

An Ideology for Treatment of Rheumatoid Arthritis by using Ground nut

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Abstract : An ideology for the treatment of rheumatoid arthritis by using ground nut (*Arachis hypogaea*) which comes under the family of Legumes is disclosed. Ground nut contains the 45% of the oleic acid which is the chemical compound will help to cure this disease. But nowadays more new hybrid varieties of ground nuts are developed which contains the 80% of oleic acid. This high content of oleic acid ground nut are used to cure this rheumatoid arthritis disease. The patients who are suffering from this disease can take the oleic acid which is extracted from the ground nut, which will result in curing of this bone disease. When this type of chemical component is taken it leads to the inhibition of disease and finally it cures completely.

Key words : ground nut, oleic acid, rheumatoid arthritis (RA), new hybrid variety of ground nut, corticosteroids.

Introduction:

The ground nut, also known as the peanut or the goober and taxonomically classifies as *Arachis hypogaea*, is a Legume crop grown mainly for its edible seeds. It is widely grown in the tropics and sub tropics, being important to both small and large commercial producers. It is also used as an oil crop atypically among crop plants, peanut pods develop underground rather than aboveground which means “under the earth”¹.

Oleic acid is a fatty acid that occurs naturally in various animal and vegetable fats and oils. It is an odourless, colorless oil, although commercial samples may be yellowish. In chemical terms, oleic acid is classified as a monosaturated omega-9 fatty acid, abbreviated with a lipid number of 18:1 n-7. The chemical formula for oleic acid is $\text{CH}_3(\text{CH}_2)_7\text{CH}=\text{CH}(\text{CH}_2)_7\text{COOH}$ ².

Rheumatoid arthritis is a long-term autoimmune disorder that primarily affects joints. It typically results in warm, swollen, and painful joints. Most commonly the wrist and hands are involved, with the same joints typically involved on both sides of the body. This disease may also affect other parts of the body this may result in a low red blood cell count. Inflammation around the heart. Fever and low energy may also be present. Often, symptoms come on gradually over weeks to months³.

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There are only basic treatments are available for this disease which is only used to diagnose and to stop the progression of this disease but there is no complete treatment is available for this rheumatoid arthritis disease to cure completely. The basic treatment are immunosuppressants, physiotherapy and medication, surgery and injecting of corticosteroid. The corticosteroids including prednisone, prednisolone and methyl prednisolone, are potent and quick-acting anti-inflammatory medications².

All this treatment will not cure this disease completely and also it leads to more expensive, so the basic treatment for this disease is consuming high amount of oleic acid which is extracted from the hybrid groundnut, because the oleic acid is the compound which is more available in hybrid groundnut. This oleic acid get inside into the affected parts of joints and produce layer on the bones which leads to complete cure of the RA disease.

Materials and Methods:

The new hybrid variety of groundnuts are produced nowadays by the many botanist and farmers because new hybrid variety contains the more amount of oleic acid content and then these groundnuts are made into oil and then several chemical process should be done. First the peanut oil is mixed with the commercial oleic acid, ethanol and water and it should be at the certain temperature of 298.2K and all these mixtures are made into solvent. The addition of water to the solvent reduces the loss of neutral oil in the alcoholic phase and it improves the solvent selectivity⁵. And then the product which is available from these reactions are considered as the oleic acid and these oleic acid are stored in the optimum temperature and then they should be used for the rheumatoid arthritis treatment.

Process of Oleic Acid Inside the Body:

These oleic acid can be taken as capsule or by injection and then these slowly get inside the affected joints and reduce the pain, swells and finally it cures the disease. These should be given periodically for the patients for 1-5 weeks to get complete cure from this RA disease. And the dosage should be given and it varies according to the age of the person⁴.

Causes of Rheumatoid Arthritis:

- Due to abnormal activity of the immune system
- Due to inherited genes
- Possibly infection by bacterium or virus
- Due to tobacco smoking, silica exposure and periodontal (gum) disease⁶

Symptoms Involved in Rheumatoid Arthritis:

- Stiffness of joints
- Many joints are typically inflamed (polyarthritis)
- Swelling in affected area
- Pain in the affected area

These symptoms may keep someone from being able to carry out normal activities. General symptoms include the following:

- Malaise (a “blah” feeling)
- Fever
- Fatigue
- Loss of appetite
- Weight loss
- Myalgias (muscle aches)
- Weakness or loss of energy⁶

Other Health Effects of Oleic Acid:

Oleic acid is a common monosaturated fat in human diet. Monosaturated fat consumption has been associated with decreased low-density lipoprotein (LDL) cholesterol and possibly increased high density lipoprotein (HDL) cholesterol. However, its ability to raise HDL is still debated.

Oleic acid may be responsible for hypotensive (blood pressure reducing) effects of olive oil. Adverse effects also have been documented, however since both oleic acid and monosaturated fatty acid level in the membranes of red blood cells have been associated with increased risk of breast cancer, although the consumption of oleate in ground nut has been associated with a decreased risk of breast cancer².

Chemical Behaviour of Oleic Acid:

The biosynthesis of oleic acid involves the action of the enzymes stearoyl-coA 9-desaturase acting on stearoyl-coA. In effects, stearic acid is dehydrogenated to give the monosaturated derivative oleic acid.

Oleic acid undergoes the reactions of carboxylic acids and alkenes. It is soluble in aqueous base to give soaps called oleates. Iodine adds across the double bond. Hydrogenation of the double bond yields the saturated derivative stearic acid. Oxidation at the double bond occurs slowly in air, and is known as rancidification in foodstuffs or drying in coating. Reduction of the carboxylic acid group yields oleyl alcohol. Ozonolysis of oleic acid is an important route to azelaic acid. The co product is nonanoic acid².

Industrial Application of Oleic Acid:

The several uses of oleic acid in industries are as follows:

- Corrosion inhibitors
- Corrosion inhibitors in high water – based fluids.
- Solvents in fatty acids
- Solvents for de-inking paper
- Intermediate fluxes in organic acids⁷.

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