. The in the cultures investigated was synthesized amount of p24 with the help of a calibration curve with calibrated recombinant p24 was calculated. As a control cultures were carried along that did not Test substance contained. Here too the synthetic Amount of p24 calculated per ml culture volume.

A percentage inhibition (% inhibition) of HIV Replication was calculated as follows:

The percentage inhibition turned into an antiviral infection calculated on a scale from 0 to 9. One substance-induced inhibition between 0 and 10% antiviral effect 0 assigned, an inhibition between 10 and 20% of the antiviral effect 1, an inhibition between 20 and 30% the antiviral effect 2, etc.

AZT was used as a reference substance in a dose Effect curve tested from 100 mg / ml to 0.1 mg / ml.

The results of the investigations are as follows Tables shown, with those with K763 and K764 designated preparations prepared according to the example have been.

Inhibition of protein-based HIV replication

Date of test: January 7, 1993

Inhibition of protein-based HIV replication

Date of test: January 7, 1993

The studies show that the after Substances produced according to the invention in in vitro an excellent effect in the destruction of Show HIV. It is believed that this is extraordinary amazing results through a synergistic effect of substances extracted from the peat is justified.

Effectiveness test plasmodia (malaria)

The antiparasitic effect was checked in in vitro on erythrocytic cell cultures with plasmodia falciparum were infected. There were 2 test series each carried out in which solutions in a dilution of 1:70 were used. All solutions had an inhibition on the intraerythrocytic development of the Malaria parasites. The inhibitory effect was microscopic detectable in all three stages of development of the plasmodia. After 3 days there were no mature parasite forms to find more. The cultures were spaced over 8 days analyzed by 24 hours. One was every three days Media change made; that after the first three days newly added medium no longer contained any active substance.

It can be concluded that the after the Solutions produced according to the invention have a strong anti-parasitic effect.

Effectiveness test cancer

The following investigations were carried out in University Hospital Rudolf Virchow of the Free University Berlin.

A) K 562 cells and b) NHL-87 cells were cultivated. Iscove's modified Dulbecco medium was used Add 10% (v / v) fetal calf serum. The incubation was done for 120 hours. As test substances were 1% (v / v) material used, referred to as "3", "16" and "22".

The designated materials were checked before testing Filtration (low protein binding filter, 0.22 µm) partially sterilized.

Fungal or bacterial contamination did not occur on. The measurements are averages of triple Measurements. The cell number and the were analyzed Expression of the transferrin receptor.

A. Cell number

B. Transferrin receptor

The analysis was carried out using "live gating" Propidium iodide only for vital cells. In the cultures with the material according to the invention percentages decreased in both cell lines CD71- positive cells.

The substances according to the invention were tested with regard to cytotoxic effect on two permanent cell lines. they showed a clearly inhibitory effect in the Test systems.

There are first in vitro results on the effectiveness of the Preparation also for hepatitis B infections as well systemic opportunistic infections at full screen AIDS. For explanation it should be mentioned that under systemic opportunistic infections commonly Infections caused by the Mycobacterium tuberculosis pathogen (and atypical mycobacteria), salmonella, toxoplasma gondii, Cryptosporidium, Isospora belli, Strongyloides, Pneumocystis carinii, Candida, Cryptococcus neoformans, Aspergillus fumigatus, cytomegalovirus, Herpex simplex Virus, Papova virus and Varicella zoster virus understood become.

These properties have a particularly favorable effect with simultaneous prophylaxis or treatment of the systemic opportunistic infections in patients with AIDS, which the preparation already has because of its maintain antiviral effect. It has surprising Effects in all pathological processes, where so far known medical methods show little success.

Patent Citations (13)

Publication number	Priority date	Publication date	Assignee	Title
DE2846482C2 *	1977-10-25	1983-03-24	Akademia Rolnicza we Wrocławiu, Wrocław	Process for obtaining a preparation containing polysaccharides for combating neoplasms
EP0087164A1 *	1982-02-24	1983-08-31	Zyma SA	Novel crystal modifications, processes for their production, and pharmaceutical preparations containing them
EP0117223A1 *	1983-01-25	1984-08-29	Anlad N.V.	Method for the production of humic and fulvic acids and intermediate products from peat, peat soils and humic organic materials
DE3707910A1 *	1987-03-12	1988-09-22	Ruetgerswerke Ag	METHOD FOR PRODUCING LOW MOLECULAR ALKALIHUMINATES
EP0285285A2 *	1987-03-17	1988-10-05	Public Health Laboratory Service Board	Method and composition for the treatment and prevention of viral infections
EP0297547A2 *	1987-06-29	1989-01-04	Lead Chemical Company Ltd.	Use of hydrolyzable tannins for treatement and prophylaxis of AIDS
EP0313718A2 *	1987-10-29	1989-05-03	Rütgerswerke Aktiengesellschaft	Process for the fractionation of huminates
WO1990003172A2 *	1988-09-20	1990-04-05	Fisons Plc	Bile acids for treatment of viral infections
WO1990004968A1 *	1988-10-31	1990-05-17	University Of North Carolina At Chapel Hill	Inhibition of human retroviruses
EP0374888A2 *	1988-12-20	1990-06-27	Yamanouchi Pharmaceutical Co. Ltd.	Sulfated tannins and theirs salts
WO1991018616A1 *	1990-05-27	1991-12-12	Mach, Chantal	Composite molecular system for the contra-escalatory treatment of viral infections
WO1992016216A1 *	1991-03-16	1992-10-01	Torf Establishment	Peat-derived bioactive products and pharmaceutical and cosmetic compositions containing them
EP0537430A1 *	1991-10-17	1993-04-21	Rütgerswerke Aktiengesellschaft	Antiviral agents
Family To Family Citations				

* Cited by examiner, † Cited by third party

Non-Patent Citations (2)

Title
Derwent 91-033717/05 *
Derwent 91-219271/30 *

* Cited by examiner, † Cited by third party

Cited By (2)

Publication number	Priority date	Publication date	Assignee	Title
WO2002056865A2 *	2001-01-19	2002-07-25	Humaderm Gmbh	Peat product composition, method for the production and use thereof
EP1369122A1 *	2001-02-21	2003-12-10	Nobel Limited Liability Company	Anticancer agent
Family To Family Citations				

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

Similar Documents

Publication	Publication Date	Title
DE60003837T2	2004-06-03	TETRAPEPTIDE THAT STIMULATES THE FUNCTIONAL ACTIVITY OF NEURONES, THIS CONTAINING PHARMACOLOGICAL AGENT AND ITS USE
DE69932939T2	2006-12-07	FULVIC ACID AND ITS USE FOR THE TREATMENT OF VARIOUS DISEASE STATES
DE69909794T2	2004-06-09	USE OF A DIPEPTID FOR RECOVERY PROCESSES
WO2010149596A1	2010-12-29	Compositions for treating degenerative joint diseases
DE69432930T2	2004-05-06	IMMUNO-MODULATING COMPOSITIONS FROM GALLE
WO1997034929A1	1997-09-25	Process for extraction of a growth factor complex
DE2559989C3	1981-11-19	Polymers and Processes for Their Manufacture
DE4316347C1	1994-08-18	Process for the preparation of a pharmaceutical preparation and use thereof for the treatment of certain diseases
DE60216292T2	2007-08-30	CALCIUM TRIFLUORACETATE WITH CYTOTOXIC EFFECT
DE2820794C2	1980-01-17	Salts of (-Hcis) -l ^ -epoxypropylphosphonic acid, process for their preparation and pharmaceutical preparation containing them
DE69433583T2	2005-03-03	Preparations based on Padina algae or their extracts, and their pharmaceutical, nutrient or culture uses of mollusks or arthropods
DE2805224B2	1980-11-20	A method for producing the active substance of a drug for treating kidney stone disease and a drug containing the active substance
DE60124516T2	2007-10-04	COMBINATION OF THE LEZITHINE WITH ASCORBIC ACID
EP1283047B1	2007-01-17	Method for producing a bioactive substance from blood serum
DE3111056A1	1982-02-11	METHOD FOR OBTAINING A MEDICINAL EFFECTING ARTHRITIS AND OTHER DISEASES OF THE OSTEOLOCOMOTORIC SYSTEM
WO1994018957A2	1994-09-01	Use of active substances in the therapy of certain diseases, process for preparing a pharmaceutical composition for that purpose and pharmaceutical compositions thus prepared
DE1768655B2	1974-03-07	
EP0595297B1	2001-07-18	Lignin polymer composition for the treatment of skin problems
DE2835292A1	1979-03-01	PROCESS FOR PRODUCING DEFIBRINIZED AND FREEZE-DRIED PLACENTA CELLS
DE3225597A1	1983-02-03	METHOD FOR PRODUCING A TISSUE PREPARATION
WO2006029605A1	2006-03-23	Method and active ingredient for combating plasmodia
CH671516A5	1989-09-15	
DE2518509C3	1981-02-19	A pharmaceutical agent for anti-tumor activity containing abrin
AT392003B	1991-01-10	METHOD FOR PRODUCING A PARTICULARLY FOR Wounds Healing Or For Treatment In Geriatrics, Active Ingredients From Mammalian Blood By PAPAINE HYDROLYSIS AND A PREPARATION CONTAINING SUCH AN ACTIVE SUBSTANCE
DE60118175T2	2007-01-25	METHOD FOR THE PRODUCTION OF AN IMMUNOTROPIC ANTIVIRAL COMPOSITION

Priority And Related Applications

Priority Applications (4)

Application	Priority date	Filing date	Title
DE4316347A	1993-02-26	1993-05-15	Process for the preparation of a pharmaceutical preparation and use thereof for the treatment of certain diseases
DE4490853T	1993-02-26	1994-02-17	Treatment of (retro) viral diseases and method for producing a pharmaceutical preparation
PCT/DE1994/000163	1993-02-26	1994-02-17	Use of active substances in the therapy of certain diseases, process for preparing a pharmaceutical composition for that purpose and pharmaceutical compositions thus prepared
AU60374/94A	1993-02-26	1994-02-17	Use of active substances in the therapy of certain diseases, process for preparing a pharmaceutical composition for that purpose and pharmaceutical compositions thus prepared

Applications Claiming Priority (2)

Application	Filing date	Title
DE4305926	1993-02-26	
DE4316347A	1993-05-15	Process for the preparation of a pharmaceutical preparation and use thereof for the treatment of certain diseases

Legal Events

Date	Code	Title	Description
1994-08-18	8100	Publication of the examined application without publication of unexamined application	
1994-08-18	D1	Grant (no unexamined application published) patent law 81	
1995-02-23	8364	No opposition during term of opposition	
1998-05-07	8339	Ceased/non-payment of the annual fee	

Concepts

machine-extracted

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Name	Image	Sections	Count	Query match
pharmaceutical preparation		title,claims,description	15	0.000
disease		title,claims,description	13	0.000
preparation method		title,description	13	0.000
method		title,description	9	0.000
peat		claims,description	25	0.000
material		claims,description	18	0.000
steam distillation		claims,description	11	0.000
water		claims,description	11	0.000
Acquired immunodeficiency syndrome		claims,description	10	0.000
liquid		claims,description	9	0.000
Opportunistic Infections		claims,description	8	0.000
acid		claims,description	7	0.000
cancer		claims,description	7	0.000
drug		claims,description	7	0.000
malaria		claims,description	7	0.000
sodium chloride		claims,description	7	0.000
manufacturing process		claims,description	6	0.000
salts		claims,description	6	0.000
sodium hydroxide		claims,description	6	0.000
supernatant		claims,description	6	0.000
centrifugation		claims,description	5	0.000
Hepatitis B		claims,description	4	0.000
digestion		claims,description	4	0.000
mixture		claims,description	4	0.000
Asymptomatic HIV infection		claims,description	3	0.000
dialysis		claims,description	3	0.000
retroviral		claims,description	3	0.000
slurry		claims,description	3	0.000
sterilising		claims,description	3	0.000
sterilization and disinfection		claims,description	3	0.000
charge neutralization		claims,description	2	0.000
drying		claims,description	2	0.000
neutralization		claims,description	2	0.000
neutralization reaction		claims,description	2	0.000

packaging method and process	claims,description	2	0.000
reaction mixture	claims,description	2	0.000
solid	claims,description	2	0.000
swelling	claims,description	2	0.000

Show all concepts from the description section

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