ZEOLITE SCIENTIFIC RESEARCH

Micronised Zeolite Scientific Research

In Eastern Europe medical scientists are continually researching the clinical benefits of the natural zeolite clinoptilolite, in this case tribo-mechanically activated zeolite (TMAZ), a product which is very similar to Australian micronized clinoptilolite but much finer.

A turbo mechanical mill has two rotors which rotate in opposite directions, creating an area in the centre where particles collide with each other at a speed of 3,000 km per hour (when the rotors are each spun at 22,000 rpm). When the zeolite powder is fed into this chamber the particles collide and break down to a minute size, up to 1,000 difference in particle size is achievable. These minute particles are more active than micronized zeolite. As the centrifugal forces are enormous the mill needs massive anchoring. There are no large turbo mechanical mills in Australia so TMAZ is not readily available in Australia.

A particle size similar to TMAZ can be achieved by treating Australian micronised zeolite powder using the boiling method.

The Eastern European studies I read commenced in 1997 and as far as I know are still continuing today. Published biological data from this area has already shown that micronized zeolite protects against toxic bacterial effects or poisons and also helps to prevent osteoporosis.

At a recent symposium in Eastern Europe the toxicology of TMAZ and its effects on various physiological systems were investigated. At this symposium temporary clinical trials of a dietary mineral supplement containing 50% TMAZ were presented. The TMAZ was recognised as the “active” component of this mineral supplement. The trials focussed on

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The results of the temporary trials encouraged using the mineral supplement with seriously ill people and highlighted the need for "double-blinded" trials as soon as possible. The medical scientists at the symposium agreed to intensify their basic research, starting with controlled studies.

Anecdotal cases of more than 200 patients who were taking the mineral

supplement were reported at the symposium.
Some temporary side effects were noted, namely an initial temporary increase in body temperature in some cases and short term diarrhoea was experienced by some people with liver disease. Within three days all side effects had gone, presumably they were symptoms of detoxification.
Radiotherapy and chemotherapy patients in these trials found that the uncomfortable side effects of their treatments decreased and some of the indicators to their disease normalized. In other patients the diffusion capacity of the lungs and the contractions of the heart muscle both increased.
In fact, the general condition of the sick people improved, their appetites returned and they gained weight, their requests for analgesics were reduced and in some cases totally disappeared. In most cases the patients were sleeping well, their depression had lifted and their will for life had been restored.
Further research is continuing in Eastern Europe aiming to prove the biomedical characteristics of this active crystal powder. In the meantime, medical researchers involved in the project are advising that not only should the mineral supplement be taken in the early stages of disease but also by sufferers of advanced cancer. They feel that TMAZ can help in cases where medicine has no suitable solutions but they realize that at this stage it is too early to talk about it.
people with advanced malignant tumours and systemic illnesses.

Clinical Observations
The same mineral supplement was used in other Eastern Europe clinical trials with the aim of judging its effect on clinical indicators, noting any improvements in the general condition
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In these trials three groups were tested. Side effects were the same as noted in the previous trials, i.e. some patients experienced temporary higher body temperatures and a short term bout of diarrhoea. Once again, after three days the general condition of all patients in the trials improved.
The first group consisted of 55 patients who were suffering from various forms of cancer and who had either undergone chemotherapy and ray treatments or were still receiving the treatments. All of these people were in poor condition, their haematological results were degraded, most were anaemic, in pain and suffering from loss of strength. The group were given relatively high doses of the mineral supplement.

Many of the chemotherapy patients in this group had developed an uncomfortable fungus in the mouth and gullet (candida) during their treatment. Within three days of taking the mineral supplement these symptoms disappeared, within seven days their blood counts started to normalize and within fifteen days their enzymes and LDH had also normalized. The general condition of all patients improved dramatically, their appetites returned and they gained weight.

The second group were two patients suffering with lupus, three patients with coagenosis and three patients with lung fibrosis. This group took smaller amounts of the mineral supplement and were observed for haematological and biochemical indicators as well as the functional indicators of lung capacity and diffusion. It was found that once again the enzymes and LDH normalised. Lung capacity and diffusion also improved, in addition contractions of the heart muscles became stronger.

The third group had various problems - some had diabetes, some had inflammation of the muscle system and some had hepatitis B and C. This group of patients took even smaller amounts of the mineral supplement. As with the two previous studies, the general condition of the patients improved rapidly. The patients with diabetes showed a rise in sugar levels, there was pain reduction in the inflamed muscles and it was found that the enzyme level of patients with hepatitis B and C had normalised quickly.

These three trials concluded with the recommendation that further trials be continued with a defined programme.

Zeolite and Mutating Cells

An interesting report by the Vice President of an overseas organisation which promotes overall treatment of chronic disease(3) describes three reasons why cells mutate and give up their “normal” existence.

First are the changes which are caused by external influences, e.g. all bacterial and viral diseases.

Second are diseases where cells are directly damaged by external agents, e.g. ingesting harmful substances and poisons through the respiratory tract, oesophagus, or through the skin.

According to the report the third reason is the worst, diseases such as cancer, MS, Alzheimer's and many others which apparently develop without any external influence, they seem to have been dormant in the body from birth.

of the patients and investigating the usefulness of further clinical observations.

The report concentrates on this puzzling last reason for cell mutation. It explains that these chronic diseases all have one thing in common, they are caused by cells trying to get back to their primordial state. These cells break away and try to live without oxygen. Their objective is to become autonomous - independent of the “force feeding” carried out by the circulatory system. This is how one-celled organisms lived millions of years ago, a more primitive but efficient lifestyle for individual cells.

This "atrophic" state is only possible in water and to survive in water, the cell must degenerate and reduce its pH level closer to that of normal water, which has a pH level of exactly 7.0. However, a pH level of 7.0 is too low for the human body which requires a pH level very close to 7.4. Even a fluctuation in pH level of as little as 0.1 can lead to severe problems. The pH level is the “potentia hydrogenii” or hydrogen-ion concentration.

This degeneration means that the "breakaway" cells have a lower pH value than all the normal cells surrounding them.

Once a cell has created its comparatively "acid environment" away from the normal body cells it begins to divide, giving birth to new cells whose pH level is too low to live in the normal environment. The disease becomes progressive, branching out and advancing - this is clearly visible in the case of growing tumours.

The alarming thing is that once a cell has become abnormal in this way, it can never produce normal cells again. Without external intervention, a disease of this type will always get worse.

There are different forms of external intervention used by conventional medical practitioners - removing the cells by surgical means or trying to destroy them with chemotherapy and radiotherapy. Even though these treatments can be successful there is always the danger of healthy cells being damaged as well.

The report mentions that, even though other treatment procedures are widely unknown, there is in fact a different approach which can stop the progression of the disease.

The idea is not to remove the mutated cells but to remove their food supply. This can be achieved by trying to restore the mutated cells to a normal pH level or, if this is not possible, to make it impossible for the mutated cells to survive by normalising the pH level of its environment. Both of these methods have proved successful during numerous in vitro and in vivo trials by world-renowned scientists.

The use of TMAZ allows development of a natural and completely non-toxic substance capable of penetrating the cell membrane and influencing the cell. This does away with the problem of having to differentiate between normal and abnormal cells in a specific treatment. The TMAZ mineral supplement which is the subject of the report brings all cells to a healthy pH level. There is no need to differentiate between healthy and diseased cells.
The effect of ingesting TMAZ is that cells are either restored to normal, as far as possible, or at the least they are not able to reproduce in an environment which is maintained at a “normal" pH level. Since all cells, healthy or sick, have a limited lifetime, these mutated cells die in about six weeks without reproducing.
This process produces a very striking improvement in the patient's general condition and definitely increases their quality of life.
Zeolite’ Effect on Microbiological Activity
The report goes on to say that examinations have been made to prove the possible influence of TMAZ on microbiological activity, especially on the activity of some kinds of bacteria.

The results have shown that there is a various effect on single kinds of bacteria, depending on the added quantity of TMAZ, the kind and the initial number of bacteria and the time and temperature of the incubation. There was an important hindrance to the growth of the bacteria Lactobacillus brevis, Escherichia coli and Salmonella enteritidis.
Further studies were made on behalf of the food industry. Examination focussed on the yeast Saccharomyces cerevisiae, investigating whether the addition of zeolite had any effect on fermentation activity of this yeast on the suspension of flour.
The results showed that the addition of both sterilized and non-sterilized zeolite accelerated the fermentation activity of yeast, which was put down to the presence of certain microelements known to accelerate the growth of yeast. The report draws further conclusions regarding micro organisms and ratios. In this study It was found that the addition of a smaller amount of zeolite produced the greatest effect on the quantity of flour. The addition of a larger amount of zeolite produced a smaller effect on the activity of the yeast.
Zeolite Proven to be Non Toxic
Further studies have been carried out in Eastern Europe, under the guidelines of the OECD(4), One study shows that TMAZ “has shown neither toxic nor mutagenic

effects in acute, subchronic and cronic toxicology studies".

Link Between Measured TAS (Total Antioxidant Status) Level and Dosage of Zeolite Mineral Supplement

Another study was carried out(5) which measured the correlation between TAS (Total Antioxidant Status) and dosage of zeolite mineral supplement taken. The levels of 33 people were tested, 22 people were healthy and 11 people were sick. A Table in the study shows a comparison between the healthy people who took an average of 3 mineral supplement capsules daily and the sick people who took 12 mineral supplement capsules daily. The Table shows that in spite of the healthy people's good condition, their TAS level was lower than the TAS levels of the sick people who took the increased daily dosage of mineral supplement.

The report concluded that antioxidant therapy, especially on patients with a naturally low defence system and on those suffering from chronic diseases, has been proven successful ..... but not in the final phase of disease and not as a mono-therapy, more as an addition to prescribed therapy.

Another conclusion was that it should be "emphasised that antioxidants show the best effects when they are taken as a prevention".

Zeolite Fights Against Free Radicals and Diseases

Another report from the same area looks at using zeolite in the fight against free radicals,

targeted as being "the most responsible factors of many pathological conditions in an

(6) organism" .

The report outlines that 90% of disease, also ageing itself, appears as the result of "cellular functional disorder and the damage of the cell itself, what is caused by direct or indirect influence of Oxygen Free Radicals. Free radicals supervise many processes in transmission of signals and expression of genes."

It goes on to discuss the interest of multinational pharmaceutical companies around the globe who are aiming to make products "which can supervise and regulate redox processes

in the cells and tissues and that way to control the diseases." He mentions that among all these attempts, the research group from Eastern Europe(7) has gone the furthest, marketing a "powerful antioxidant and imunomodulate" in their area as a dietary mineral supplement.

Free Radicals

The report defines free radicals as “chemical species which can have one or more unpaired electrons in the outer layer (free electron) and because of that they cause different chemical reactions which lead to changes on the biomolecular level”. While searching for the ‘lost’ electron, free radicals start a chain of chemical reactions with some proteins, carbohydrates and enzymes as well as with the cellular DNA itself. This damages the cell and finally kills it.

The report advises that ..... “Smoking, incorrect eating habits, different radiation and exposure to harmful chemicals decrease natural defensive power of an organism and increase the danger of free radicals aggression. For example: science studies have shown that smoking individuals have DNA 30 to 40 times more damaged than non-smoking individuals. So, cells and tissues are constantly exposed to the affection of oxygen radicals which are taken in from outside or of oxygen free radicals which are formed as the secondary products of some phases of metabolism processes, and because of that cells and tissues are in the constant danger of oxidative changes.

The report tells that a cell can protect itself from the harmful effects of free radicals with its own antioxidant system but that over time this defence system weakens from the attack of free radicals. The cell’s defence system then becomes insufficient to protect itself resulting in cell damage followed by disease.

According to the report an organism uses two different defensive mechanisms. One of these is its own defence system which “controls creation of free radicals and repairs damaged tissues”. The other defensive mechanism is natural antioxidants like vitamins A, C and E, carotenoids, flavonoids, coenzymes Q10 and others. These natural antioxidants are absorbed from food and different vitamin and mineral supplements.

The report states that .....”Some of those vitamin and minerals products are about to become a medicine of the 21st century. As a powerful antioxidant and regulator of a redox process in cells TMAZ belongs to those products.”

When Should Zeolite not be Taken?

The effect of the mineral supplement on the life quality of more than 50 patients was

observed by a doctor who wanted to help people who were desperately ill with malignant

illnesses . The influence on life quality was observed, the reduction of patient

complaints
during chemotherapy and ray treatments was observed as well as the compatibility of the mineral supplement based on TMAZ.
The decision to give the mineral supplement to this group of very sick patients was made after he, some of his family members and some of his friends had all taken the mineral supplement themselves and observed the results. None of them noticed any side effects, in fact they all felt psychologically and physiologically better. They all had blood tests before starting the trial and during the trial. He states that during the whole time there was “no deviation of the physiological results”.
He chose patients who had valid medical documentation backing up their diagnosis of malignant illness, the experiments were not dependent on sex or age. The patients took part in the series of experiments at their own request or of their next of kin. All patients had already undergone standard treatments. The patients were divided into many sub groups according to the duration and type of illness and whether they are operable or inoperable.
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Some of the patients died during the experimental trials. They were in the terminal stages of malignant illness receiving therapy for symptoms and pain relief when required. The life quality of all these patients improved after taking the mineral supplement ..... their appetites increased, they gained weight and their requests for pain relief were less frequent. During the observation of all patients it was shown that family support is of a great meaning. Of these patients, especially the ones living at home, seemed to brighten up and take an interest in life again. They all lived longer than expected, to the surprise of their general practitioners.
One 82 year old woman with lung cancer was dismissed from hospital to die at home. After taking the mineral supplement she stopped complaining of pain and aggravated breathing, her confidence in herself was restored, she became more mobile, started to carry out her own housework and told neighbours that she had recovered. After a severe period of intensely hot weather she died after lying in bed for two weeks.
Another terminally ill patient on the trial was mobile until the last week before he died. He was still driving the car, had gone to stay at the sea side and had worked in his garden and in the house. He died after a sudden feeling of weakness on the second day of being stationary.
A patient with an inoperable Rectumblastom took the mineral supplement for eight

months. Before the trial the patient spent most of the time in bed. After taking the mineral supplement he got up out of bed more frequently, sometimes he even went to his workshop, he drove a car, visited friends, he distilled schnapps and was heard singing in his yard, he watched TV. During the whole length of the illness he occasionally went to the hospital were he was treated with symptomatic therapy in addition to his blood substitute. On the day of his last hospital visit, he was found dead in the morning. The doctors in the Surgical Department were surprised that a patient who was so heavily ill could get by with such low quantities of analgesics.
A group of 35 cancer patients remained under observation for the length of the trial. Some of the patients had already undergone chemotherapy and ray treatments, other patients were undertaking "zytostatic therapy". Life quality of this group was observed.
It was found that sleeplessness and depression decreased, emotional situations improved, life will increased, stress tolerance and frustration tolerance increased, the physical situation improved. There was better mobility, pains were less distinctive or not there anymore, the ability to carrying out daily chores was regained. Other benefits were an increase in appetite, weight gain, regular bowel movements.
A group of patients who had been treated with chemotherapy or who had undergone ray treatment were found to be "more consistent to the therapies", hardly ever complaining about nausea and showing signs of speedy recovery after courses of chemotherapy and ray treatments.
One patient in the trial started taking the mineral supplement about ten weeks after being diagnosed with a tumour (Lymphosarcom) in the left thigh. He takes 30 capsules every day.
Since then the tumour in his left thigh has shrunk from the size of the head of an adult to the size of a grapefruit. The skin above the tumour has returned to its normal colour, the "vessel drawing" above the tumour has disappeared. The associated tumour growth on his neck completely disappeared as well as many other changes (20 mentioned).
Due to the seriousness of the patient's illness therapy was started with one capsule of mineral supplement three times on the first day, the dose was increased every second day until a dose of 30 capsules daily was reached.

The once immobile patient became completely mobile again, in just six weeks he was walking as upright as he had before he became ill. In the summer he walked up to two miles every day, went to the sea and went swimming and gained 25 kg in weight. At the request of his parents, the patient was not told the full extent of his diagnosis, so his improved situation cannot be used for necessary examinations.
Another patient had operative intervention for colon cancer in 1994. He had metastases in the liver and lungs which were classified as inoperable. The patient started a trial of the mineral supplement about four years later at the beginning of May 1998. Five months later, in October 1998, an ultrasound examination of the liver showed an "unobtrusive echo in the area of the metastasis" which had been diagnosed in a control examination performed in February 1998, three months before starting the trial. The x-rays of the lung performed in October 1998 do not show "a stamp form of metastasis shadows", another symptom which showed up in the pre trial examination performed in February 1998.
This patient took an amazing amount of mineral supplement capsules. In October 1998 the dosage was increased, the patient taking one capsule every half hour. With the intention of increasing the effect he started to take two capsules and noticed "that the area of skin above the metastasis in the liver became warmer for some degrees". After that he reduced the dose to one capsule every half-hour, but later increased the dose until he no longer needed to take morphine or other opiates at night. One week after taking the increased dose he was not taking any more opiates.
The doctor reported that all patients showed consistent results and no side effects were observed. He concluded by stating that he could not think of any situation where the mineral supplement should not be taken.
Many more interesting and informative studies have been made, too many to list here. A general improvement of the person's overall well being seems to be the common thread through them all.
Synthetic zeolites are used medically, some of them are grown in space. The following article used to be located at http://www.spacehab.com/mission/previous_missions/57/exp_57_3.htm but is no longer there.
Support of Crystal Growth Experiment
The Battelle Advanced Materials Center, a NASA Center for the Commercial Development of Space (CCDS) based in Columbus, Ohio, is sponsoring the Support of Crystal Growth (SCG) Experiment on SPACEHAB-1.
This experiment was a successor to one that was conducted in the Spacelab

glovebox flown on the first United States Microgravity Laboratory (USML-1) mission in July 1992. SCG supports the Zeolite Crystal Growth (ZCG) experiment also flying in the SPACEHAB in that it provides the invaluable information required to establish the ZCG autoclave mixing protocol so that the resulting crystal growth is optimized.

Ground-based and flight research has shown that mixing of the zeolite precursor solutions is critical to producing high quality crystals. Nuclear magnetic resonance imaging studies, KC- 135 flights, and analysis of the USML-1 results demonstrate the need to optimize the mixing process (uniform mixing while minimizing shear). Determining the proper amount of mixing remains an empirical science, and therefore must utilize crew observation and judgment which requires extensive training and experience.

The Principal Investigator is Dr. Al Sacco, Jr., Worcester Polytechnic Institute, Worcester, MA. Lisa McCauley, Battelle Advanced Materials Center, is the flight program manager.

Zeolite Crystal Growth

STS-57 was the second Shuttle flight of the Zeolite Crystal Growth (ZCG) payload, developed by the Battelle Advanced Materials Center, Columbus, OH, a NASA Center for the Commercial Development of Space (CCDS). The ZCG experiment flew on the first United States Microgravity Laboratory (USML-1) Shuttle mission (July 1992) and the results appear very positive and all mission objectives were accomplished.

Zeolite crystals are complex arrangements of silica and alumina which occur both naturally and synthetically. An open, three-dimensional, crystalline structure enables the crystals to selectively absorb elements or compounds. As a result, the crystals are highly useful as catalysts, molecular sieves, absorbents and ion exchange materials.

Zeolites are used for purification and catalytic purposes. As a purifier, zeolites work as molecular-scale sieves to remove contaminants from solutions. If improved zeolites were used in kidney dialysis as a purifier, the time needed to complete dialysis could be significantly reduced."

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