

Sodium Biosilicate Benefits

The substances we consume have a direct impact on our health. The chemistry of silica has long been associated with potential health benefits.¹ Recent studies show that modified sodium silicate (BAS™) has important specific physiological benefits.² Sodium biosilicate is similar to BAS™ being a modified sodium silicate. Sodium biosilicates have only begun to be researched and data is limited. We refer to our sodium biosilicate as BioActive Silicate because of the wide interaction it has with the body. Much of the importance of silica (Si) alone is understood by science. Silica may help reduce joint pain and reduce blood vessels' ability to clog, it does this by improving the structure of all connective tissues and the human body, including cartilages, tendons and blood vessels walls. Silica is critical to building bone tissue as calcium is practically useless without silica. Calcium alone begins calcifying other tissues such as artery walls even the heart, without silica and a strong cardiovascular system is not possible. Sodium biosilicates have a profound effects on the body.

Anti-retroviral and anti-pathogenic effects

Anti-retroviral properties means that the product has the potential to treat or prevent infection by retroviruses (HIV is an example of a retrovirus). Townsend and his colleagues evaluated the product and identified anti-retroviral as well as anti-pathogenic properties in BAS™.³ Anti-pathogenic properties mean that the product can act against pathogens (pathogens are microorganisms that cause disease such as bacteria).⁴ The study at Texas Tech University provided insights into the valuable contribution that modified sodium silicate could have in promoting health among people in the society.

Anti-cancer effect

¹Martin, K. R. (2007). The chemistry of silica and its potential health benefits. *The Journal of nutrition, health & aging*, 11(2), 94.

²In the current article, the mention of BAS™ can be equated to sodium biosilicate (the product being recommended)

³Townsend D., White L.M., Lester C.E., DeLeon R.C., Cisneros I., Maitin V., Richardson C.R. and Vatter D.A. (2011). Evaluation of Potential Anti-Pathogenic and Anti-Retroviral Effects of a Proprietary Bioactive Silicate BAS™. *International Journal of Applied Research in Natural Products*, 3(4): 19-28

⁴Ibid

The benefits of modified sodium silicate extend to other areas anatomy and general medicine. Cancer is a disease that causes numerous deaths across the globe (approximately 8.8 million deaths in a year based on 2015 statistics). A study by Vattem and Richardson identified that BASTM has important anti-cancer effects – particularly with respect to reduction in tumor size as well as drop in remission occurrence.⁵ The study additionally points out that BASTM can help in chemotherapy through an increase in effectiveness coupled with reduction in side effects. The potential of the product to realize the outcomes, though, is still under evaluation by other researchers who are focusing on dose dependency. And the claims are yet to be approved by the Food and Drug Administration. Successful conduct of further studies may result in BASTM being utilized more officially in future as a means to create alternative or complimentary strategies for managing and preventing a number of forms of cancer.⁶ The seminal study by Richardson and Vattem also acknowledges that BASTM has the capability to reduce infections (anti-retroviral properties) and poisoning that is linked with various pathogens (anti-pathogenic properties). According to the researchers, the compound (BASTM) has been proven to alleviate symptoms that are linked with a number of viral diseases including warts, influenza, HIV and herpes. The findings represents a valuable development in efforts to treat illnesses that have in the past been problematic to treat and manage.

A deeper look into the study by Richardson and Vattem create insights into exactly how modified sodium silicate can be utilized in promoting positive health. The study narrowed its scope to two variables – HIV virus and Cancer. Upon conduction of in vitro tests to evaluate anti-cancer effects of the compound, the researchers identified that the compound prevented cancer cells from attaching to the colon in a manner that is dose-dependent.⁷ Additionally, it contributed to a reduction in harmful mutations in the DNA (similarly dose-dependent). The compound was also found to stimulate critical anti-oxidant enzymes. On the HIV virus, the study showed that use of BASTM led to an increase in “nitric oxide dependent anti-retroviral effects”⁸. Further the compound impeded enzymes that are critical in viral assembly, replication as well as metabolism. The inference is that the product has the potential to prevent viral

⁵ Richardson R.C. and Vattem D.A. (2009). *Test the cancer chemotherapeutic and anti-retroviral effects of Bioactive Silicate in cell cultures and other in vitro systems*. Texas State University, Orizon Research Institute.

⁶Ibid

⁷Ibid

⁸Ibid

infections from occurring by impeding viral assembly. Further, in infected individuals, the product can help avoid replication of the virus by impeding viral assembly.

The discussion provided above provides a foundation on which future research can be conducted to explore the most effective manner in which to employ modified sodium silicate in health care and nutrition in order to improve the health and welfare of people. Numerous isolated other studies have found benefits of silica including in the prevention and treatment of postmenopausal osteoporosis,⁹ and immunology.¹⁰ The substance would appear to be recommendable for health conscious people as it is shown to possess qualities or properties that will improve immunity and contribute to better health. Creating awareness regarding this product is important given that not many people take into consideration when evaluating dietary options.

Possible benefits for Alzheimer's disease

Currently there are about 4 million cases of Alzheimer's disease, just in the United States. Studies suggest that upwards of half of all people over 80 years old have Alzheimer's disease. The symptoms are well known to many.

- Memory Loss
- Reduction in Reasoning Ability
- Difficulty with Speech
- Behavioral Disorders

The disease is progressive, the deterioration irreversible, and is considered fatal. There is currently no effective treatment, let alone cure.¹¹

Several studies have discovered aluminium in the senile plaques and neurofibrillary tangles in the brains of Alzheimer's patients.¹² These aluminium atoms in the brain complex with

⁹Price, C. T., Koval, K. J., & Langford, J. R. (2013). Silicon: a review of its potential role in the prevention and treatment of postmenopausal osteoporosis. *International journal of endocrinology*, 2013.

¹⁰Shen, G. Q., Ojo-Amaize, E. A., Agopian, M. S., & Peter, J. B. (1996). Silicate antibodies in women with silicone breast implants: development of an assay for detection of humoral immunity. *Clinical and diagnostic laboratory immunology*, 3(2), 162-166.

¹¹Noremborg, S., Bohrer, D., Schetinger, M. R., Bairos, A. V., Gutierrez, J., Gonçalves, J. F., ... & Santos, F. W. (2016). Silicon reverses lipid peroxidation but not acetylcholinesterase activity induced by long-term exposure to low aluminum levels in rat brain regions. *Biological trace element research*, 169(1), 77-85.

β -amyloid or neurofilament proteins. Also, some epidemiological studies have indicated a strong direct correlation between aluminium sources in local water supplies and the incidence of Alzheimer's disease.¹³ The goals in providing treatment for Alzheimer's patients include:

- Safe, effective, and inexpensive method for both the treatment and the prevention of the disease.
- Non-invasive techniques to be used since even patients with early Alzheimer's symptoms can be easily confused, and invasive procedures will be more difficult to administer.
- A simple method of administering the treatment is desired, such as a pill, injection or an implant.

By inhibiting the interaction between the aluminium and β -amyloid or neurofilament protein the silicon compound reduces or reverses the formation of neurofibrillary tangles and/or senile plaques. The silicon compound can be a salt, sodium silicate, silicon tetra acetate, sodium metasilicate or an acid such as silicic acid, an oxide, or any number of combinations thereof.¹⁴

In some situations, these silicon compound will inhibit the interaction between the aluminium and the neurofilament protein so it partially prevents the formation of, or partially reverses a previously formed neurofibrillary tangle. Other times, the silicon compound will inhibit the interaction between the aluminium and the β -amyloid so it partially prevents, or partially reverses a previously formed senile plaque. There are various methods of administering the silicon compound to alter these effects.¹⁵

Administering this silicon compound to those patients showing symptoms of dementia is how sodium silicate could have direct benefits for those with Alzheimer's disease. The concept is yet to be tested on humans; however, testing on rats and sheep has found that increasing silicon

¹²Whiteside, M., & Herndon, J. M. (2018). Aerosolized coal fly ash: Risk factor for neurodegenerative disease. *Europe*, 7, 8.

¹³Foster, H. D. (2000). How aluminium causes Alzheimer's disease: the implications for prevention and treatment of Foster's multiple antagonist hypothesis. *Journal of Orthomolecular Medicine*, 15(1), 21-51.

¹⁴Edwardson JA and Lacey RF (1989). Geographical relation between Alzheimer's disease and aluminum in drinking water. *Lancet*, 1, 59-62

¹⁵Fasman, G. (1994) Method for treating and preventing Alzheimer's Disease. Retrieved from <https://patents.google.com/patent/US5523295A/en>

in the diet has a protective effect on brain aluminium levels. In other words, specimens that consumed silicon had lower aluminium neurotoxicity.¹⁶ What has been proven however is that silicon has a strong absorbing effect on aluminium in the body. Edwardson and others gave volunteers orange juice with trace levels of aluminium and then measured the aluminium. Six weeks later, they repeated the process but added sodium silicate to the orange juice and trace aluminium. They found that the later resulted in aluminium readings that were only 15 percent of the orange juice and aluminium.¹⁷

Supplementation

Supplements are products that are taken in addition to the normal diet based on their high nutrient content and with the objective of improving the quality of life. The value of including modified sodium silicate as supplement in one's diet is associated with its potential benefits and low consumption of the product in people's diets. While sodium is a mineral in some food products, it does not contain the same properties as the modified sodium silicate compound. Statistics show that approximately 90 percent of Americans who are aged 2 and above consume too much sodium. Sodium is a recommended nutrient due to its health improving properties including muscle contraction, water balance in a person's body and nerve conduction. Just as sodium is recommended as a nutrient, other nutrients that have potential health benefits and are presently not being consumed in adequate amounts should be accommodated. Modified sodium silicate is one such nutrient and as evidenced from the Richardson and Vatter study and the Townsend team study, the product contributes to better health of people. An additional study that can be discussed to illustrate the continued affirmation of the health benefits of modified sodium silicate is a study conducted by Capalbo and his team in the year 2010.¹⁸ The researchers used several approaches to test the different parameters that were under study such as Ames test to

¹⁶ Abraham, G. E. (2005). The importance of bioactive silicates in human health. The Original Internist. Spring, 16.

¹⁷ Edwardson JA, Moore PB, Ferrier IN, Lilley JS, Newton GWA, Barker J, Templar J, Day JP (1991) Effect of silicon on gastrointestinal absorption of aluminum. Lancet, 342, 211-2; Martyn CN, Barker DJO, Osmond C, Harris EC,

¹⁸ Capalbo E.L., Townsend D.L., White L.M., Chestnut T., Duesler S., Cisneros I., Richardson C.R. and Vatter D.A. (2010). *Cancer Chemotherapeutic Effects of Modified Sodium Silicate (BAS™)*. Texas State University, Orizon Research Institute.

identify antimutagenic effects.¹⁹ Standard methods were employed in evaluating the capability of the compound (BASTM) to prevent attachment of cancer cells on the colon and growth of cancer cells. Findings showed that BASTM caused attachment of cancer cells on the colon to decline. Additionally, the compound caused growth of cancer cells to decline hence indicating that BASTM has the capability to reduce progression of cancer.²⁰

The fact that the compound deters attachment of cancer cells on the colon is an indication that the product is not only recommendable in treatment of cancer but that other people can use it as a preventive measure. By consuming the product as a dietary supplement, one reduces their likelihood of developing cancer (colon cancer to be specific since the study here included focused on the colon). On anti-retroviral effects, Richardson and Vatter found that the product impeded enzymes that are critical in enzyme assembly.²¹ Consequently, consuming the product as a supplement reduces one's chances of being infected by retroviruses that cause diseases like herpes, HIV and warts. The inference made is that any individual can benefit from including sodium biosilicate in their diet – whether they are healthy or ill. For healthy individuals, it improves your immunity against pathogens, retroviruses and cancer cell growth. For ill people (cancer patients, viral infections and pathogenic diseases), it reduces progression and enhances one's ability to manage their illness.

Conclusion

Improvement in quality of life is a priority for every individual in the society. While there are many dietary supplements that are already in use to provide essential nutrients and contribute to improvement in quality of life, a new supplement – modified sodium silicate, would appear to offer benefits. The value of this product is evidenced in its capability to improve immunity against problematic diseases and inhibit progression of such diseases. Presently, there is scientific evidence (based on the studies discussed above) that the product reduces likelihood of one developing antiretroviral infections and pathogenic illnesses. The highlight is on the

¹⁹ Ibid

²⁰ Ibid

²¹ Richardson R.C. and Vatter D.A. (2009). *Test the cancer chemotherapeutic and anti-retroviral effects of Bioactive Silicate in cell cultures and other in vitro systems*. Texas State University, Orizon Research Institute.

potential that the product has to reduce likelihood of developing cancer and reducing progression of cancer.

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