

Humate dietary supplement

US 5626881 A

ABSTRACT

Humate, a composition of primarily humic acids, carbon, and organic matter, is used as a human dietary supplement. The humate may be mixed with food, liquid drinks, or flavoring and ingested. The powder, granule, or water-soluble powder form of humate may also be mixed with other known dietary supplements such as multi-vitamins and be formed into capsules and tablets. The preferred humate is mined from the Menefee Geological Formation in Northwestern New Mexico.

IMAGES(4)



CLAIMS(28)

What is claimed is:

1. A human dietary supplement, comprising:
a humate of prehistoric origin;

some carbon;

some organic matter; and

a mixture of said humate, carbon, and organic matter being made for human ingestion.

2. The dietary supplement human, as set forth in claim 1, wherein said humate comprises at least 35% humic acids.

3. The dietary supplement human, as set forth in claim 1, comprising at least 35% carbon.

4. The dietary supplement human, as set forth in claim 1, comprising at least 35% organic matter.

5. The dietary supplement human, as set forth in claim 1, further comprising vitamins.

6. The dietary supplement human, as set forth in claim 1, further comprising trace elements.

7. The dietary supplement human, as set forth in claim 1, wherein the dietary supplement is in granule form.

8. The dietary supplement human, as set forth in claim 1, wherein the dietary supplement is in powder form.

9. The dietary supplement human, as set forth in claim 1, wherein the dietary supplement is in solution in water or in a liquid drink.

10. A human dietary supplement, comprising:
at least 35% humic acids of prehistoric origin;

at least 35% carbon;

some organic matter; and

said humic acid, carbon, and organic matter being mixed together for human ingestion.

11. The human dietary supplement, as set forth in claim 10, comprising at least 35% organic matter.

12. The human dietary supplement, as set forth in claim 10, further comprising vitamins.

13. The human dietary supplement, as set forth in claim 10, further comprising trace elements.

14. The human dietary supplement, as set forth in claim 10, wherein the human dietary supplement is in granule form.

15. The human dietary supplement, as set forth in claim 10, wherein the human dietary supplement is in powder form.

16. The human dietary supplement, as set forth in claim 10, wherein the human dietary supplement is in solution in water or in a liquid drink.

17. A method for supplementing human diet, comprising the steps of:
mixing a predetermined weight of humate of prehistoric origin having at least 30% humic acids with one or more known human dietary supplement ingredients; and
ingesting the mixture.

18. The method, as set forth in claim 17, further comprising the step of encapsulating the mixture into a capsule.

19. The method, as set forth in claim 17, further comprising the step of forming the mixture into a pill.

20. The method, as set forth in claim 17, further comprising the step of:
measuring a predetermined amount of the mixture; and
combining the mixture with a food or liquid drink.

21. The method, as set forth in claim 17, further comprising the step of grinding a humate in granule form into a water-soluble powder.

22. The method, as set forth in claim 17, wherein the mixing step includes the step of mixing the humate with nutrients, including trace elements or vitamins.

23. The method, as set forth in claim 21, further comprising the step of mixing the water-soluble powder with water or a liquid drink.

24. The method, as set forth in claim 21, wherein the water-soluble powder is mixed with nutrients, including vitamins.

25. The human dietary supplement, as set forth in claim 1, wherein a significant percentage of said humate is obtained by mining.

26. A human dietary supplement, as set forth in claim 1, wherein a significant percentage of said humate is obtained by mining from the Menefee geological formation located in northwest New Mexico.

27. The human dietary supplement, as set forth in claim 10, wherein a significant percentage of said humic acids are obtained by mining.

28. The method, as set forth in claim 17, further comprising the step of obtaining a significant portion of said humate by mining.

DESCRIPTION

TECHNICAL FIELD OF THE INVENTION

This invention is related in general to the field of dietary supplements. More particularly, the invention is related to a humate dietary supplement for the promotion of nutrient absorption and the method for making thereof.

BACKGROUND OF THE INVENTION

Humate is an highly compressed prehistoric compost that can be mined from deposits in the ground. Humate is composed of mainly humic acid, carbon, and some organic matter. A specific humate, also called Menefee Humate™, has a sand and diatomaceous earth base rather than a clay base found in leonardite. The Menefee Humate™ is mined in the area around the Menefee Geological Formation in Northwestern New Mexico by Menefee Mining Corporation of Dallas, Tex. The Menefee Humate™ is a freshwater humate consisting of decomposition of tropical prehistoric plant and animal material. In contrast, other humates are saltwater humates originated from ancient peat bogs.

Humate has been commercially used as a turf and agricultural fertilizer additive. For example, U.S. Pat. No. 3,544,296 issued to Karcher teaches a method for making a soil nutrient from leonardite, and U.S. Pat. No. 5,026,416 issued to Alexander teaches a liquid crop stimulant using humic acid and either calcium phosphate or ascorbic acid. Additionally, certain mineral and clay compositions have been used as an animal feed supplement. For example, U.S. Pat. No. 3,950,546 issued to Hill et al. teaches a mixture of clay having aluminum silicate and sodium bentonite in combination with minerals for spreading on farrow house floors. U.S. Pat. No. 2,926,085 issued to Geerlings suggests mixing mineral salts with humus and colloidal clay as a anemia preventative for newborn pigs.

Peat is also known in the art as an ingredient for soil preparation and animal feed. For example, U.S. Pat. Nos. 4,380,551 and 4,322,443 issued to Frontczak teach a method for preparing a foodstuff for human and animal consumption by sowing seeds in peat, and then recovering the germinated seeds and the peat as the foodstuff. Another patent, U.S. Pat. No. 2,178,051, is directed to a method of treating peat for the purpose of drying it quickly so as to make it suitable as a manure or fertilizer or as an ingredient for animal feed.

SUMMARY OF THE INVENTION

In accordance with the present invention, a human dietary supplement is provided which provides improved digestive process and better nutrient absorption.

In one aspect of the invention, the dietary supplement includes the humate having a level of at least 30% humic acids. The humate is ingested either alone or in combination with food, vitamins, or other dietary supplement ingredients.

In another aspect of the invention, measured amounts of the humate is encapsulated or formed into tablets or pills for ease of human consumption. The humate may also be mixed with flavorings, vitamins, or other dietary supplement ingredients prior to being formed into capsules and pills.

In yet another aspect of the invention, the dietary supplement includes at least 35% humic acids, 35% carbon, and other organic matter.

In another aspect of the invention, the dietary supplement includes a form of water-soluble humate powder that is added to water and ingested alone or in combination with other liquids, nutrients, and/or flavorings.

DETAILED DESCRIPTION OF THE INVENTION

Most humate-type organic deposits are found buried in the earth's crusts, similar to coal deposits. Unlike lignite coal based humates, such as leonardite, that have a clay base, the Menefee Humate™ has a sand and diatomaceous earth base. The sand and diatomaceous earth (SiO²) base of this humate resisted compression and allowed air and water movement throughout the formation of the humate. Unlike lignite deposits, the Menefee deposits were not subjected to the high pressure and lack of oxygen conditions which formed the lignite deposits. The primary constituents of humate are humic acids, carbon, and organic matter. The detailed analysis of the composition of the Menefee Humate™ is shown below:

Minimum Analysis					
(%)	Humic Acid	35.0	Organic Matter	35.0	Nitrogen
0.88	Phosphoric Acid	0.07	Potash	0.06	Manganese
				0.02	Zinc
				0.008	Copper
0.001	Iron	0.59	Sodium	0.03	Potassium
				0.037	Calcium
				0.45	Magnesium
0.07	Phosphorus	0.02	Sulfur	0.14	Lead
				0.002	Chromium
				<0.002	SiO ²
				19.1	Al ² O ²
5.5	Boron	0.02	Gold	<0.001	Carbon
35.0					

Another chemical analysis shows the following composition of the humate:

Method	Level	Analysis	Found
		Humic Matter %	60.8
COM SSPA 15(12)84OM			
by Combustion %	71.50	550° C. Sulfate Sulfur % (So ₄ --S)	0.27
AOAC 15th Ed.			
957.02e/ICPP	Phosphorus % (P)	0.02	AOAC 15th Ed.
957.02e/ICPP	Potassium % (K)		
Not	AOAC 15th Ed.	Detected	957.02e/ICP
957.02e/ICP	Magnesium % (Mg)	0.16	AOAC 15th Ed.
957.02e/ICP	Calcium % (Ca)	0.43	AOAC 15th Ed.
957.02e/ICP	Sodium % (Na)	0.14	
AOAC 15th Ed.			
957.02e/ICP	Iron % (Fe)	0.347	AOAC 15th Ed.
957.02e/ICP	Manganese % (Mn)	0.002	AOAC 15th Ed.
957.02e/ICP	Copper % (Cu)		
0.003	AOAC 15th Ed.	957.02e/ICP	Zinc % (Zn)
0.004	AOAC 15th Ed.		
957.02e/ICP	Aluminum % (Al)	0.57	AOAC 15th Ed.
957.02e/ICP	Ignitability °F.		

>430 ASTM D 92 ModMoisture % 13.50 AOAC 15th Ed.

965.08_____

Although this invention is directed to a dietary supplement incorporating humate or humic acids, the preferred origin for the humate or humic acids is from the Menefee Geological Formations in Northwestern New Mexico.

Humic acid, defined as the portion of soil humus that is soluble in alkaline solution, but insoluble in acid solution, is the form of organic matter that often is added to the soil to increase fertility. Humic acids are found in rotting vegetable matter and can be detected in the black slime of an ordinary compost pit in a home garden. It also is found in the brown organic matter of a variety of soils, as well as in peats, manure, lignite, leonardite, brown coals, and the Menefee Humate™. Humic acids do not have a single unique structure, but are a mixture of intermediate chemical products resulting from the decomposition and conversion of lignin and other plant materials to hard coal. Humic acids apparently are formed by the bacterial and chemical degradation of plant tissue, but in soils it also may be formed by certain secondary processes such as polymerization of polyphenols leached by rain from surface leaf litter, and condensation of phenols, quinones, and proteins that are provided by the action of soil micro-organisms and small animals on soil carbohydrates. As a result, humic acid is best characterized in terms of its origin and soil environment, rather than in rigid terms of chemical composition or chemical properties.

Chemical studies of the composition of humates such as Menefee Humate™ and leonardite have revealed that it is mainly composed of the mixed salts of acid radicals found in soil humus, a product of the decay of organic matter that contains both humic and nonhumic material. Such acid radicals are collectively termed "humic acids," having individual factions named humin, humic acid, ulmic acid and fulvic acid. The exact structure of the humic acids are unknown. However, humic acids appear to be associations of molecules forming aggregates of elongated bundles of fibers at low pH, and open flexible structures perforated by voids at high pH. These voids, of varying dimensions, trap organic or inorganic particles of appropriate electronic charge.

The humic acids have a large cation exchange capacity and hold multivalent metallic elements, such as micronutrient elements, very strongly. The molecular weight of the humic acids range from 800 to 500,000, with the weight average molecular weight ranging from about 5,000 to about 50,000. The cation exchange capacity of the humic acids varies from about 200 to about 600 meq CaCO₂ per 100 grams at pH 7, depending upon the origin of the extracted acids. Humic acids are polyelectrolytes and are believed to form complexes with clay particles thus enabling humic acids to bind multivalent elements with great tenacity. When the cation exchange sites on the humic acid molecule are filled predominantly with hydrogen ions, the material, considered to be an acid, is insoluble in water. However, when the predominant cations at the exchange sites are other than hydrogen, the material is called a "humate." Humates of monovalent alkali metals or ammonia are soluble in water, but the humates of most multivalent metals are insoluble.

It has been shown in studies done on poultry, livestock and other animals that the addition of a humate-like material to the feed promotes growth, better health, and decreased mortality rates. Humic acids have negatively charged ionic sites which singly or in combination chelate or attract and hold positively charged ions and molecules. The carbon chains of the organic matter provide an energy source (food) for microbes which increases their number dramatically. The microbes release enzymes which etch metallic ions or fracture molecules from the food the animal eats which is captured by the humic acids and expedited through the digestive system into contacted cells.

There are three known ways humic acids or humates affect ionic molecular uptake. First, a direct interaction between the humate and cell membrane responsible for ionic transfer. Second, humic acids changes the membranes passive permeability allowing greater ion contact and transfer to cellular proteins. And finally, indirect effects, caused by humic acids, can affect transport through changes in the metabolic processes regulating uptake. There is also evidence that intake of humate or humic acid bolsters the immune system and decreases the incidence of illness due to pathogens such as salmonella and e coli.

The Menefee Humate™ is a sand and diatomaceous earth-based granular or powdered material that has a low moisture content. This dry granule or powder is readily mixable with food or liquid drinks for human consumption. The slightly earthy taste of the humate may also be enhanced or masked by flavoring of various kinds. The granules or water-soluble powder can also be mixed with multi-vitamins, trace elements, and other dietary supplement ingredients. Further, the Menefee Humate™ can be easily encapsulated into capsules or formed into tablets and pills either alone or in combination with vitamins or other diet supplement ingredients to facilitate ingestion by humans. The daily recommended intake amount will be dependent on an individual's requirements, but may range from 1 to 5 grams, dependent on age, weight, and overall health condition.

Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

PATENT CITATIONS

Cited Patent	Filing date	Publication date	Applicant	Title
US1355732 *	May 19, 1919	Oct 12, 1920	Bottomley William B	Treatment of peat for making useful products
US2178051 *	May 16, 1938	Oct 31, 1939	Sams Edward Henry	Method of treating peat to render it suitable for such uses as the feeding and bedding of animals and manuring or fertilizing

Cited Patent	Filing date	Publication date	Applicant	Title
US2926085 *	Apr 29, 1959	Feb 23, 1960	Geerlings Petrus J	Dietary supplement for animals
US3544296 *	Oct 20, 1967	Dec 1, 1970	Concho Petroleum Co	Method of forming a solid plant nutrient from leonardite humate bearing ore
US3950546 *	Mar 24, 1975	Apr 13, 1976	Music City Supplement Company	Pulverulent vitamin and mineral-fortified clay product for farrowing house floor
US4225592 *	Feb 12, 1979	Sep 30, 1980	Bela Lakatos	Complexes of oligo- and polygalacturonic acids formed with essential metal ions and pharmaceutical preparations containing the same
US4322443 *	Feb 21, 1980	Mar 30, 1982	Jacek Dlugolecki	Methods of producing fodder
US4380551 *	Aug 27, 1980	Apr 19, 1983	Jacek Dlugolecki	Methods of producing foodstuff by malting seeds
US5026416 *	Mar 9, 1987	Jun 25, 1991	American Colloid Company	Liquid crop stimulant
US5411569 *	Mar 14, 1994	May 2, 1995	Kemiron, Inc.	Iron humate product
US5501857 *	May 9, 1994	Mar 26, 1996	Midwestern Bio-Ag Products & Services, Inc.	Oral nutritional and dietary composition

* Cited by examiner

NON-PATENT CITATIONS

Reference

- | | |
|---|--|
| 1 | Corson, " Chickens ", Research Conducted by Intertec, Inc., pp. 1-4, 1976. |
| 2 | * Corson, Chickens , Research Conducted by Intertec, Inc. , pp. 1 4, 1976. |

* Cited by examiner

REFERENCED BY

Citing Patent	Filing date	Publication date	Applicant	Title
US6143692 *	Jan 20, 1999	Nov 7, 2000	Arcotech, Inc.	Adsorbent
US6147229 *	Dec 27, 1999	Nov 14, 2000	Electrolytes, Inc.	Method for producing magnesium fulvate from humus material
US6204396	Dec 29, 1999	Mar 20, 2001	Electrolytes, Inc.	Method for producing calcium fulvate from humus material
US7067155	Jan 3, 2003	Jun 27, 2006	Tbni, Inc.	Anti-inflammatory humate compositions and methods of use thereof
US7095397	Jun 7, 2002	Aug 22, 2006	Seiko Epson Corporation	Drive method, a drive circuit and a display device for liquid crystal cells
US20030003203 *	May 15, 2002	Jan 2, 2003	David Williams	Animal feed additive containing humates and a method of using this additive
US20040197384 *	Apr 7, 2003	Oct 7, 2004	Mcgrane Merle	Animal feed incorporating a humate to reduce manure odor
US20060233894 *	Apr 14, 2006	Oct 19, 2006	Lown John F	Anti-Inflammatory Humate Compositions and Methods of Use Thereof
WO2011139246A1	May 6, 2011	Nov 10, 2011	Dizman Mumln	Topical or injectable composition comprising humic acid salts and polyvinylpyrrolidone for the treatment of skin diseases
WO2013023062A1 *	Aug 9, 2012	Feb 14, 2013	Wilford Lynn C	Antimicrobial agents and methods for use thereof in the abatement of food borne pathogenic organisms

* Cited by examiner

CLASSIFICATIONS

U.S. Classification	424/520 , 514/904 , 424/537 , 514/960 , 424/543 , 514/905 , 514/125
International Classification	A61K35/10 , A23L1/304 , A23L1/308
Cooperative Classification	A61K35/10 , Y10S514/96 , A23L1/304 , Y10S514/904 , A23L1/3087 , Y10S514/905
European Classification	A23L1/308M , A61K35/10 , A23L1/304

LEGAL EVENTS

Date	Code	Event	Description
May 16, 1995	AS	Assignment	Owner name: MENEFEE MINING CORPORATION, TEXAS Free format text: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:LOWN, JOHN F.;REEL/FRAME:007494/0716 Effective date: 19950516
Nov 3, 2000	FPAY	Fee payment	Year of fee payment: 4
Nov 8, 2004	FPAY	Fee payment	Year of fee payment: 8
Sep 30, 2008	FPAY	Fee payment	Year of fee payment: 12