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**PAIN REMOVING COMPOSITION AND PROCESS
FOR PREPARING SAME**Roy Gregory, 1130 N. 14th St., Lafayette, Ind. 47904
No Drawing. Filed Apr. 29, 1969, Ser. No. 820,311

Int. Cl. A61k 27/00

U.S. Cl. 424-195

2 Claims

ABSTRACT OF THE DISCLOSURE

Pain removing composition for external use on warm blooded animals. The composition is made from critical proportions of acetic acid, urea, ammonium hydroxide, glycerol, plastiquinone A and water. A binder is used to tie the components together. The binder contains lanolin, stearic acid, water, triethanolamine and mineral oil. When rubbed on an external part of an affected area of a warm blooded animal, pain is removed in a short period of time.

BACKGROUND OF THE INVENTION**Field of the invention**

This invention is concerned with a medicinal product of the pain remover type. More specifically this invention is concerned with an external pain remover for use on warm blooded animals. The pain remover of this invention is particularly suited for use on humans.

Description of the prior art

Pain removing compositions for external use are generally known in the prior art. Most of the prior art compositions contain ingredients which when applied to the surface of a warm blooded animal causes the area to feel hot or cold. These compositions generally change the flow rate of blood to the affected area. Common components in these prior art compositions are capiscum, chloroform, menthol, methyl, salicylate, turpentine, camphor, oil of mustard, aspirin, narcotics, etc.

While the composition and method of the subject invention is similar to the above described prior art in that it is applied externally, its action is totally different because it does not draw more blood to the area in question or change the flow rate of blood in any manner.

Other prior art methods include massage, light rays, swirl baths, ultrasonic sound waves, etc. While these additional prior art methods bring some relief, they are disadvantageous in that they are time consuming and they are expensive.

Generally, it could be said that the prior art compositions and methods are slow to act and are only capable of rendering temporary relief. In contrast the present invention functions in a short period of time and it is capable of rendering relief which lasts for an extended period of time. It may be of interest to note that this invention also removes the pain and swelling due to injury or pain due to bursitis without any sensation that the pain and swelling is being removed.

SUMMARY OF THE INVENTION

The invention is concerned with a pain removing composition for external use on warm blooded animals, a method of removing pain, and a method for the manufacture of the composition. The composition is made from critical percentages of acetic acid, urea, ammonium hydroxide, glycerol, plastiquinone A, a binder and water.

**DESCRIPTION OF THE PREFERRED
EMBODIMENT**

The pain remover of this invention is for external use on warm blooded animals. The composition of this inven-

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tion is specifically meant to be a pain remover and not a cure. This invention is for pain in muscle due to injury or contusions of external origin and pain in muscle caused by calcium deposits called bursitis.

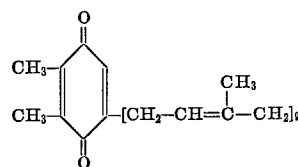
In contrast this invention is not for pain due to disease or pain due to internal disorder of vital parts of the body.

The subject composition generally has a composition in accordance with the percentages by volume as are specified in Table I.

TABLE I

	Percent
Acetic acid (100%)	2.90-4
Urea (U.S.P.)	3.75-5
Ammonium hydroxide (26%)	4.5-6
Glycerol (U.S.P.)	3-6
10% plastiquinone A ¹ by weight dissolved in an aliphatic solvent which is not harmful when applied externally	4-90
Binder ²	1-2
Water	Balance

¹ Plastiquinone A is produced by extracting finely divided fresh spinach chloroplast with an aliphatic solvent for 12 hours; heptane is the preferred solvent. A 93% yield is achieved. The resulting product contains 10 percent plastiquinone A in heptane, if heptane is used; and it is equivalent to 10 percent plastiquinone and 90% heptane. Plastiquinone A has a structure in accordance with Formula I.

**Formula I**

² The binder for use in this invention is prepared by mixing together at about 200° F. by volume about 16 percent lanolin, about 4 percent stearic acid, about 4 percent water and about 1 percent triethanolamine, upon cooling about 11 percent mineral oil is added along with sufficient water to make 100 percent.

A preferred composition in accordance with this invention is set forth in Table II.

TABLE II

	Percent
Acetic acid (100%)	3.33
Urea (U.S.P.)	4.18
Ammonium hydroxide (26%)	5.00
Glycerol (U.S.P.)	3.33
10% plastiquinone A ¹ in heptane	4.16
Binder ¹	2.00
Water	78.00
	100.00

¹ As described for Table I.

The composition of this invention is generally prepared by diluting the acetic acid component with a small amount of water. To this diluted acetic acid is added the urea, which dissolves after shaking for a short period of time. The ammonium hydroxide is then added and then the glycerol. The glycerol disperses with vigorous agitation. The remainder of the water is added to produce a composite system.

The resulting composite system is not compatible with the plastiquinone A which is dissolved in heptane. Accordingly, the binder as described above is added to the plastiquinone A component and combined therewith with vigorous agitation. When the plastiquinone A component is combined with the binder the above described composite system is added thereto, with mixing a gel type final product results.

The invention has a high concentration of each component in a small amount of solvent. This arrangement is advantageous because it does not allow each component to combine with other components completely, leaving some of each in a free or uncombined state. The free or uncombined molecules are necessary to react with the organic acids in the pain affected muscles to change these organic acids into products which the natural body metabolism can assimilate.

In addition to removing pain the subject composition is useful as a means of locating the exact point of injury. For example, when an entire arm and shoulder area hurts, a doctor cannot find the exact point of injury. Using this invention, a doctor can pin-point the exact point of injury in 45 minutes. The point of injury itself will remain tender to the touch. The doctor can then proceed with proper treatment to a speedy recovery. This is to be contrasted with the present methods employed by doctors which is to immobilize the arm and shoulder in a plaster cast and administer pain pills for relief. Sprains are immobilized and are soaked in hot packs or ice packs to reduce pain and swelling. The present invention makes these procedures unnecessary.

The composition of this invention functions by aiding in the rapid assimilation of the organic acids which are concentrated in the affected area and are responsible for the sensation of pain.

Pain caused by injury is due mainly to a high concentration of oxalic, lactic and amino acids that radiate outward from point of injury. This invention will act on and react with these pain causing acids in the muscle changing these acids into non-harmful, non-painful products which the body metabolism can assimilate and move out very quickly. The oxalic and lactic acids are quickly changed by the subject composition into amines and are eliminated with this group.

Likewise, the composition of this invention causes an amino acid to inhibit the activity of one of the early enzymes in its pathway. It quickly releases this inhibitor, restricts an oversupply of amino acids, unblocks their biosynthetic pathway and regulates their accumulation.

Finally, the subject composition increases protein synthesis allowing these acids to move out of affected area by natural body metabolism.

Injury due to accidents causes a buildup of organic acids in muscles which slows down protein synthesis causing a surplus of the 19 other amino acids each of which shuts off its own biosynthetic pathway and thus contributes to a build up of intermediary catabolites which are co-repressors of catabolic enzymes. Amino acids have the ability to inhibit the activity of one of the early enzymes in its biosynthetic pathway. Reduce the supply of amino

acids by a factor of two, this reduction quickly releases this inhibition. Beginning 5 to 10 minutes after the shift down in amino acid supply, a marked depression of the enzyme concerned with the biosynthesis of the restricted amino acid occurs as a result of a reduced intracellular concentration of a repressing derivative of the amino acid. A near total repression of many catabolic enzymes begins within a few minutes of the amino acid shift down. The rapidity of response indicates this occurs independently of any long term affect of amino acid restriction such as reduced enzyme level. Protein synthesis and biosynthetic enzyme repression require the interaction of the amino acid with the same specific aminoacyl synthetase.

This invention has the ability to reduce an amino acid supply, inhibit an enzyme, unblock their biosynthetic pathway, regulate their accumulation. Increase protein synthesis cause these acids to be removed by natural body metabolism. Observation has shown that active acetate identified now as acetyl coenzyme A is involved in synthesis of fatty acids. Coenzyme A acts as a carrier not only for acetyl but for other acryl groups. The urea molecule reacts with these various acids with the help of ammonia and acetyl to change these acids into amines. The glycerol acts as a hydrogen, an hydroxyl acceptor. Plastiquinone A activates coenzyme Q.

Coenzyme Q is located and localization within the lipoprotein membrane of system of cells. Its activity is necessary for proper functioning of cells. Pain due to injury or irritation in muscle due to bursitis causes this enzyme to become dormant. The activity and function of coenzyme Q is necessary in the stringent cells to return these cells to normal structure and function. Plastiquinone A will activate coenzyme Q and keep it working. Plastiquinone A acts as an electron transport system to transport energy through the cells farther away then next to or adjacent to each cell. A pool of quinone between the two sites transfers energy from the sites where electron flow occurs to the site where energy is used. Plastiquinone A undergoes rapid oxidation and reduction during the electron transport process. Coenzyme Q undergoes rapid oxidation and reduction to account for the main unilateral electron transfer of protons and hydroxyl ions. As a result of this additional action pain and swelling does not return.

The following examples will illustrate the subject invention. These examples are given for the purpose of illustration and not for purposes of limiting this invention. The data for Examples 1 to 46 is listed in Table III. In these examples the specified dosage was rubbed externally on the affected area of the body. It can be seen from these examples that in a short period of time the pain in the affected area was removed and the relief lasted for an extended period.

TABLE III

Name	Example	Pain due to—	Age	Dosage, ml.	Sex	Time to pain removal, minutes	Length of time present, years	Number of applications	Side effects	Length of time pain removed months	Comments
JW.....	1	Bursitis.....	50	1-3	M	30	10	1	None.....	6	Could not raise arm above shoulder—after treatment free movement, no pain.
GW.....	2	Bursitis.....	43	1-3	M	40	8	1	do.....	8	Do.
RD.....	3	Bursitis.....	38	1-3	M	45	3	1	do.....	6	Do.
CR.....	4	Bursitis.....	52	1-5	M	45	10	1	do.....	8	Do.
RT.....	5	Tendonitis.....	55	1-5	M	45	5	2	do.....	2-6	Legs and heel.
RS.....	6	Rheumatism.....	45	1-5	M	30	3	1	do.....	6	Shoulder.
RB.....	7	Tendonitis.....	58	(1)	M	15-30	20	10	do.....	1-3	Shoulder arms.
MS.....	8	Arthritis.....	60	10	F	45	5	1	do.....	10	Arms, legs.
LN.....	9	Rheumatism.....	51	10	F	45	5	1	do.....	10	Upper back.
AG.....	10	do.....	60	10	F	45	10	1	do.....	5	Hips and legs.
LP.....	11	Rheumatism.....	57	(2)	F	40	10	2	do.....	2-4	Upper back and arms.

¹ 1-3 m. ² 8-10 m.

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What is claimed is:

1. A process for the manufacture of a pain removing composition which comprises the steps of dissolving from about 3.75 to about 5 percent urea in from about 2.9 to about 4 percent of 100 percent acetic acid; adding thereto from about 4.5 to about 6 percent of 26 percent ammonium hydroxide; adding thereto from about 3 to about 6 percent glycerol, adding thereto from about 4 to about 90 percent of a solution of plastiquinone A in heptane; adding thereto from about 1 to about 2 percent of a binder which is prepared by mixing together at about 200° F. by volume about 16 percent lanolin, about 4 percent stearic

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acid, about 4 percent water and about 1 percent triethanolamine and upon cooling adding thereto about 11 percent mineral oil and additional water to make 100 percent; and adding sufficient water to make 100 percent.

2. The pain removing composition which is produced by the process of claim 1.

References Cited

Chem. Abst., 55, 21276 G (1961).

STANLEY J. FRIEDMAN, Primary Examiner