How Potentized Silicea Works as Homeopathic Scalpel- Exploring the Biochemistry Involved

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Materia Medica of Silicea says: “Silica can stimulate the organism to re-absorb fibrotic conditions and scar-tissue. Ripens abscess since it promotes suppuration. Promotes expulsion of foreign bodies from tissues. In phthisis, it must be used with care, for here it may cause the absorption of scar-tissue, liberate the disease, walled in, to new activities.”

“Re-absorbing of fibrotic scar tissues, ripening, opening up and healing of abscesses by promoting suppuration, expulsion of foreign bodies from tissues”- these clinically well established homeopathic properties of SILICEA have assigned it a honorable title- “homeopathic scalpel”. Exactly, in homeopathic doses silica causes absorption of scar tissue being part of abscess walls, and ‘liberates the contents, walled in’.

Some homeopaths prefer to use silica as ‘homeopathic scalpel’ in ‘high potencies’- in 30c or above, where as there are others who use it as triturations- 3x, 6x etc. All of them vouch excellent results, but molecular mechanism of ‘scalpel’ actions of silica in ‘molecular forms’ and ‘molecular imprints’ forms are entirely different, as explained later in this article.

How and why silica acts as ‘homeopathic scalpel’? To provide a scientific explanation to this phenomenon, we have to inquire deeply into the exact role of silica in biological systems.

Silicea is known as a polycrest remedy in homeopathy. Silica, which is also known as silicea in homeopathic pharmacy, is the chemical compound silicon dioxide. It is an oxide of chemical element silicon, with the chemical formula SiO2.

Silica is most commonly found in nature as sand or quartz. Measured by mass, silicon makes up 27.7% of the earth's crust and is the second most abundant element in the crust, with only oxygen having a greater abundance. Silicon is usually found in the form of complex silicate minerals, and less often as silicon dioxide or silica, a major
component of common sand. Pure silicon crystals are very rarely found in nature. The silicate minerals—various minerals containing silicon, oxygen and reactive metals—account for 90% of the mass of the earth’s crust.

Ocean bed is covered by diatoms, cells of which contain large quantities of silica. Silica is the primary compound in rice husk and coconut shells. Stems of various plants, such as rice, bamboo etc also contain silica in large amounts.

Silicon is an essential element in biology, although only tiny traces of it appear to be required by animals however various sea sponges need silicon in order to have structure. It is much more important to the metabolism of plants, particularly many grasses, and silica in the form of silicic acid act as the basis of the striking array of protective shells of the microscopic diatoms.

Diatoms, radiolaria and siliceous sponges use biogenic silica as a structural material to construct skeletons. In more advanced plants, the silica phytoliths (opal phytoliths) are rigid microscopic bodies occurring in the cell; some plants, for example rice, need silicon for their growth. Although silicon was proposed to be an ultra trace nutrient, its exact function in the biology of animals is still under discussion. Higher organisms are only known to use it in very limited amounts in the form of silicic acid and soluble silicates.

Silicon is currently considered as a "plant beneficial substance by the Association of American Plant Food Control Officials (AAPFCO). Silicon has been shown in university and field studies to improve plant cell wall strength and structural integrity, improve drought and frost resistance, decrease lodging potential and boost the plant's natural pest and disease fighting systems. Silicon has also been shown to improve plant vigor and physiology by improving root mass and density, and increasing above ground plant biomass and crop yields.

It has been proved that Silica can bind to DNA and RNA in certain situations. Silicification in and by cells has been common in the biological world for well over a billion years. In the modern world it occurs in bacteria, single-celled organisms, plants, and animals (invertebrates and vertebrates). Examples include: ‘frustules’ of ‘diatoms’, Silica ‘phytoliths’ in the cells of many plants, practically all grasses. The spicules which form the skeleton of many primitive creatures are also rich in silica.
Crystalline silica formed in the physiological environment often show exceptional physical properties—e.g. strength, hardness, fracture toughness. Formation of the mineral may occur either within the cell wall of an organism (such as with phytoliths), or outside the cell wall, as typically happens with ‘tests’ and ‘diatoms’. Specific biochemical reactions exist for mineral deposition. Such reactions include those that involve lipids, proteins, and carbohydrates.

It is yet unclear in what ways silica is important in the nutrition of developed animal species. This remains a challenging field of research, due to its ubiquitous presence in the environment and in most circumstances it dissolves in trace quantities into the animal bodies. It certainly does occur in the living body, leaving us with the problem that it is hard to create proper silica-free controls for purposes of research. This makes it difficult for researchers to be sure when the silica present has had operative beneficial effects, and when its presence is coincidental, or even harmful.

As per latest studies, silica is recognized to play many important roles in the growth, strength, and management of many connective tissues. This is true not only for hard connective tissues such as bone and tooth.

Inhaling finely divided crystalline silica dust in very small quantities over time can lead to silicosis, bronchitis, or cancer, as the dust becomes lodged in the lungs and continuously irritates them, reducing lung capacities by inducing synthesis and accumulation of Type 1 collagen fibrils around the silica deposits. In the body, crystalline silica particles do not dissolve over clinically relevant periods of time. This effect can create an occupational hazard for people working with sandblasting equipment, products that contain powdered crystalline silica and so on. Children, asthmatics of any age, allergy sufferers, and the elderly can be affected in much less time. Even though amorphous silica, such as fumed silica is not associated with development of silicosis, but it may cause irreversible lung damage in some cases.

Continuing research of the correlation of aluminium and Alzheimer’s disease has in the last few years included the use of silicic acid in beverages, due to its abilities to both reduce aluminium uptake in the digestive system as well as cause renal excretion of aluminium.

A study which followed subjects for 15 years found that higher levels of silica in water appeared to decrease the risk of dementia. The study found that with an increase of 10
milligram-per-day of the intake of silica in drinking water, the risk of dementia dropped by 11%.

Choline stabilized silica in the form of orthosilicic acid is now used as bioavailable nutritional supplement. It has been shown to prevent the loss of hair tensile strength, have positive effect on skin surface and skin mechanical properties, and on brittleness of hair and nails, abate brittle nail syndrome, partially prevent femoral bone loss, increase collagen concentration in calves, and have potential beneficial effect on bone collagen formation in osteopenic females.

Study has shown that physiological concentration of Silica in the form of orthosilicic acid stimulates Type 1 Collagen synthesis and osteoblastic differentiation in human osteoblast-like cells in vitro. **Collagen** is a group of naturally occurring proteins found in animals, especially in the flesh and connective tissues of mammals. It is the main component of connective tissue, and is the most abundant protein in mammals, making up about 25% to 35% of the whole-body protein content. Collagen, in the form of elongated fibrils, is mostly found in fibrous tissues such as tendon, ligament and skin, and is also abundant in cornea, cartilage, bone, blood vessels, the gut, and intervertebral disc. The fibroblast is the most common cell which creates collagen. In muscle tissue, it serves as a major component of the endomysium. Collagen constitutes one to two percent of muscle tissue, and accounts for 6% of the weight of strong, tendinous muscles.

Collagen, a key component of the animal extracellular matrix, is made through cleavage of pro-collagen by the enzyme collagenase once it has been secreted from the cell. This stops large structures from forming inside the cell itself. Collagenase production can be induced during an immune response, by cytokines that stimulate cells such as fibroblasts and osteoblast, and cause indirect tissue damage. Silica is considered to play a key role in the activation of collagenase enzyme, when induced by the action of immune related signaling molecules known as cytokines.

Formation of abscesses involves a complex chain of biochemical processes induced by cytokines produced in response to immune reactions against foreign substance entering the tissues, such as foreign bodies and infectious agents. Cytokines induces chemotaxis of various immune bodies and white blood cells into the site of foreign body to fight against the intruder. A membrane is formed around the intruder by producing type 1 collagens fibrils embedded with in a layer formed of lipids, proteins and
carbohydrates, which encapsulates the foreign body. This capsule ripens into an abscess by accumulation of dead white cells. Finally, once the fight is over and infection is controlled, the collagen disintegrates and the capsule breaks open to discharge the contents.

It is well understood that silica plays a role in the process of membrane formation and encapsulation by promoting the production of type 1 collagen fibrils. Exact molecular mechanism of this role is not well understood yet. May be by acting as co-factors in activating collagenase enzyme to cleavage pro-collagen into collagen, which is the basic building material of capsular membrane of abscesses and cysts. Silicon is also considered to act as a hardening and stabilizing agent of collagen fibrils. During stage of ripening of abscesses, as concentration of inflammatory cytokines decrease, silicea also gradually decreases in collagen fibrils, thereby helping the disintegration of capsular membrane and opening up of abscesses.

Bilologically available crude silica particles help the process of formation of cysts and indurations around foreign bodies, presumably by supplying silicon ions to activate collagenase enzyme in the build up of type 1 collagen and capsular membranes. Silicon also infiltrates into cyst walls, and act as a structural ingredient. That is why silicosis develops in lungs due to accumulation of silica particles.

Triturated forms of silica below 12c contain ionized silica particles, which are highly activated by breaking of intermolecular bonds during process of trituration. These activated particles can compete with biological silica molecules in binding to collagen fibrils, there by resulting in removal of silica and inducing ripening of abscesses. But we should remember, using of these molecular forms of activated silica may pose dangerous to the organism, as they will create off-target molecular inhibitions and unexpected pathologies in various biochemical pathways in the organism.

Silica potentized above Avogadro limit contains only ‘molecular imprints’ of silica, without any silica molecules present. Due to complementary configuration, these molecular imprints can bind only to off target excess biological silica molecules , there by removing them from the collagen matrix, and helping in their disintegration, leading to easy maturation and opening up of abscess walls.
Potententized silica contains only ‘molecular imprints’, which cannot bind to any biological targets except off target silica. As such, they are safe to be used as ‘homeopathic scalpels’ without any fear of unwanted side effects.

It is the biological role of silicea as a cofactor in the synthesis of type 1 collagen, and its property of getting embedded in collagen fibrils that makes it an effective homeopathic therapeutic agent in potentized forms in many pathological conditions such as abscesses, indurations, cysts, skin problems, nail problems, joint problems, keloids etc etc.

This is only a humble introductory study on silica biochemistry in relation with its role in abscess formations. There remains a lot to be researched, explored and explained on this topic. A lot of questions yet remain to be answered.