

Short Communication

Multani Mitti – Is it more than a placebo?

“Multani mitti” or Fuller’s earth is a popular substance as home remedy in South Asia. It has been traditionally used as a cleanser for skin and hair in this part of the world for centuries. Though Fuller’s earth was used for cleaning wool in Europe, and in modern times is used to bleach oils or drill mud, as adsorbent and even in film industry to form dust clouds or as mud bath. People in South Asia, particularly India, Pakistan and Nepal use Multani mitti in daily life as face packs for enhancing their beauty or to cleanse hair. Often dermatology patients seek advice on using this readily available substance, in this scenario it is pertinent for clinicians to be aware of pros and cons of usage of Multani mitti.

“Multani mitti” is a popular home remedy amongst South Asians, either as cosmetic or in herbal products. Dermatologists frequently hear patients narrating their experience about natural/herbal therapies for their ailments including “Multani mitti”. Multani mitti has been in existence in Asian homes for centuries, however first documentation of its use was made only during colonial rule.¹

Majority of patients attending dermatology clinics in South Asian have used Multani mitti, a parting question “can I continue using Multani mitti on my skin” or “will it cause any harm if I use it?” leaves the treating physician unsure about how to address this query. We, therefore have explored this ubiquitous substance in detail, analyse implications of its use in dermatologic practice.

Multani mitti or Fuller's earth is any clay material that has the capability to decolourize oil or liquids without chemical treatment.^{2,3} It is an adsorbent clay consisting essentially of calcium montmorillonite. Montmorillonite is an aluminium silicate of approximate formula $(Al,Fe,Mg)_4Si_8O_{20}(OH)_4$, in which the relative amounts of Al, Fe, and Mg are not fixed. It should be distinguished from sodium montmorillonite, often known as bentonite.⁴

"Activated" Fuller's earth is obtained by chemical treatment. In addition to calcium montmorillonite, Fuller's earth contains small amounts of natural impurities, namely, calcite, feldspar, zinc blend, apatite, limonite, and rarely quartz. The earth when quarried is a grey, soap-like substance and; is basically crystalline. Electron microscope studies have shown these crystals to be very small, approximately 0.4×0.004 microns. Despite this basic crystalline structure the powder behaves as though it were amorphous. Its high adsorptive, base exchange, and bonding properties give it, its importance as an industrial substance.⁴ Ancient Greeks and Romans knew Fuller's earth as bleach and as a primitive soap. By the middle ages it was mainly used for scouring raw wool, for removing surplus dye from cloth, and finishing and thickening ("fulling") woolen cloth. It was at one time such a mainstay of the British woolen industry that smuggling it out of the country was a serious offence. It has also been used as a base for cosmetics, powders (e.g., baby/ napkin/ toilet powder) etc., currently its main uses are in industrial processes, such as refining lubricating oils, edible oils and technical oils. It is also used for bonding foundry moulding sand and for oil-well drilling.⁴

Etymology

Multani mitti is a clay which gets its name from a town – Multan (in pre-partitioned India), now in Pakistan. Referred to as “Fuller’s earth”, in the west, derives the name from cleaning process of wool; which involved rubbing it on wool and then washing it off thus the dirt and grease would be removed and wool appeared fuller or fluffy.

Chemical Properties

Multani mitti is essentially a clay consisting of Aluminium Silicate with other impurities in minimal proportions. Not much mention is made of its composition in Indian literature as opposed to the west. The composition may vary according to the area from where it is mined. Earliest reference from India was made about Jodhpur (Kapurdi) clay consisting of :

SiO₂ 47%
Al₂O₃ 23.3%
Fe₂O₃ 6.95%
CaO 2.9%
MgO traces

Multani mitti is a non-plastic clay with enough of water content. Among the properties formerly attributed to fuller’s earth are non-plasticity, disintegrating in water, detergent action, large water content, and the property of adhering to tongue. Fuller’s earth, as a rule, is lighter and more porous than other clays.⁵

Usage

Multani mitti was traditionally used for cleaning wool when it was referred to as fuller’s earth in the west. Used as a cleanser for face or hair in India, it is popular as a material for baths among mud bath enthusiasts in USA, ironically mud baths have never been popular among Asians, though this clay has been around forever.

Fuller’s earth was used in the laboratory to detect the addition of certain colouring matters to butter, whiskey, and artificial vinegar. In pharmacy it makes an excellent substitute for talcum powder, on account of its absorptive power. It was used as poultice for swellings, ulcers and sores.⁵

The major use of Fuller’s earth are in drilling mud, foundry-sand bond, binder for pelletizing iron ore. The minor uses include carrier for insecticides and fertilizers, filler in paint, adhesive and pharmaceutical products, binder for animal feed, sealant for waterproofing reservoirs and canals. It is used as soil liner for water treatment in Texas to contain petrochemical waste dumps and treating industrial ponds. It is also used with polyacrylamide to make paper.²

Multani mitti may be used to treat paraquat poisoning.⁶ It is used by military and civil service personnel to decontaminate clothing and equipment of responders who have been contaminated with chemical agents.⁷ Cat litter is cleaned using fuller’s earth. In the film industry Fuller’s earth has been extensively for special effects, pyrotechnics explosions, making dust clouds because it spreads farther and higher than most natural soils, resulting in a blast that looks larger. Film set dressers use it to convert paved streets into dirt roads, also to create dust trailing from a moving vehicle on a road.⁷

Oil drilling, bleaching of oils are some other uses where Multani mitti is employed, it is dug out from mines in the United states of America (USA) and England for industrial uses.² Among cosmetic uses it was used in Asia alone and is still in practice though no scientific evidence of therapeutic effects support these claims. Due to its excellent adsorbing quality it may be argued that Multani mitti helps to remove oil/ sebum from the face or hair. It is used to bleach edible

oils, this property may have been unwittingly used at least theoretically, to bleach the skin. It is reportedly consumed by pregnant women in Pakistan.⁸ Geophagy is an accepted social evil in several countries. It is related to nutritional deficiency which prompts them to eat mud, also sold commercially in many countries.^{9,10} Multani mitti has also been traditionally used on Taj Mahal to maintain the shine on the marble.¹¹

Several mud packs are marketed as face wash in cosmetics industry. Pharmacological journals from India have published few papers on experimenting various ratios of Multani mitti for face wash/ face packs.^{12,13} Nonetheless there is not a single publication on use or effects or adverse effects of this clay, they all just go ahead on the presumption that it is indeed scientifically therapeutic, playing to commercial audience.

Conclusion

After browsing literature on Multani mitti it would be alright to conclude that this clay seems to give a sense of satisfaction and that is the only effect it seems to have on its users. In the absence of scientific scrutiny on its use, effects or adverse effects it can be opined that Multani mitti has no role as a therapy in dermatology. Therefore we can safely convey that there is no scientific evidence of its efficacy whatsoever, and public may use it on their own discretion if they may want. This corollary acquires special importance in the era when every yes or no from medics may be subjected to close legal scrutiny.

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