Use of Clay in "De-Bugging" and Detoxification

Received……..…...…2.8.09 Scientific Review……....3.9.09 IAOMT Board Review……..3.26.09 Reevaluation & Update	**Biological Support** **Use of Clay in "De-Bugging" and Detoxification**	**Approval…….3.26.09** Provisional Approval No Opinion No Approval

Explanation of IAOMT position: As explained by the author:

- Strengths: Clay has been used instinctively and purposely for detoxification, healing and as a nutritional supplement by a large number of people and animals for countless centuries.
- Weaknesses: Since clay has been used for so long and for so many reasons, SR limited to two of the most common uses

The two most powerful uses of clay: **STRONG BROAD-SPECTRUM ANTIBACTERIAL FUNCTION (De-Bugging) and very effective in DETOXIFICATION.**

Name of Scientific Review: Clay use as a strong Broad-Spectrum Antibacterial (De-Bugging) agent and Detoxification vehicle

Alternative name(s) of Scientific Review: Exceptional Healing from Ground Up

This Scientific Review is related to Medicine and Dentistry

This Scientific Review is a Product & Procedure

Do you have a vested interest in any part of this SR? ***Yes, I am the president and founder of DermaClay, LLC. DermaClay is a company that sells clay products globally to healthcare practitioners for their own personal health use as well as handling it for their patients so they can use clay for detoxification and broad-spectrum antibacterial "de-bugging" purposes.***

Purpose of the Scientific Review: To summarize the value of clay functioning as a strong broad-spectrum antibacterial, and detoxifier agent

Scientific Review History: The age of our universe is estimated to be about 12.5 billion years old and earth is estimated to be 4.5 billion years old. That estimation was calculated by NASA Chief Historian Mr. Stephen J. Nick (www.NASA.GOV). In the early part of earth's formation, clay was formed as a result of volcanic eruptions. These eruptions produced high reaching clouds of volcanic ash as well as many lava runs. In the end, clay covered 80% of the earth's ground surface.

Early animals and primitive people learned to use clay externally and internally for healing, detoxification and nutrition. (31, 33, 34) One of the better studies is the research into the behavior of the "Parrots of the Amazon" (32).

Clay has been in medicinal use since the earliest dawn of medical history. Researchers JoAnn Scurlock and Burton Anderson, studying early texts in "cuneiform" writing, found that physicians of ancient Mesopotamia used clay as their principal curative agent. Records show that between 3500 BC-150 AD physicians/priests treated over 300 documented ailments with natural desert clay in the same fashion as is recommended today (1).

Ancient tribes of the high Andes in central Africa and Aborigines of Australia used clay as a dietary staple, a supplement and as a curative for healing purposes.

Early French cultures were known to use clay for nutritional and medicinal purposes. One of the reasons they used it was for **healing of gum disease**.

There are many Biblical references explaining clay use as well.

Native Americans call clay "Ee-Wah-Kee", meaning the "Mud that Heals".

It is to Dr. Julius Strumph of Wurzburg that we owe the re-introduction of its use as medication in 1898 (2).

Nineteenth century naturopath Sebastian Kneipp, and fellow naturalist Adolph Just, had clay therapy in a prominent position in their arsenal of Holistic Medicine, due to the tremendous results they achieved using it.

Then clay fell out of favor until French naturopath Raymond Dextreit in 1974 wrote the book, "Our Earth, Our Cure". That book was translated to 8 languages and sold over 980,000 copies. (3)

A brief description of the Scientific Literature Review: Search out scientific information about clay use as a strong broadspectrum antibacterial and detoxification vehicle in healthcare.

A specific description of this Scientific Literature Review:

Explaining the Clay Particle and its broad-spectrum antibacterial and detoxifying function.

In order to fully understand the extremely incredible healing and detoxifying power of clay, it is necessary to understand the clay particle. There are seven distinct families of clay and thousands of clay mineral combinations. Only a handful of clay types are suitable for health and healing treatment purposes. This paper will concentrate on the smectite family of clay, with particular emphasis on calcium bentonite clay (CBC) as the clay of choice.

In nature the CBC clay particles would look like a stack of credit cards with a tiny space between each. One CBC clay particle would look like two credit cards on top of each other with the flat sides against each other and a tiny space in between them. This is an example of how one CBC clay particle would appear. The flat sides are negatively charged and the thin edges are positively charged. Functionally, the ionic charge of pure, natural (in this case) calcium bentonite clay (CBC) is 100% negative. The clay particle is extremely negatively charged.

Dr. Robert T. Martin, Ph.D., Cornell University, and mineralogist, MIT stated that "**one gram of clay** has a surface area of 800 square meters or in our common terms it **adds up to 10 football fields**" (4) of negative pulling power. This powerful magnetic force acts with equal ferocity toward positively charged heavy metals, toxins and poisons as well as positively charged bacteria, viruses, molds and fungi etc. Since most everything that attacks our bodies- bacteria, viruses, fungi, diseases, toxic chemicals, toxic heavy metals etc.- is of positive ionic charge (5), it is not hard to see why clay is so successful at eliminating bad bacteria as well as toxins from our bodies. In the same report, Dr. Martin makes an important statement that every serious user of clay is aware of: that "**to obtain maximum effectiveness in the human body clay should put in a liquid colloidal-gel state. This is why clay cannot be made into tablet form.**" (6) Dextreit states further on in his book that: "It is possible to mix it with a little water in order to form small balls like peas and let them dry. Swallow these instead of clay powder." (7, 24)

A. How does clay work?

In addition to the large negative surface area, calcium bentonite clay has several other critically important detoxification and anti bacterial properties, including adsorption and absorption. These two words sound quite similar but in reality are very different. **Adsorption** is the quality of the clay that binds toxins and bacteria to its outer self. The outer surface of the clay draws positively charged ions like a magnet and binds them to itself like "Velcro®." Once adsorbed, the attracted particles are then **absorbed** into the inner layer of the clay like a sponge. The clay then undergoes a **swelling phase**, which allows the clay particle to adsorb and absorb materials into itself by several times its own weight.

B. How does clay detoxify?

Once the clay has adsorbed and absorbed and swelled to its limits, it is time to do its final task, exit the system.
It is important to realize that we are talking about eliminating very toxic materials like mercury, paraquat (35), lead, cadmium, chromium (8), and aflatoxins (9, 10, 11, 27), that are harmful by-products of mold growth and are potentially fatal to people, and secondary plant products like tannic acid (12) that are dangerous to some animals and always dangerous to people.

Because clay absorbs the toxins into itself, they are prevented from being re-released back to into the body as the clay exits the system (13). Since the epithelial lining of our intestinal system is negatively charged, same as the clay, the clay itself is NOT absorbed into our bodies. Like charges repel each other.

In the early 1900's, Dr. Alexis Carrel of the Rockefeller Institute for Medical Research performed an amazing experiment. He managed to sustain the life of cells from a chicken embryo by immersing them in a solution containing all the nutrients necessary for life, changing the solution daily. The cells took up nutrients from the nutrient rich broth and excreted their wastes into the same solution. **The only thing Dr. Carrel did each day was discard the old solution and replace it with a fresh nutrient solution.** Normally chickens live an average of 7 years. Dr. Carrel's chicken cells lived for 29 years, until one night Dr. Carrel's

assistant forgot to change the polluted solution. Dr. Carrel concluded at the end of his experiment that the cell is actually immortal. It is merely the fluid in which it resides which degenerates. He was quoted saying,

"The cell is immortal, renew this fluid at intervals (Detoxify) , give the cell something on which to feed and, so far as we know, the pulsation of life may go on forever" (14).

Applying that principal to today, it means that by detoxifying daily a person may remain healthier much longer with a better quality of life.

"The trick in recovering from a heavy metal poisoning is getting the heavy metals out of the body without killing the patient or flushing his IQ down the toilet. (15)

How does clay destroy the bacteria or as we say it "De-Bug" the body?
As you may remember from part A above, bacteria, viruses, yeasts and fungi are all positively charged. That means that they are hopelessly drawn into the highly negatively charged clay particles. Some of the most dangerous and lethal bacteria that have evolved into antibiotic resistant strains appear to have no survival mechanism against clay.

This research was reported in Science Daily October 26, 2007:
Rossman Giese, Ph.D., professor of geology in UB's College of Arts and Sciences and Tracy Bank, Ph.D. assistant professor of geology at UB were using several techniques to study clays including atomic force microscopy. "We looked at the attraction or repulsion between natural and modified clays and bacteria," said Giese. "Unlike antibiotics, which are essentially a chemical weapon against bacteria, broad-spectrum antimicrobial clays kill through purely physical means", he explained. "The bacterium has to come into physical contact with the clay in order for something to happen", Giese said. That contact turns deadly.
"The antimicrobial agent in the clay pokes a hole in the cell wall of the bacterium causing the bacterium to leak to death," he explained. "The nice thing about that is that there is no way that the bacterium can evolve to avoid it, so resistance to the antimicrobial clay is unlikely to become a problem." (16, 26)

Shelley Haydel, Ph.D., a microbiologist at Arizona State University recently performed a very interesting experiment. When she added volcanic clay, called "agricur", to cell colonies of MRSA (*Methicillin resistant Staphylococcus aureus*), she found that 99% of the colonies were eliminated within 24 hours. In the same time period, colonies not treated with the clay grew 45%. The clay exhibited similar antibiotic effects against Salmonella, penicillin resistant S. aureus (PRSA), pathogenic escherichia Coli and Buruli, the flesh-eating relative of Leprosy that causes disfigurement of children (17, 28, 29). We need to remember that MRSA killed over 18,650 people in USA alone in 2005. (30)

“Clays are little chemical drug-stores in a packet” said Dr. Lynda Williams, Ph.D., a geochemist also from Arizona State University of the School of Earth & Space Exploration in Tempe, Arizona.(18) She continues,
“So far, clay killed everything we tested”. (19)

C. What are the components of clay?

The three primary minerals of calcium bentonite clay are as follows:
silica 40%
calcium 28%
magnesium 12%

It is no accident that in the human body, the three primary minerals are as follows:
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calcium 28%
magnesium 12%

In addition to the above 3 primary minerals there are 71 additional minerals found in a typical sample of montmorillonite clays found in Nevada (20).

In his book "Our Earth, Our Cure" French naturopath Raymond Dextreit describes clay as a "greasy sort of earth" (21).

For helping to prevent the proliferation of pathogenic germs and parasites to aiding with rebuilding of healthy tissues and cells, clay is a "living cure." (22)

Manufacturer(s): Since clay covers over 80% of the earth's surface, it is available in a number of countries and it is being sold by several companies. Caution must be exercised when selecting clay for healing purposes. Processed clay has been heated to high (900C°) temperatures resulting in mere energy-less mud. (25) Always look for pure, natural unadulterated clay for health improvement purposes.

[For more information contact Dr. Nupponen by phone (800) 929-2876 or by email drnupe.dmd@gmail.com or visit his clay company webpage www.DermaClay.com

Scientific Literature: Since clay has been with us from the birth of civilization, it has been studied and researched for a very long time. This review is limited to studies and books written relatively recently and used here in our project and so footnoted. Please refer to the bibliography and references at the end of this SR.

Legal Aspects of this Scientific Review: Today, bentonite clay is increasingly used both internally and externally by those interested in natural remedies, and it is included on the FDA's famous "GRAS" list. "GRAS" stands for "Generally Recognized as Safe". According to FDA, items on the GRAS list are not subject to pre-market review and do not need FDA approval before release to the public. (23)

Standards of Care: for dentistry, does not have a policy how to deal with detoxification of heavy metals or other dental related chemicals. When it comes to antibacterial intraoral treatments the standard of care promotes the use of antibiotics (AB). (Patient needs to be informed that it is our responsibility to offer them the AB's. If patient refuses the use of AB's we as healthcare practitioners need to write it into patient's treatment record.) It has been clearly demonstrated that antibiotics are losing their value as an effective antibacterial chemical since more and more bacteria are becoming totally resistance to them. Alternative healthcare practitioners who have chosen to use something else other than antibiotics often use grape seed extract and/or colloidal silver. Now they have another way to deal with highly resistant bacteria.

The risk that practitioners will have in the beginning is that very few people know about clays powerful use for broad-spectrum antibacterial and detoxification purposes.

Since we are dealing with a unprocessed, 100% natural, pure clay to be used in home care settings in a similar way tooth paste (which also have clay in it) and mouth washes are used, we have found it to be un-necessary to add its use to our present "Informed Consent" forms.

Bibliography and References:

1. Aldrige, Perry "Living Clay," Page 14
2. Musafir,Anjou & Chazot, Pascal; "Clay Cures", Page 9
3. Musafir, Anjou & Chazot, Pascal; "Clay Cures", Page 10
4. Knishinsky, Ran; "The Clay Cure" 1998, Page 29-30
5. Aldridge, Perry "Living Clay"; Page 3
6. Abehesera, Michael; "The Healing Power of Clay"; Page 9
7. Dextreit, Raymond "Our Earth, Our Cure" 1974, 1979; Page 17
8. Frey, Rebecca, Ph.D., "Gale Encyclopedia of Alternative Medicine; 2005
9. Phillips, TD, "Dietary clay in the chemoprevention of aflatoxin disease" Toxicol Sci 1999 Dec 52(2Suppl): 118-26
10. Phillips TD; "Dietary Clay in the chemoprevention of aflatoxin-induced disease";Toxicological Sciences, Vol 52, 118-126
11. Phillis TD, Sarr AB, Grant PG, "Selective chemisorption and detoxification of aflatoxins by phyllosilicate clay."; Nat Toxins. 1995;3(40:204-13
12. Johns T, Duquette M; "Detoxification and mineral supplementation as functions of geophagy"; Am J Nutr. 1991 Feb;53(2): 448-56
13. Canadian Journal Of Microbiology (31 [1985]. 50-53)
14. Carrel, Alexis, Ph.D; Rockefeller Institute, early 1900's
15. Warren, Thomas; "Reversing chronic Disease"; Page 29
16. Rossman, Giese, Ph.D. "French Clay Can Kill MRSA and 'Flesh-Eating' Bacteria"; Natural Daily; Oct. 26 2007
17. Haydel, Shelley, Ph.D.; "French Volcanic Clay Kills Antibiotic-Resistant MRSA Superbug"; Natural News; April 15 2008
18. Williams, Lynda, Ph.D.; "Healing Clays Show promise for fighting deadly MRSA Superbug Infections, Other Diseases"; Science Daily, April 8, 2008
19. Williams, Lynda, Ph.D; American Chemical Society; April 15, 2008
20. Knishinsky, Ran; "The Clay Cure", Page 49
21. Dextreit, Raymond & Abeshera, Michael; "Our Earth, Our Cure"; Page 11

22. Abeshera, Michael; “The healing Power of Clay”; Page 19
23. Diagnose-Me.com; "Bentonite is known for its highly adsorptive properties and its ability to draw out and bind heavy metals, drugs and other toxins from the body"; FDA GRAS List
24. Price, Weston, A.; “Nutrition and Physical Degeneration”; Page 266-67
25. Williams, Lynda, Ph.D., “Chemical and Mineralogical Characteristics of French Green Clays Used for Healing”; January 9, 2008
26. Cygan, Randall T, Ho Clifford K, Weiss, Chester J, “Linking the Geosciences to Emerging Bio-Engineering Technologies”; Scandia National Laboratories, November 2002
27. Masimango N, Remacle J, Ramaut J, “Elimination of aflatoxin B1 by clays from contaminated subjects”; Ann Nutr Aliment. 1979;33(1):137-47
28. Williams, Lynda, Ph. D., “Minerals from French Clay Cure Deadly Drug-Resistant Bacteria” October 25, 2007
29. Haydel, Shelley. Ph.D., “Searching in Clay to Treat Disease-Causing Bacteria” Medical News; 26 Oct. 2007
30. Haydel, Shelley, Ph.D., “US Centers for Disease Control and Prevention”
31. Brightsmith, Donald, Ph.D.; “The Clay Licks of Tambopata & Beyond “; IOMA Edition 2003
32. Gilardi, James, Ph.D.; “Parrots that Eat Dirt” EatonsEarth.com
33. Voigt, CC, Capps KA, Dechmann DK, Michener RH, Kutz TH, “Nutrition or Detoxification: why bats visit mineral licks of the Amazon Rainforest”: Plos ONE. 2008 Apr 23;3(4):e2011
34. Krief, Sabrina, “Down to Earth Remedies for Chimps”:Paris Natural Museum of History, Heidelberg, January 8, 2008
35. IPCS International Programme on Chemical Safety; “ PARAQUAT, Health and Safety Guide No 51; WHO 1991

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