

# CAMPO NEEM OIL & EXTRACTS

Deodorized / decolorized for oral hygiene /  
anti-acne / anti perspirant – deodorants



Novel functional ingredients for multi-  
purpose cosmetic formulations



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## **CAMPO NEEM OILS & EXTRACTS**

**Deodorized / Decolorized for Oral hygiene/ Anti-acne/  
Anti perspirant – Deodorants**

Neem Leaf Total Extract Fraction C (**vegetable cortisone powder**)

Neem Vegetal Corti-Like (**vegetal cortisone liquid**)

### **NEEM LEAF**

**Novel Functional Ingredients for Cosmetic Formulations**



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## Neem: Ancient Herb from India

*Extracted from the bark and leaves of a hardy umbrella-shaped tree, neem can kill infectious bacteria and reduce inflammation and fever.*

The neem tree is known in India as "the village pharmacy." For more than 4,500 years, traditional healers have used the bark, seeds, leaves, fruit, gum and oils for dozens of internal and external medical treatments. The most common historical uses of neem were for treatment of skin diseases, inflammation and fevers. Modern research confirms many of the traditional benefits and has revealed new ones.

Neem has demonstrated antibacterial and anti-inflammatory effects as well as benefits for those suffering from diabetes and cardiovascular disorders. One of the most intensively studied effects of neem is as an insecticide. Few people of the United States are aware of this versatile tree and its fascinating story.

Neem is a member of the mahogany family and is a hardy, fast-growing evergreen tree. It has a straight trunk, long spreading branches, grows to a height of 50 feet or more and up to 30 feet wide. These stately umbrella-shaped trees have fragrant white flowers about one-half inch across and may live for more than 200 years. While native to India, neem grows in many Asian countries, throughout arid zones of Africa and has been planted in tropical areas of the Western world as well. It thrives in poor soil and has deep roots that allow it to withstand long periods of drought.

Many of the historical and modern day uses of neem and neem oil have been to treat external skin conditions. It's little surprise that when scientists began looking at neem, they found potent antimicrobial activity. Researchers reported the antibacterial effects of the oil from the neem seed against a variety of pathogens (Indian Journal of Medical Research, 1986, vol. 84), and earlier research indicated that a water extract of neem leaves is effective against viruses (Indian Journal of Medical Research, 1969, vol. 57).

Research on the dermatological effects of neem include successful treatment of ringworm and scabies, according to a study from King George's Medical College in Lucknow, India (New Delhi Evening News, Jan. 29, 1985). Another study showed that a 10 percent extract of the leaves prevented viral skin infection in rabbits and monkeys. Leaf extracts also cured acute eczema and scabies (Antiseptic, 1979, vol. 76).

## Anti-Inflammatory Effects

Neem has been used for treating rheumatism and arthritis as well as other inflammatory conditions. Numerous research studies have confirmed the herb's anti-inflammatory effects including a 1981 study showing anti-inflammatory and antipyretic (fever-reducing) properties of neem when administered orally. In the same year, Indian researchers reported anti-arthritic and anti-inflammatory actions of one of the components of neem called nimbidin (*Planta Medica*, 1981, vol. 43).

Neem's anti-inflammatory actions show different types of activity against acute and chronic inflammation. Neem's strong inhibition of immediate or acute inflammation suggests it prevent the release of inflammation-inducing neurochemicals including prostaglandins. In fact, one 1977 study showed neem extract to be more effective than aspirin in inhibiting prostaglandin's (Journal of the West African Science Association, 1977, vol. 22).

This same aspirin-like result may be involved in the fever-reducing effect of neem, documented by some of the same studies, which showed an extract of leaf and bark administered orally could reduce fevers (Journal of Ethnopharmacology, 1985, vol. 14).

One of the more common fevers in India and throughout the tropics is malaria. Research shows neem is toxic to malaria parasites and that it can reduce fevers in malaria sufferers. Both water- and alcohol-based neem leaf extracts were confirmed effective against the parasite *P. falciparum* (Southeast Asian Journal of Tropical Medicine and Public Health, 1985, vol. 16). Though neem might be effective against malaria parasites, it hasn't been shown to prevent malaria infection in the body. Neem has also demonstrated some cardiovascular benefits. Studies showed a "profound and dose dependent" effect in reducing blood pressure and also in reducing arrhythmia, or irregular heartbeats (Journal of Pharmaceutical Sciences, 1978, vol. 67). The versatile herb may also favorably affect the health of diabetics. In a limited 1973 clinical trial, neem enabled diabetic patients to reduce their dosage of insulin by up to 30 to 50 percent without significant rise in blood sugar (Medicine and Surgery, 1973, vol. 13). Further research showed that oral use of leaf extracts reduced blood sugar in rabbits, rats and guinea pigs (Journal of Pharmacy and Pharmacology, 1974, vol. 26, suppl. 111).

**Neem's Insecticidal Use** Neem oil is effective against insects in many ways. It's apparently so distasteful that most insects won't eat a plant treated with it, but if they do, a deadly effect occurs. Neem, harmless to humans, disrupts insect hormones, preventing the bugs from shedding their outgrown skins. The insects are thus prevented from growing and eventually die. Neem is effective against at least 200 insects and requires no sophisticated extraction or preparation equipment. Use of neem itself is bound to increase as both its medicinal and insecticidal benefits become more widely known.



## EAT THE LEAVES OF THE EVERGREEN NEEM

### FOOD FILE

That the neem tree has scores of medicinal uses is known to all. Its leaves keep mosquitoes away, purify the air around and are even better if eaten. A decoction made from fresh leaves can cure fevers and remove phlegm from bronchial tubes.

The sap is even more useful. It is believed to cure leprosy if had regularly for month and half. Alternatively, if the sap is not available, grind a dozen neem leaves and have along with a few peppercorns. Applying a paste of neem leaves on the infected area too can cure skin disorders.

Neem is the base of several medicinal ointments, which are considered good for ulcers and wounds. People believe that if you fry neem leaves in pure ghee in an equal ratio, the resultant residue is excellent for skin sores.

Neem is equally useful for curing eye diseases.

You can try cleaning your teeth with neem twigs or past and you will remain free of gym disease, tooth aches and bad breath. Neem protects the mouth from various infections.

By Dr. Meenakshi Munshi

Myth or Reality?

There is nothing neem cannot cure. It is has cure for everything – form piles to conjunctivitis. It is believed to assist in childbirth, too. It given to the woman during labour, it produces normal contractions in the uterus and prevents possible inflammation.

# CAMPO NEEM EXTRACTS

(REGULAR, DE-COLORIZED, & DE-ODOURIZED EXTRACT VERSIONS)

## *A Tree for Solving Global Problems - AN INTRODUCTION TO THE COSMETIC INDUSTRY*

(Excerpted from: Report of an Ad Hoc Panel of the Board on Science and Technology for International Development - National Research Council-USA)

### *Neem Tree, Botanical Name: - Azadirachta indica A. Juss.*

#### **Neem...An Ancient Cure for a Modern World**

For thousands of years humans have sought to fortify their health and cure various ills with herbal remedies. Throughout this time, the search for a true panacea or cure - all has been undertaken by virtually every civilization. While hundreds of substances have been tried and tested, few have withstood modern scientific scrutiny. Perhaps no other botanical meets the true definition of a panacea than neem, a tropical evergreen native to India. Every part of this fascinating plant has been used to treat hundreds of different maladies from ancient to modern times. While it is still revered in India for its superior healing properties, recent investigation has dramatically increased worldwide interest in neem and the many products now manufactured with this miraculous herb.

While legendary herbs such as ginseng are far better known, comprehensive research has proven that neem has a far wider array of uses than any other herb. The first recorded use of neem is attributed to the ancient East Indian Tamil Dravidian Harappa culture.

Which added the plant to dozens of health and beauty aids 18,500 years ago. The centuries-old healing system, earlier Siddha and much younger Ayurvedic Medicine have utilized these timeless neem formulations as a mainstay of the Siddha and Ayurvedic pharmacy. Medicinal attributes of neem were extolled in the oldest Tamil Siddha and later Sanskrit writings. Neem has been continuously referred to as the "village pharmacy" due to its incredible array of healing properties. Its usefulness as a natural non -toxic insecticide, among other fascinating properties, further increases its phenomenal applications.

Some Westerners are familiar with neem as a culinary spice, while other shelf purchased neem - based toothpastes sold in health food stores. This is only the beginning of the neem story in North America. Consumers can soon expect to find a complete selection of products containing neem such as cremes,

lotions, tinctures, extracts and capsules. While Western medical doctors considered neem to be nothing more than "native folklore", many is now giving neem serious consideration as a potent and safe ingredient for use in diverse health treatments. The lack of side effects certainly enhances neem's appeal to doctors and consumers alike. Ongoing scientific research is validating what Siddha and Ayurvedic practitioners have known for centuries; neem is a dynamic and useful plant which can solve dozens of health problems, while enhancing overall well being.

The diversity of neem's uses is staggering. It is commonly used in the manufacture of:

- Natural Medicines, Health & Beauty Preparations, Culinary Seasonings, Natural Insect Repellents.

### **Modern Science Validates Neem**

The bark, seeds, leaves; fruit, gum and oils of the neem tree contain compounds responsible for the exceptional benefits this amazing botanical provides. These pharmacological constituents offer some impressive therapeutic qualities including:

- Antiviral , Antimicrobial , Antifungal , Antibacterial , Antipyretic , Anti - inflammatory , Anti-tumor , Analgesic , Alterative , Anthelmintic , Antiemetic , Immune Stimulant.

Neem boosts the immune system on all levels while helping the body fight infection even before the immune system is called to action. It also stimulates the production of T 4 cells to mount a head-on attack against infections. Unlike synthetic antibiotics, neem does not destroy beneficial bacteria and other microorganisms needed to maintain optimum health.

Some medical experts believe that the over-use of chemical antibiotics is contributing to the breakdown of human immune function. Neem offers a non-toxic alternative to powerful and sometimes damaging prescription medicines. Numerous active compounds have been isolated from the neem plant. Some of the most studied include nimbin, azadirachtin, nimbidiol, quercetin, nimbidin and fractionates of leaf total extracts.

Neem leaves contain fiber, carbohydrates and at least ten amino acid proteins. They also contain calcium and other nourishing vitamins and minerals. Analysis also reveals the presence of carotenoids, nutritive compounds being hailed for their ability to ward off many types of cancer. Neem oil is especially high in important fatty acids, and contains all of these vital nutrients in significant quantities. Researchers believe the high fatty acid content of the oil maybe why neem is so effective for treating many skin ailments. Neem also has very powerful skin rejuvenating qualities and absorbs quickly into the skin.



## Comparison of Herbal Efficacy

	Chaparral	Echinacea	Neem
Anti-bacterial	yes	yes	yes
Anti-fungal	yes	yes	yes
Antiseptic	yes	yes	yes
Antiviral	yes	yes	yes
AntiInflammatory	yes	yes	yes
Anti-pyretic	no	no	yes
Anticancer	yes	yes	yes
Analgesic	yes	no	yes

### Specific Uses of Neem:

The various uses of neem to cure human ailments, boost immunity and fortify human health are almost endless. Neem is one of the most powerful blood-purifiers and detoxifiers known. Hundreds of specific health maladies respond favorably to the proper application of neem. This does not include the countless uses of neem as a natural insect repellent or as a component in beauty aids. A summary of the more common ailments for which neem products are currently used follows:

Skin conditions	Neem has an almost magical effect on chronic skin conditions that often fail to respond with classical medical treatments.
Hair and Nails	When a high quality, organic neem is added to health and beauty preparations, it provides many benefits.
Teeth and Gums	It is estimated that over 90% of the U.S. adult population has some type of gum (periodontal) disease.
Fungi, Parasites and Viruses	Neem has successfully proven under stringent laboratory conditions to destroy harmful fungi, parasites and viruses.
Major Health Problems	Professionally administered neem solutions are being studied for their beneficial effects on AIDS, Cancer, Diabetes, Heart Disease and other medical conditions.
Other Uses	Chronic fatigue, Minor skin abrasions, and as a natural, non-toxic insect repellent

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## **Neem - The Natural Pesticides - An Update**

**This report was published in Nandini Chemical Journal, a monthly Indian journal entirely edited by a team of Chemical Engineers and Technologists.**

**Nandini Chemical Journal belongs to Nandini Kampoyaki Group of Companies based at Madras in India. NANDINI Kampoyaki maintains an extensive database on various aspects of Indian and global chemical industries, which are continuously updated. The organization provides services in market research, identification of project opportunities and preparation of techno economic feasibility reports on chemical projects.**

Nandini Chemical Journal published an interesting article on "Neem- The Natural Pesticide- An overview" in its February '94 Issue. This article was read with interest all over the country and requests have been received to provide periodical update on developments on neem. The important developments regarding Neem in the last few months and some additional information on Neem are provided in this issue.

Neem based products have attained prime importance in International scientific research due to its high efficiency in restoring soil productivity and improving the environment. With growing realization of the damage to ecological balance caused by synthetic pesticides, focus is shifting to organic farming and natural pesticides. Global interest in organic farming has resulted in the exploitation of the uses of neem based products in pest control, toiletries, cosmetics and pharmaceuticals.

### **ACTION OF AZADIRACTIN**

Conventional chemical pesticides can control pest attack immediately but cannot prevent pest resistance. But neem based pesticides can progressively reduce the pest population over the next generation.

Conventional chemical pesticides are not only toxic but they lack target specificity. Besides, pests develop resistance very fast to pesticides based on a single chemical. In the case of neem, its pesticide properties are derived from Azadirachtin, a kernal extract. Development of insect resistance to neem based pesticide would be difficult primarily due to two reasons.

First, Azadirachtin involved in the process is itself made of several other constituents thus rendering the pesticide superior to the single chemical based formulation. Secondly, pests are known to develop resistance to extraneous chemicals but azadirachtin has the advantage of being systemic. Azadirachtin has both anti-feedant as well as growth regulating properties. This need-based pesticide prevents the insect from advancing to the next stage in its evolutionary cycle. On the other hand, if the pest had tasted the extract in adulthood, then it reproduces the larvae which would grow into defective adults. The action of this pesticide on pests creating moulting inhibition, sterility in adults, reduction in egg laying, reduced quality of eggs and death of the pest.

### **CURRENT INTERNATIONAL SCENARIO**

Neem has obtained global importance due to its wide variety of industrial applications and high economic value. Many countries and several multinational companies have started moves for massive plantations of neem trees. Australia has reportedly brought in a large acreage under neem tree plantation. More than 50,000 trees have been planted in Saudi Arabia. Many multinationals have already started growing neem trees in Carribean countries like Nicaragua, Costarica and Haiti. Countries like Bangladesh, Burkina Faso, Niger, Chad, Mali, Myanmar, Senegal. Thailand, Denmark and France have also come forward to form an international need network with the basic objective of improving the genetic quality and adaptability of need trees throughout the world.

## **CURRENT INDIAN SCENARIO**

The number of neem trees in the country is reported to be around 20 millions. It is estimated that India has a capacity to produce 1,00,000 tonnes of neem oil every year. Increasing significance of neem and its capacity to grow in tropical areas and the great demand for its products in the international market has led to intensive research and development efforts in India. Scientists are exploring tissue culture as a means of rapid propagation and genetic improvements of neem.

Neem based pesticides have served as eco-friendly agents. Process developed by scientists at the Spic Science Foundation has led to crystals of Azadirachtin-A an active ingredient in neem in its highest attainable purity. Azadirachtin can inhibit the growth and development of nearly 200 species of insects. However, the detailed physical structure is yet to be known.

Scientists have conducted x-ray studies on derivatives of Azadirachtin-A, as pure Azadirachtin is thought to possess microcrystalline structure and is not suitable for x-ray studies. However, SPIC scientists were able to put their crystals through x-ray diffraction studies and determine the dimensions of the crystals and their tetragonal shape.

## **NEEM GOLD' - SPIC'S FORMULATION**

SPIC Science Foundation has developed a new technology for extraction of Azadirachtin and for the formulation of this extract with specified and stabilized Azadirachtin content.

The formulation 'Neem Gold' contains minimum 0.15% Azadirachtin, which can be assayed by the HPLC method. Neem gold contains special surfactants for easy application in the form of emulsified spray.

It is claimed that Neem gold is effective against a variety of sucking and leaf feeding insects such as Bemisia-tabaci (white flies), Spodoptera litura (Tobacco caterpillar, Heliothis armigera Earia vitella (Boll worm) and Tetranychos cinnabarinus (Mites).

## **NIMBECIDINE - STANE'S NEEM BASED PESTICIDE**

T.Stanes and Company Ltd in Coimbatore, Tamil Nadu has won National Award for their product Nimbecidine. The award comes as a recognition to the R & D team that has indigenously developed Nimbecidine, a neem based pesticide through total in-house efforts.

Nimbecidine is said to contain herbal derivatives which apart from being safe against predators has been established as an effective anti-feedant and efficient pest repellent. It is said that Nimbecidine is non-toxic and is an environment-friendly product.

## **NEW AREAS OF APPLICATION**

Neem can be used as an environment-friendly botanical pesticide in plantations of tea, coffee and spices. Government of India has undertaken special projects to promote the use of neem for pest management in crops like cotton vegetables, tobacco and other agricultural commodities. neem which has been attracting world wide attention for its broad range application is found-to be useful in following areas.

### **As an antiseptic**

Neem extracts has proved as cheaper substitute for preoperative antiseptic solutions.

### **In preservation of foods**

Department of Pharmaceutical Sciences in Andhra University has shown that neem leaves can be used as an effective detoxification agent. It can act as a potent weapon against fungal spoilage and prevent deterioration of foodstuffs.

### **Promotes Nitrogen uptake**

It has been observed that incorporation of nitrogen fixing green manures with neem cake increases the nitrogen content from the green manures to 40-50 per cent, which eventually boosts the yield components, crop output and total nitrogen content.

### **In treatment of AIDS**

Studies indicated that neem could be used against the Human Immune virus (HIV). Tests show that neem does not always kill these organisms directly, instead it seems to prepare the body's immune system to fight against the organisms.

In view of above developments, India has to launch a drive to increase the neem trees by encouraging neem plantations, so that R & D development activities can be accelerated to meet the global markets.

## **SUMMER PESTS OF NEEM TREE**

Thrips are found to ravage neem in summer. The pests lacerate the tissues in the tender areas and de-sap the trees. As a result, the twigs wither and die. As summer advances, the spider mite infestation begins. Eggs are laid on the terminal leaves and twigs. The mites emerge in mass and feed on the twigs and leaves.

This situation can damage whole tree and growth is stunned due to de-sapping. Spraying malathion or phosalone at 2 ml per litre of water is suggested to control these pests.

## **PROGRAMMES ON NEEM**

To create awareness about the usage of neem based products; the Institute of Forest Genetics and Tree Breeding (IFGTB); Coimbatore conducted a training programme on 'neem seed collection and handling'. The International neem network also conducted a full-scale neem improvement programme to improve the genetic quality and adaptability of neem plants throughout the world.

## **REGISTRATION PROCEDURE**

The registration procedures for promotion of neem based pesticides have been simplified by the Government. Provisional registration is being granted for several commercial formulations.

## **ABSTRACTS ON NEEM/AZADIRACHTIN**

### 1) Chemistry of insect antifeedants from Azadirachta Indica

Use of silicon as a control element in the synthesis of a highly functionalized Decalin fragment of Azadirachtin. Dep. Chem.Imp. Coll-Sci.London, 1992.

A dia-stereo selective synthesis of a highly functionalised decalin fragment :

#### 1. An intramolecular Diels-Alder reaction of triene

III (formed in situ by methylenation of the lactone) and subsequent intramolecular added reaction were employed to assemble the basic carbon skeleton. A high degree of stereo control in the cyclo addition step was achieved by using a  $\text{PhSiMg}_2$  group to effect endo- selectivity. Single crystal x-ray analyses of several intermediary compounds were carried out and the absolute configuration of one of them was determined.

2. Several antifeedants from neem oil, *Azadirachta Indica*  
Effects of Azadirachtin on Balbiani ring gene activities and development of *Acricotopus lucidus*. (Institute of Genetics University, Germany) 1992. Central Research Lab, Taiyo Kagaku Co. Ltd. Yakkaiichi, Japan 510, 1992. A methanol extract of neem oil indicated antifeedant activity at 200 mg/disk against *Reticulitermes speratus*. The extract was purified by re-cycling HPLC to isolate 11 compounds of variable termite antifeedant potency. Deacetyl gedunin was the most active compound (95% protective concentration of PC95=113.7 ug/disk). Sallannin, gedunin, nimbandiol, azadiradione, diacetyl sallannin and deacetylnimbin with PC95 estimations of 203.3, 218.4, 245.4, 827.5, 1373.1 and 1581.2 ug/disk followed this respectively.
3. The treatment of larvae of the chlorinid *acritopus lucidus* with Azadirachtin effects the regression of cell-specific Balbiani rings on the polytene chromosomes of the salivary glands. As a result, the larvae are no longer able to secrete adherent protein and to build new tubes. The dose and time dependent effect of azadirachtin on the Balbiani rings BR1 & BR2 and on the development of *Acricotopus lucidus* was investigated. At concentration from 5 to 10ugm, azadirachtin showed strong molt disturbing properties. Treated animals were not able to pass through larval pupal molts.
4. Neem wax and oil as agrochemical microbicides and insecticides. WR Grace & Co., USA, 1992 and azadirachtin free extract from neem seeds with non-polar hydrophobic solvent eg. hexane is subjected to solvent removal to give a semi-solid wax fraction and a transparent oil fraction. Either fraction, sprayed on to the eggs of white fly on chrysanthemum totally controlled the larvae.
5. Stable azadirachtin rich insecticidal powder from neem seeds German Offence, 1991 Azadirachtin rich oil free extracts are obtained from neem seeds by aqueous extraction followed by re-extraction with an organic solvent. Alternatively, the aqueous extract is treated with a surfactant having a cloud point of 2-80 deg., followed by heating to a temperature just above the cloud point and phase separation. An aqueous neem seed extract was re-extracted with ethanol. The organic phase was separated and concentrated in vacuum. Azadirachtin rich powder was obtained from the concentrate on precipitation with petroleum ether.
6. Toxicity and residual effects of novel pesticides against rice weevil. National Agricultural Research Centre, Pakistan 1992 The toxicity and residual effects of malathion, dimilin and "neem extract factor B" (NEF) were tested against adults of rice weevil. The CB50 by impregnation was with 1.04, 28.0 and 86.4 ug/cm<sup>2</sup> for malathion, dimilin and NEF respectively. The highest concentration used (malathion 0.05%, dimilin 0.25% NEF 0.5%) were effective upto 7-10 days after treatment.
7. Diterpenoids from the root bark of *Azadirachta Indica*. From the root bark of *Azadirachta Indica* (neem) two new diterpenes, nimbilicin and nimboicidin were isolated and their structure established through chemical and spectroscopic methods.
8. Effects of Azadirachtin and aqueous neem seed extracts on survival, growth and development of African armyworm *spodoptera exempta*. Microb Science University, UK 1990 Treatment of larval of the African armyworm *Spodoptera exempta* with Azadirachtin and aqueous neem seed extracts, produced a range of adverse effects that were dose dependent. High dose of up to 10ug/larval of Azadirachtin resulted in 100% larval mortality, but this effect was delayed and prolonged. At lower doses of azadirachtin, however inhibition and disruption of molting was observed and larval pupal intermediates or abnormal pupal were commonly found. Similar results were obtained from larval treated with lower doses of the extracts 0.01 ug/larval either to adults that died during occlusion or had frizzled, curled wings.
9. Margosinone and margosinolone two new polyacetate derivatives from *Azadirachta Indica*. Research Institute Chem. University, Pakistan. 1989 Margosinone and margosinolone, two new polyacetate derivatives were isolated from the stem bark of *Azadirachta Indica*. Structures of these compounds were established through chemical and spectral studies.
10. Synthesis and characterisation of alkyd resins of karanja and neem oil. (Reg. Engineering College, Tiruchirappalli 620 015) Research Inds. 1992 (37 (2) 100-5 (England). The title resins are prepared from phthalic anhydride glycerol and karanja, neem or mohwa oils. The resins were characterised by IR spectroscopy and used as plasticizer for cellulose nitrate and PMMA.
11. 1-Tigloyl-3-acetyl-11-hydroxy-4 B-methyl meliacarpin from *Azadirachta indica* A new meliacarpin derivative has been isolated from the methanolic extracts of *Azadirachta Indica* seeds. Its structure is proposed on the basis of <sup>1</sup>H and <sup>13</sup>C NMR spectral data.

## A FEW INTERNATIONAL ORGANISATION CARRYING OUT NEEM RELATED RESEARCH

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21. Winroch International Institute of Agriculture Department Petit Jean Maintain Morriton AR-72110-9543 Phone : (501) 727-5435 Fax : (501) 727-5242	32. Institute of Chemistry University Louis Pasteur 67008 Strasbourg Germany
22. Imperial College of Science and Technology London	33. Florida International University US
23. Indo American InternationalEnterprises Inc. New Jersey, USA	34. International Centre of Physiology & Ecology Philippines.
24. Dr.H. Forster Prof. of Biochem University of Munich Head of Insect Biochem Research Unit Max. Planck Institute of Biochem Munich, W. Germany 25. Mr. Monique Symonds Royal Botanical Gardens London	
26. Mr.J.H. Butter Wough University of Keele United Kingdom	

Sunday, March 2, 1997 (STAR-MALAYSIA)

### Health

## Neem tree holds promise for healing

By Rajen. M

THE neem tree (*Azadirachta indica*) is native to the Indian subcontinent and much of South-East Asia. The British call it margosa. Resembling the oak tree, it is a kin of the mighty mahogany and thrives in poor soil, bearing purplish white flowers and olive-shaped fruits.

It is called *veepaelai* by Indians, *pokok mambu* by the Malays and *cho-cho* by the Chinese. Malaysians use it in the treatment of measles and chickenpox. It is also known to be effective in the treatment of acne and various skin conditions.



***HARDY ... neem is a relatively fast-growing species which can be easily cultivated in warm, frost-free areas.***

Neem was recently introduced into Central America and the African continent. Its ability to survive in drought-prone areas makes it very useful in Africa where much of the land has suffered from overgrazing and subsequent desertification.

The Sahara desert, for example, has advanced relentlessly because of the ever increasing demand of population along its borders. Reforestation efforts have been greatly assisted by the introduction of neem trees in these areas. Other countries successfully growing neem include Cambodia, Indonesia, Iran, Nepal, Thailand, Vietnam, Saudi Arabia, China, Haiti, Dominican Republic, Nicaragua, Mexico, Honduras, Guatemala and Puerto Rico.

The bright, healthy teeth of Indians who chew on sticks of neem twigs led to awareness about the medicinal use of the tree. It was found that chewing the bark of the neem can prevent tooth decay and heal gum problems. Naturally, it became an active ingredient in many brands of toothpaste in the Indian sub-continent.

Recently, there has been much excitement about neem's value as a natural insecticide. It worked remarkably well on about 200 species of pests which were unable to build a resistance to it.

Neem is a relatively fast-growing species which can be easily cultivated in warm, frost-free areas. Its timber has been found to be of premium quality and is resistant to rot and pest. As the bark burns easily, the tree is also excellent as firewood. Resin trapped in the bark can be used as glue.

In terms of medicinal value, it is truly remarkable in various healthcare applications.

## Antibacterial

Neem has been found to be successful in suppressing two pathogenic (disease-causing) varieties of bacteria. One is *staphylococcus aureus* which is commonly associated with skin infections such as boils and abscesses.

Neem extracts may also be the key to meeting threats posed by *salmonella typhi*, the bacteria found in food and water which has been implicated in food poisoning, typhoid, inflammation of the intestines and blood poisoning. Treatment for illnesses caused by these strains normally calls for the use of modern and expensive antibiotics and researchers worry that the bacteria may even develop a resistance to these.

## Fungicide

While synthetic antifungals have yet to live up to their promises, neem preparations can effectively get rid of fungal infections quickly and safely. Neem has been found to be deadly to 14 common fungi including those which cause intestinal tract infection (*trichosporon*), infection of the bronchi, lungs, mucus membranes (*geotricbum*), lesions of the mouth (*thrush*), vagina, skin, hands and lungs (*candida*), athlete's foot (*trichophyton*) and ringworm (*epidermophyton*).

## Antiviral

Scientists in India have noted that a paste made from neem leaves appears to absorb the virus when applied directly on skin lesions caused by smallpox, chickenpox, warts and fowlpox. It worked by preventing the entry of the virus into the cells. Thus, it could be effective in preventing, rather than curing, viral infection. German researchers have also demonstrated that neem seed kernel is effective in neutralising the herpes virus.

## Blood Purification

Blood purifying (or *cuci darah*) is a traditional concept. It is a very eastern practice, and therefore alien to western-based modern medicine. The ancient Ayurvedic text extols neem as the perfect blood purifier. While not much has been done to substantiate such claims, neem certainly holds much promise when compared to more well known European herbal blood purifiers like burdock, red clover, paud'arco, dandelion, yellow dock, enchinacea and sarsaparilla which have undergone thorough research.

From a holistic viewpoint, blood that is not pure is seen as the root cause of acne, boils, eczema, repeated skin infection and rashes. The traditional approach to treat this is by purifying the blood.

## Other Uses

Head lice:	Neem oil applied directly to the scalp can effectively kill lice.
Scabies:	One well-controlled Indian study on 814 persons was done using a paste made from turmeric and neem oil. The paste was directly applied daily and 98.75 per cent of the cases were cured within three to 15 days.
Open wounds:	In Haiti, where the neem was introduced last century, villagers have been using crushed leaves to treat maggot-infested open wounds.

- Malaria:** Neem extracts may provide a solution to this disease which, despite optimism early this century that it could be eliminated, remains a leading killer worldwide. Malaria infects 120 million people annually, killing some three million. The malaria parasite, *plasmodium falciparum*, is continuously producing new strains which are frighteningly resistant to conventional treatments. Research in India using alcohol extracts of neem leaves and seeds have been shown to be effective against the drug-resistant strains of the parasite. Indian medical practitioners have, for centuries, used doses of neem to treat malaria.
- Fever and pain reliever:** Both as a topical preparation (as paste or poultices) and as oral medicines, neem is an affordable and readily accessible remedy for pain and fever.
- Contraceptive:** One of the most unusual uses of neem may be in birth control. Neem oil is a powerful spermicide, killing sperm cells within 30 seconds of contact. Its anti-fertility traits were first demonstrated in laboratory animals. A single microlitre application of neem oil to the uterus rendered the animal infertile for periods varying from 107 to 180 days. After that time, the block was fully reversed. No toxicity or future birthing problems were noted. Another study done on some members of the Indian army and their families used an intravaginal dose of one millilitre. The experiment proved successful and a commercial preparation under the tradename Sensal is now sold. In a related experiment, it was shown that neem oil could be used as a "morning after" contraceptive. When applied intravaginally on days two through seven of an expected pregnancy, it stopped implantation of the fertilised egg within the uterus. This occurred without any irritation or side effects. One month after stopping the application, the subjects were fertile again. The treatment had no ill effects on future pregnancies.

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## Neem Aura Naturals

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A National Research Council USA- report states that neem "...seems to be one of the most promising of all plants and may eventually benefit every person on the planet." Indeed for over 4,000 years the people of India have enjoyed the health benefits of their native neem tree, which is revered and known as the "village pharmacy". The reason behind the exceptional integrity of Neem Aura products is that their neem extracts are prepared from certified organically grown neem leaf from their own farms. Their products contain no water; only 100% natural plant extracts.

## Neem Cosmetics

**Available Neem personal health care products include :**



<b>Night Creams</b>	<b>Astringents</b>	<b>Hair Shampoos</b>	<b>Moisturizers</b>
<b>Hand Lotions</b>	<b>Body Lotions</b>	<b>Cream Cleansers</b>	<b>Hair Conditioners</b>

- Consumer-Precievable-Fuctionally Active Neem Cosmetics in the Transpheres, Liquid Crystal or Body Silk Essence versions are available on request. These approved products contain KADUNIM OIL, which is the East Indian name for neem tree oil.
- These products are some of the only stabilized and aromatic neem products in the world, some of which are enriched with natural neem leaf derived vitamins A, D, & E.
- Neems powerful molecules are the focus of international study since how they work is still a mystery to science but not much a mystery in our Campo Novel Drug Discovery Group laboratories at Kyoto, Japan; as the functionally active regular; colorless or/ and de-odorized extracts of Neem are available for multi-purpose uses in skin care and treatment-care.
- These Campo Neem derivatives Cosmetic Active Ingredients are easily formulated in any given cosmetic formulation without hassle to the cosmetic formulators.
- Millions of people already use neem products daily.
- Canadian, American and international distributors wanted for this outstanding personal care product line
- Current market research indicates this product line is for your higher clientel, with appropriate profit margin.

## **Samples of NEEM COSMETICS**

**1-NE. NeemAura Soap** is handmade using only the finest of vegetable oils, neem oil and essential oils. This soap is made for people with dry, cracked or damaged skin but is also great for everyday use. (3.75 oz)

**2-NE. NeemAura Neem Creme** is formulated for the most difficult and damaged skin and combines soothing aloe vera and neem into an all natural skin care creme. (2 oz)

**3-NE. NeemAura Neem Leaf in Vegicaps** is prepared in the Ayurvedic tradition and encapsulated for easy use. The capsules contain no gelatin and are 100% vegetable product. (60 @ 500mg each)

**4-NE. NeemAura Hand and Body Lotion** with aloe vera (75%) and neem oil is an all purpose daily moisturizing lotion for maintaining healthy skin and contains oils of rice bran, jojoba and lemongrass, vitamin E, chamomile, goldenseal, barberry, thyme, ginger , and papaya. (8oz)

**5-NE. "The Bug Disenchanter"** A strictly herbal preparation designed to increase enjoyment of the outdoors by repelling various bugs. Contains aloe vera, neem leaf extract, citronella, essential oils and pure botanical extracts. (4 oz)

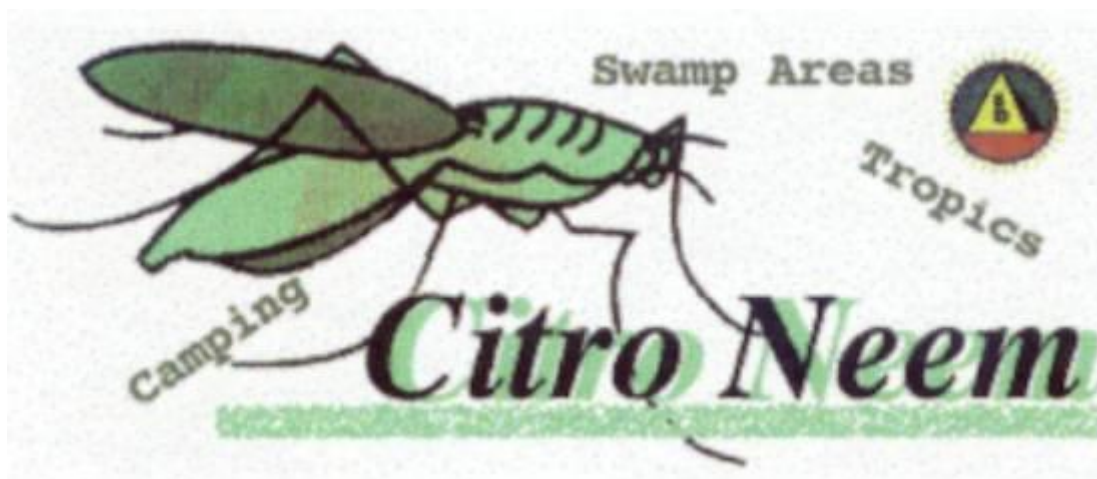
**6-NE. NeemAura Neem Leaf Extract** is the most powerful and fast acting form of neem. This tincture is extracted in the ancient tradition according to the lunar cycle & set on the new moon and strained off on the night of the full moon. Use it on cuts and scrapes as well as a mouthwash after brushing. (1 oz)

**7-NE. Book: *Neem, A Tree For Solving Global Problems*.** (not pictured) 138 pages, paperback.

**8-NE.Pamphlet: *Neem, The Miraculous Herb*.** (Not pictured) 8 pages.







**CAMPO CITRO - NEEM OIL** is a novel oily extract (via Supercritical CO<sub>2</sub> extraction) from Fresh Flowers, Bark and Leaves of Neem Tree (*Melia azadirachta*) consisting of various essential oil components such as citronellal, cedrenol, geraniol, geranyl acetate, limonene, camphene and various Neem volatile oil-fractions.  
**With Totally Zero-Azadirachtin Content.**

This new potent all-natural insect repellent combats the onslaught of both wild type and insecticide-resistant mosquitoes and all other biting insects and is especially helpful during the approaching warmer weather, and wherever outdoor summer-time activities take place.

Why is **CAMPO CITRO NEEM OIL** so appealing?

Unlike many of the insect repellents presently on the market, which use synthetic chemicals such as DEET which SMELL HORRIBLE and are POTENTIALLY TOXIC, this natural derived from plants active ingredient's with main ingredients -CITRONELLA -like volatile oil components from NEEM flowers – all totally are natural products derived from plants. **CAMPO CITRO NEEM OIL** – therefore HAS NO TOXIC EFFECT OR OFFENSIVE SMELL.

Citronellal is one of several essential oils used in the manufacture of perfumes. It has been well established that Citronellal is very effective in repelling mosquito attacks.

Neem has been established in the Orient as a cleanser and antiseptic, and is also an effective insect repellent.

**CITRO NEEM** is used as insect-repellent in a liquid spray, a 'splash on lotion', cologne and in creams which dries quickly. ***Its effects last for >8hours – <12hours @ >2.00% Addition Levels.***

**TECHNICAL SPECIFICATION****Citro Neem Oil****Product : CAMPO CITRO NEEM OIL****Product # : 95.00554/BO****INCI Name : Melia Azadirachta Flower Extract  
Melia Azadirachta Leaf Extract  
Melia Azadirachta Seed Oil****Description**

<b>Species:</b>	<b>Azadirachta indica A.Juss (Syn: Melia azadirachta Linn)</b>
<b>Plant Part:</b>	<b>Seed 50%; Florescence 25%; Leaf 25%</b>
<b>Appearance:</b>	<b>Oil free flowing liquid</b>
<b>Colour:</b>	<b>Brown</b>
<b>Odour:</b>	<b>Characteristic</b>
<b>Specific Gravity:</b>	<b>0.8000 – 0.9900</b>
<b>Refractive Index:</b>	<b>1.350 – 1.500</b>
<b>Water Content:</b>	<b>0.5 max (%)</b>
<b><u>Microbial</u> bacteria:</b>	<b>&lt;100 cfu/ml (non pathogenic)</b>
<b>yeast/mold:</b>	<b>&lt;100 cfu/ml</b>
<b>Application:</b>	<b>As insect repellent and mosquito repellent. As a suitable repellent of wild mosquitoes &amp; Insecticide-resistant mosquitoes. As natural preservative oil and an natural oil for replacement of synthetic silicone oil.</b>

*Campo Citro-Neem Oil © 1989-2016.      © Library of Congress, USA*  
*Citro-Neem Oil © 1989-2016.              © Library of Congress, USA*

# *Campo Neem Extracts*

CAMPO RESEARCH SYSTEMS

product BSI.009/94

INDIAN MEDICINAL HERBAL EXTRACTS FOR COSMETICS FORMULATIONS

## PRODUCT TECHNICAL DATA SHEET

Product name:	Vaipillai																
INCI Name :	Neem (Melia Azadirachta Linn ) Extract																
Latin name:	Azadirachta indica A.Juss																
Botanical synonym:	Melia azadirachta																
English name:	Neem tree, Margosa, Nim tree, Nimba tree																
Other names:	Vembu - Tamil Nimba – Ayurvedic, Pokok-mambu-Medical Malay																
Plants parts used:	dried and cured* leaves *cured in accordance with ancient Siddha texts. This is to reduce: 1. the concentration of certain toxic compounds which occur in the fresh leaf and which will cause blisters and skin redness if used in skin care preparations. 2. to remove the bitter and garlic-like odour of certain fragrance compounds in the fresh leaf																
Reference literature:	Economic plants of India (New Delhi 1980) Sushrut Sanhita, Charak Samhita; Dhanvantrai Nighantu (Hindu University, Benares - 1974 reprint)  Indian Aromatic & Medicinal Plant Abstracts; Central Science and Industry Research (CSIR) New Delhi 1989  Agasthir 'Sol Maruthavam (Tamil), Sage Agathiyar Medicinal Plant Preparations; All- India Siddha Practioners Association Madras 1945																
Active substances:	<table> <tr> <td>amino acids</td><td>tightening</td></tr> <tr> <td>caretonoids</td><td>granulation promoting</td></tr> <tr> <td>chlorophyll</td><td>deodorant</td></tr> <tr> <td>acetylcholine</td><td>vasodilatory</td></tr> <tr> <td>tannins</td><td>astringent</td></tr> <tr> <td>azadirachtin</td><td>fungistatic, bacteriostatic</td></tr> <tr> <td>nimbidin</td><td>healing</td></tr> <tr> <td>UVzymes <sup>TM</sup></td><td>UV absorber</td></tr> </table>	amino acids	tightening	caretonoids	granulation promoting	chlorophyll	deodorant	acetylcholine	vasodilatory	tannins	astringent	azadirachtin	fungistatic, bacteriostatic	nimbidin	healing	UVzymes <sup>TM</sup>	UV absorber
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azadirachtin	fungistatic, bacteriostatic																
nimbidin	healing																
UVzymes <sup>TM</sup>	UV absorber																

Nimbidin is one of the bitter principals in Neem leaf. In the preparation of this extract, the leaves are dried and cured by traditional methods in accordance with the tests of the Siddha Sage, Agasthiyar. This reduces the nimbidin concentration to 0.005 ppm. At higher concentrations, say in excess of 100 ppm, it will cause skin redness and possibly blistering. In traditionally Siddha medicinal cosmetic preparations usage of Vaili pilla Taila is well known using similarly cured Neem leaves.

### **Ethno botany:**

Green twigs of the Neem trees are used as tooth brushes. Leaves soaked overnight are used as a prophylactic for teeth, mouth and skin complaints.

Uncured seed oil is used in leprosy and for the treatment of skin disorders resulting from serious venereal diseases.

Garlands of leaves and stones from the fruit are hung on sick rooms and sick room doors during epidermis of smallpox and chicken pox.

**Application and dosage recommendations:**

The extract may be used for hair regeneration where hair loss is as a result of fungal infection, and as a general scalp stimulation remedy. Neem leaf extract may be used for the treatment of slow healing skin conditions and in day and night moisturizing and skin tightening formulations. In bath care preparations Neem acts as a vasodilator and deodorant.

hair care products	2 - 5 %
skin creams	< 10%
bath care preparations	< 10%

**Application codes****RTS, RSS, DBH, NSH, HTB, SPF UV A & B****Specifications:**

Concentration:	1 kg extract = 1.05 kg cured Neem leaves
Appearance:	clear, light brown liquid
Odour:	characteristic
Propylene glycol:	25%
Identification:	positive, TLC specifications
Solubility (water)	clear, soluble
Solubility (surfactants)	clear, soluble
Density (20°C)	1.020 - 1.060
Refractive index (n <sub>20°C</sub> )	1.360 - 1.380
Preservative:	nil
total germs	< 100/g
Total yeasts/molds	< 100/g
Pesticides:	nil
Heavy metals (Pb, Cd, Hg, As):	< 60 ppm (DAB 10 method A)

**Comments:**

This material has not been animal tested for efficiency, bioavailability or therapeutic content.

Wild crafted plant material from wild trees - custom extracted

External use only

NOT FOR DRUG USE

# *Campo Neem Extracts*

CAMPO RESEARCH SYSTEMS

product 95.009/94

INDIAN MEDICINAL HERBAL EXTRACTS FOR COSMETICS FORMULATIONS

**PRODUCT TECHNICAL DATA SHEET**

product name:	Nimba
INCI Name	Neem (Azadirachta Linn ) Extract
latin name:	Azadirachta indica A.Juss
botanical synonym:	Melia azadirachta
english name:	Neem tree, Margosa, Nim tree, Nimba tree
other names:	Vembu - Tamil Vaipillai

**plants parts used:****dried and cured\* leaves**

\*cured in accordance with ancient Siddha texts. This is to reduce:

1. the concentration of certain toxic compounds which occur in the fresh leaf and which will cause blisters and skin redness if used in skin care preparations.
2. to remove the bitter and garlic-like odour of certain fragrance compounds in the fresh leaf

**reference literature:**

Economic plants of India (New Delhi 1980)  
Sushrut Sanhita, Charak Samhita;  
Dhanvantrai Nighantu (Hindu University,  
Benares - 1974 reprint)

Indian Aromatic & Medicinal Plant  
Abstracts; Central Science and Industry Research (CSIR) New Delhi 1989

Agasthir 'Sol Maruthavam (Tamil), Sage  
Agathiyar Medicinal Plant Preparations; All-India SiddhaPractitioners  
Association Madras 1945

**active substances:**

amino acids	tightening
caretonoids	granulation promoting
chlorophyll	deodorant
acetylcholine	vasodilatory
tannins	astringent
azadirachtin	fungistatic, bacteriostatic
nimbidin	healing
UVzymes <sup>TM</sup>	UV absorber

Nimbidin is one of the bitter principals in Neem leaf. In the preparation of this extract, the leaves are dried and cured by traditional methods in accordance with the tests of the Siddha Sage, Agasthiyar. This reduces the nimbidin concentration to 0.005 ppm. At higher concentrations, say in excess of 100 ppm, it will cause skin redness and possibly blistering. In traditionally Siddha medicinal cosmetic preparations usage of Vaili pillai Taila is well known using similarly cured Neem leaves.

**Ethno botany:**

Green twigs of the Neem trees are used as tooth brushes. Leaves soaked overnight are used as a prophylactic for teeth, mouth and skin complaints.

Uncured seed oil is used in leprosy and for the treatment of skin disorders resulting from serious venereal diseases.

Garlands of leaves and stones from the fruit are hung on sick rooms and sick room doors during epidermis of smallpox and chicken pox.

### **Application and dosage recommendations:**

The extract may be used for hair regeneration where hair loss is as a result of fungal infection, and as a general scalp stimulation remedy. Neem leaf extract may be used for the treatment of slow healing skin conditions and in day and night moisturizing and skin tightening formulations. In bath care preparations Neem acts as a vasodilator and deodorant.

Hair cares products	2 - 5 %
Skin creams	< 10%
Bath cares preparations	< 10%

**Application codes** **RTS, RSS, DBH, NSH, HTB, SPF UV A & B**

### **Specifications:**

Concentration:	1 kg extract = 1.05 kg cured Neem leaves
Appearance:	clear, light almost colorless liquid
Odour:	characteristic-almost faint
Propylene glycol:	25%
Solubility (water)	clears, soluble
Solubility (surfactants)	clears, soluble
Density (20°C)	1.020 - 1.160
Refractive index (n <sub>20°C</sub> )	1.300 - 1.380
Preservative:	nil
Total germs	< 100/g
Total yeasts/molds	< 100/g
Pesticides:	nil
Heavy metals (Pb, Cd, Hg, As):	< 60 ppm (DAB 10 method A)

### **Comments:**

This material has not been animal tested for efficiency, bioavailability or therapeutic content.  
Wild crafted plant material from wild trees - custom extracted

External use only

**NOT FOR DRUG USE**



# *Campo Neem Extracts*

CAMPO RESEARCH SYSTEMS

product AZ 1992- 050-32

## AUSTRALASIAN HERBAL EXTRACTS for COSMETICS FORMULATIONS

### PRODUCT TECHNICAL DATA SHEET

<b>Product name:</b>	Australian Neem Tree	
<b>INCI Name</b>	Neem (Melia Azadirachta, Linn) Extract	
<b>Latin name:</b>	<i>Melia australasica</i> Blake	
<b>Botanical synonym:</b>	<i>Melia azadirachta</i> var <i>australasica</i>	
<b>English Name synonym:</b>	Cape lilac, Chinaberry, bead tree, white cedar, Aussie Neem	
<b>Australian bush name:</b>	dygal, dtheerah, and kiluain	
<b>Plant parts used:</b>	cured leaves	
<b>Reference literature:</b>	see bibliography	
<b>Active substances:</b>	<b>azadirachtin</b> <b>Saponins</b> <b>Tannins</b> <b>Nimbidin**</b> <b>UVzymes™</b>	<b>fungistatic</b> <b>softening</b> <b>astringent</b> <b>healing</b> <b>UV filter / absorber</b>

\*\* The active principal, nimbidin, which is responsible for the characteristic malodor of neem is neutralized to 0.005 ppm by non-chemical means.

#### **Ethnobotany:**

Amongst early white settlers in Australia, the leaves of this tree were used as a substitute for quinine for the treatment of malaria. The berries and flowers were soaked in whisky as a tonic and anthelmintic drink. Queensland rainforest aboriginals called this whisky based remedy *lilac water*. It has a faint vanilla odour probably due to the anthelmintic principal, vanillic acid. Crushed leaves have been applied to wounds relying on the cicatrizing action of polyphenols whilst the softening action of the Saponins has been used to good effect on warts.

#### **Applications and dosage recommendations:**

**Melia australasica** is particularly effective for hair regeneration where the original loss is due to fungal infections. The scalp circulation stimulating properties of Flavonoids supports the fungistatic properties of azadirachtin. The tannins act as natural, gentle astringents effectively closing large pores in the skin, suggesting application in creams and lotions for greasy skin conditions. The extract has also shown cicatrant, vasodilatory and deodorant properties.

In skin care products	< 5 %
In hair care products	3 - 5 %
Bath cares products	10 %

**Application codes:** **RTS, ITS, RSS, OGH, OGS, SRB, UV A&B**

**Specification:**

Concentration:	1 kg extract = 1.0 kg <b>Australian Neem Tree</b>
Appearance:	clear, colorless liquid
Odour:	almost odorless
Propylene glycol:	30.0 %
Identification:	positive, TLC specification
Solubility (water)	clears, soluble
Solubility (surfactants)	clears, soluble
Density (20° C)	1.010 - 1.022
Refractive index (n 20° C)	1.372 - 1.387
Preservative:	nil
Total germs:	<100/g
Pesticides:	nil
Heavy metals (Pb, Cd, Hg, As):	<0.01 ppm

**Comments:**

Totally wild crafted from Aboriginal tribal lands

This material has not been animal tested for efficiency, bioavailability or therapeutic content

External use only.

NOT FOR DRUG USE.

# CAMPO RESEARCH

**LIQUID TISSUE CULTURE OF PLANTS FROM TROPICAL RAINFOREST, ORIENTAL &  
INDIAN SUB CONTINENT TRADITIONAL HERBAL MEDICAL SYSTEMS ETHNOBOTANY LEAD  
INFORMATION DATABASE SERVICES. NEW & NOVEL PHYTO CHEMICALS PLANT  
EXTRACTS IN SINGLE & MULTIPLE SOLVENT SYSTEMS.**

\*\*\*\*\*

## SPECIFICATION

\*\*\*\*\*

PRODUCT	: CAMPO NEEM OIL – WATER-SOLUBLE	
Product	Neem WS 1996-010-02-051	
INCI Name	Melia Azadirachta Seed Oil	
Technical/Other Names	Neem (Melia Azadirachta) Seed Oil	
APPEARANCE	: Liquidified free-flowing to Soft Paste	
COLOUR	: Brown	GARDNER
ODOR	: Characteristic - slight	
ACID VALUE (BS684)	: 2 MAX	MG KOH/MG
SOLUBILITY	: Cloudy soluble (in water); others: Soluble in most cosmetic oils	
SAPONIFICATION	: 46 – 56	MG KOH/MG
HYDROXYL VALUE (in ETOH):	70 –90	MG KOH/MG
PESTICIDES	: NIL	
MICROBIOLOGY		
GERMS	: <100 CFU / mg (NON-PATHOGENIC)	
YEASTS/ MOLDS	: <100 CFU/mg	
APPLICATION LEVEL	: 0.5 - 5.0%	

# CAMPO RESEARCH

**LIQUID TISSUE CULTURE OF PLANTS FROM TROPICAL RAINFOREST, ORIENTAL &  
INDIAN SUBCONTINENT TRADITIONAL HERBAL MEDICAL SYSTEMS ETHNOBOTANY  
LEAD INFORMATION DATABASE SERVICES. NEW & NOVEL PHYTO CHEMICALS PLANT  
EXTRACTS IN SINGLE & MULTIPLE SOLVENT SYSTEMS**

\*\*\*\*\*

## SPECIFICATION

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PRODUCT	: CAMPO NEEM OIL - Deodorized 98 % and Decolorized 50%		
Product #	95.009/96 B		
INCI Name	Melia Azadirachta Seed Oil		
Technical/Other Names	Neem (Melia Azadirachta) Seed Oil		
Parts Used	Cured Seeds - 99.5 %		
APPEARANCE	: Light Free-Flowing Liquid		
COLOUR	: Golden Yellow Light to Colorless / 50 Max.	HAZEN	
ODOR	: Characteristic - Slight		
SPECIFIC GRAVITY	: 0.900 - 0.980	@20°C	
REFLECTIVE INDEX	: 1350 - 1500	@20°C	
ACID VALUE (BS684)	: 1 MAX	MG KOH/MG	
SOLUBILITY	: Clearly soluble in most cosmetic oils		
SAPONIFICATION	: 300 - 360	MG KOH/MG	
PEROXIDE VALUE	: 1 Max.	MG KOH/MG	
VISCOSITY	: 20 - 35	@20°C (m PaS)	
WATER CONTENT (%)	: 0.15 Max		
UNSAPONIFIABLES (%)	: 0.5 Max		
Fatty Acid Distribution (%)			
C6	: 1 Max		
C8	: 45 -72		
C10	: 32 - 50		
C12	: 2 Max		
PESTICIDES	: NIL		
MICROBIOLOGY			
GERMS: <100 CFU / mg	(NON-PATHOGENIC)		
YEASTS/ MOLDS	: <100 CFU/mg		
APPLICATION LEVEL	: 0.5 - 5.0%		

# CAMPO RESEARCH

**LIQUID TISSUE CULTURE OF PLANTS FROM TROPICAL RAINFOREST, ORIENTAL &  
INDIAN SUB CONTINENT TRADITIONAL HERBAL MEDICAL SYSTEMS ETHNOBOTANY LEAD  
INFORMATION DATABASE SERVICES. NEW & NOVEL PHYTO CHEMICALS PLANT  
EXTRACTS IN SINGLE & MULTIPLE SOLVENT SYSTEMS.**

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## SPECIFICATION

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PRODUCT	: CAMPO NEEM OIL - Deodorized 98 % and Decolorized 95 %	
Product #	1996-0100-02-54-0	
INCI Name	Melia Azadirachta Seed Oil	
Technical/Other Names	Neem (Melia Azadirachta) Seed Oil	
Parts Used	Cured Seeds - 99.5 %	
APPEARANCE	: Light Free-Flowing Liquid	
COLOUR	: Brown light to Colorless / 50 Max.	HAZEN
ODOR	: Characteristic - Slight	
SPECIFIC GRAVITY	: 0.8500 - 0.9990	@20°C
REFLECTIVE INDEX	: 1370 – 1.455	@20°C
ACID VALUE (BS684)	: 0.8 MAX	MG KOH/MG
SOLUBILITY	: Clearly soluble in most cosmetic oils	
SAPONIFICATION	: 320 - 350	MG KOH/MG
PEROXIDE VALUE	: 1 Max.	MG KOH/MG
VISCOSITY	: 27 - 33	@20°C (m PaS)
WATER CONTENT (%)	: 0.15 Max	
UNSAPONIFIABLES (%)	: 10 Max	
Fatty Acid Distribution (%)		
C6	: 1 Max	
C8	: 45 -72	
C10	: 32 - 50	
C12	: 2 Max	
PESTICIDES	: NIL	
MICROBIOLOGY		
GERMS: <100 CFU / mg	(NON-PATHOGENIC)	
YEASTS/ MOLDS	: <100 CFU/mg	
APPLICATION LEVEL	: 0.5 - 5.0%	

# MATERIAL SAFETY AND CONSUMER PRODUCT SAFETY TESTING LABS.

(DIVISION OF JTC KAMPOYAKI, SINGAPORE)

REPUBLIC OF SINGAPORE

## FINAL REPORT

DIVISIONAL / COMPANY/ GROUP

SUNRIDER USA INC.  
Irving, CA., USA

ATTENTION:

(via) Ms Marilyn Acton (Campo Sales Person).

TEST:

The MATREX In *Vitro* Toxicity testing System  
Salmonella typhimurium Reverse Assay

TEST ARTICLE:

CAMPO NEEM LEAF EXTRACT

EXPERIMENT REFERENCE NO.:

1994 - NOV. -15TH  
Cineplex BSL009/94 b# 9611 XT

MD

Dr. Ferrous Jesse G.Velasquez Bsc.Med.Tech.,  
Director of Microbiology

Date: Oct. 19th, 1994

This report is submitted for the exclusive use of the person, partnership, or corporation to whom it is addressed and neither the report nor the name of these Laboratories nor of any member of its staff, may be used in connection with the advertising or sale of any product or process without written authorization.



**OBJECTIVE:**

To evaluate the test article for irritancy potential utilizing the MATREX *in vitro* toxicity testing system.

**INTRODUCTION:**

TESTSKIN and MATREX are sophisticated *in vitro* systems. Developed in Organogenesis Inc. of Cambridge,

Massachusetts, they closely mimic human skin in structure and function. The Living Dermal Matrex (LDM) consist

of a three-dimensional construct comprised of living cells in a collagen matrix. Nutrition is provided through the base via a permeable membrane, leaving the surface open to the atmosphere. This makes an ideal system for applying a variety of materials, including liquids, powders, oils, gels and creams.

The Living Skin Equivalent (LSE) has all the features previously described, plus the formation of an actual epidermis

Complete with stratum corneum.

TESTSKIN and MATREX, when used with the recommended cell metabolism assay can quickly provide toxicological profiles. The procedure involves a solubilized, reactive tetrazolium salt (MTT), which is metabolized by the mitochondria of living cells and converted to a purple formazan dye. The color intensity of the skin replica extract, measured photometrically, correlates directly with its viability. When measured against controls, values ranging from 0% to 100% (plus or minus approximately 20%) can be calculated for each dose of an applied substance.

Test Article:

**CAMPO NEEM LEAF EXTRACT (de-odorized version)**

**Batch Lot # 9611 XT**

Reference Articles:

**PROPYLENE GLYCOL & MORPHOLINE**

**METHOD:**

The appropriate dilutions of test sample and control articles were applied to MATREX. After the appropriate exposure period, the articles were rinsed from the MATREX surfaces. MTT (tetrazolium salt) assay medium was utilized in order to quantify cell metabolism. At the end of the staining period, excised portions of each MATREX were immersed in acidified isopropanol, which extracted the converted MTT from tissue samples. A Dynatech MR 4000 Automatic Microplate Reader was used to determine the absorbance of each extract at 570 nm. With the absorbance of a negative control defined as 100%, the percent absorbencies of the test and control articles were determined. The percentages listed below directly correlate with the cell metabolism in the MATREX samples.

**RESULTS:**

Test Article (% & Exposure)	System	Percent Viability	Percent Inhibition
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**Campo Neem Leaf Extract (deodorized version) batch lot# 9611 XT**

(100% - 1 hr.)	LDM	91%	9%
(10% - 1 hr.)	LDM	97%	3%
(1% - hr.)	LDM	99%	1%

**Propylene glycol**

(100% - 1 hr.)	LDM	73%	27%
(10% - 1 hr.)	LDM	99%	1%
(1% - hr.)	LDM	96%	4%

**Morpholine**

(100% - 1 hr.)	LDM	6%	94%
(10% - 1 hr.)	LDM	4%	96%
(1% - 1 hr.)	LDM	100%	0%

**HISTORICAL IN VITRO RESULTS:**

Propylene glycol has historically been categorized as virtually non-irritating when tested using the Draize irritation methodologies. Morpholine has been categorized as moderately irritating when tested in the same manner.

**DISCUSSIONS:**

The sponsor Campo Research Singapore-submitted sample elicited in vitro results comparable to those recorded for propylene glycol.

**CONCLUSION:**

The results indicate that the sponsor-Campo Research Singapore submitted product has virtually no irritation potential, under the conditions of this test.

# **JTCKR -Cytotest Cell Research**

## **JTCKR PROJECT 94**

### **SALMONELLA TYPHIMURIUM**

### **REVERSE MUTATION ASSAY**

#### **REPORT ON**

**Campo Neem Leaf Extract**

**Batch Lot # 9611 XT**

**Study Completion Date:**

**Nov. 10th , 1994**

## Test Report - JTCKR Cytotest Cell Project 96

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### CONCLUSIONS

The test article **Campo NEEM LEAF EXTRACT** BATCH LOT# 9611 XT<sup>1</sup> was assessed for its potential to induce gene mutations according to the plate incorporation test (experiment I) and the pre-incubation test (experiment II) using *Salmonella typhimurium* strains TA 1553, TA 1537, TA 100 and TA 102.

The assay was performed in two independent experiments both with and without liver microsomal activation. Each concentration, including the controls, was tested in triplicate. The test article was tested at the following concentrations:

33.3; 100.0; 333.3; 1000.0; 2500.0; and 5000.0 ug/plate

No toxic effects occurred in the test groups with and without metabolic activation in experiment I and II in all strains used.

The plates incubated with the test article showed normal background growth up to 5000.0 ug/plate with and without S9 mix in all strains used.

No substantial increases in revertant colony numbers of any of the five tester strains were observed following treatment with **Campo NEEM LEAF EXTRACT** Batch Lot # 9611 XT<sup>1</sup> at any dose level, either in the presence or absence of metabolic activation (S9 mix). There was also no tendency of higher mutation rates with increasing concentrations in the range below the generally acknowledged border of significance.

A slight decrease (0.001%) in revertant colony numbers was observed in strain TA 102 at 333.3 and 1000.0 ug/plate in experiment I in the presence of metabolic activation. However, this effect is considered not to be relevant since it could not be reproduced in the normally more sensitive pre-incubation assay.

Appropriate reference mutagens were used as positive controls and showed a distinct increase in induced revertant colonies.

In conclusion, it can be stated that during the described mutagenicity test and under the experimental conditions reported, the test article did not induce point mutations by base pair changes of frameshifts in the genome of the strains used.

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<sup>1</sup> 5 gm sample completely and uniformly - solubilized in 25ml of water (de-ionized)

**“(SAFETY DATA SHEET – compliant to GHS)”**  
**CONFIRMS TO EC DIRECTIVE 91/155/EEC, EC REGULATION**  
**NO#1272/2008, AMENDED EC REGULATION NO#790/2009 and**  
**Complies to The EU Cosmetic Products Regulation (Regulation (EC) No**  
**1223/2009) effective on July 2013., and to EU Commission Regulation**  
**No.358/2014/9 of 9<sup>th</sup> April 2014 amending Annexes II and V, to EU**  
**Regulation No No.1223/2009 of The European Parliament and of The**  
**Council on Cosmetic products, (Effective Date 31<sup>st</sup> October 2014) AND to**  
**US DEPT.OF LABOR-Occupational Safety & Health Admin directives**  
**and compliant to Globally Harmonized System of Classification and**  
**Labeling of Chemicals (hereinafter referred to as “the GHS”)., and**  
**Complies and Confirms to the Requirements of State of California**  
**Proposition 65.**

A Quality Management System, compliant to the International Standard ISO 9001, was used to manufacture and test this material

<http://www.osha.gov/dsg/hazcom/ghs.html>

[http://www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)

<http://www.hc-sc.gc.ca/ahc-asc/intactiv/ghs-sgh/index-eng.php>

DATE OF FIRST ISSUE	May 5th 1996-Reviewer - Dr Balasubramaniam PhD
DATE OF LATEST REVISION	Jan. 20th 1997- Reviewer- Dr Fergus Jes .G.Velasquez Bsc. Med Tech, MD <b>Mr Jimmy Kee, 30<sup>th</sup> June 2003</b> <b>Mr Teo SH 5<sup>th</sup> Jan 2004</b> <b>Balasubramaniam M,PhD 21<sup>st</sup> August 2007</b> <b>Mr Joshua Teo, 21<sup>st</sup> Jan 2011</b> <b>Februrary 5<sup>th</sup> 2013 – Reviewer –</b> <b>Dr Balasubramaniam M PhD</b> <b>12<sup>th</sup> February 2015 - Joshua Teo BSc. Chem,</b> <b>Dr Balasubramaniam M. PhD &amp; Oksana</b> <b>Nemchenko MD</b> <b>15<sup>th</sup> May 2016 - Joshua Teo BSc. Chem,</b> <b>Dr Balasubramaniam M. PhD &amp; Oksana</b> <b>Nemchenko MD</b>
<b>1 PRODUCT AND COMPANY IDENTIFICATION</b>	
COMMERCIAL NAME: OTHER TRADE NAME:	<b>CAMPO NEEM LEAF EXTRACT</b> NEEM LEAF PG EXTRACT; NEEM TREE EXTRACT; NEEM DEODORIZED EXTRACT
LATIN NAME:	Azadirachta indica A.Juss . Melia azadirachta Linn; Melia toosendan Sieb et Zucc.; Melia australasica; Melia japonica G.Don.
CTFA ADOPTED NAME / INCI NAME:	Melia Azadirachta Leaf Extract (and) Aqua (Water) (and) Propylene Glycol
CHINESE TRANSLATION:	印度楝 (MELIA AZADIRACHTA) 叶提取物 水 (AQUA / WATER) 丙二醇 (PROPYLENE GLYCOL)

<p>INTERNATIONAL CHEMICAL IDENTIFICATION (EC REGULATION NO#1272/2008 AMENDED NO#790/2009) and Compliant to the GHS:</p> <p>EPA (USA) GENERIC NAME:</p> <p>MANUFACTURER: (cGMP MFG. FACILITIES)</p> <p>EMERGENCY TELEPHONE NUMBERS:</p>	<p>Melia Azadirachta Leaf Extract Aqua (Water) Propylene Glycol</p> <p>Neem Extract / Vegetable Extract</p> <p>CAMPO RESEARCH Pte Ltd Level 30, 6 Battery Road Singapore 049909</p> <p>(+65) 6383 3631 / (+65) 6322 8503 (Singapore)</p>
<b>2 HAZARDS IDENTIFICATION</b>	
<p>NOT CLASSIFIED AS DANGEROUS ACCORDING TO DIRECTIVE 67/548/EEC OR ITS AMENDMENTS.</p> <p><b>HAZARD CLASS and CATEGORY CODE(s)</b></p> <p><b>HAZARD STATEMENT CODE(s)</b> (EC REGULATION NO#1272/2008 AMENDED NO#790/2009) and compliant to the GHS</p> <p><b><u>GHS CLASSIFICATION :</u></b> This material is Non-hazardous according To UN-GHS Criteria.</p> <p><b><u>GHS LABEL ELEMENTS:</u></b></p>	<p>DIVISION 1.6; NON-HAZARDOUS NO HAZARD STATEMENT</p> <p>PICTOGRAM : NONE</p> <p>No GHS Pictogram (Totally Non-Hazardous) Division 1.6; NO HAZARD STATEMENT</p> <p>PICTOGRAM : NONE No GHS Pictogram (Totally Non-Hazardous) Division 1.6; No Hazard Statement.</p> <p>No GHS Pictogram (Totally Non-Hazardous) Division 1.6; No Hazard Statement.</p>
<b>3 COMPOSITION / INFORMATION ON INGREDIENTS</b>	
<p>100 PERCENT CARBON-DIOXIDE GAS EXTRACTED NEEM LEAVES-CURED-PLANT PARTS WATER SOLUBLE AND PHOSPHOLIPIDS COMPONENTS EXTRACT IN WATER CARRIER MENSTRUM</p> <p>CTFA Monograph ID:</p> <p>CAS# CAS# EU</p> <p><b>CAS NO# (CAS Name)</b> (EC REGULATION NO#1272/2008 AMENDED NO#790/2009)and compliant to the GHS</p> <p>EINECS Numbers and Name EINECS# EU</p>	<p>10740 – Melia Azadirachta Leaf Extract 9423 – Aqua (Water) 2621 – Propylene Glycol</p> <p>90063-92-6 – Melia Azadirachta Leaf Extract 84696-25-3 / 90063-92-6 (EU) – Melia Azadirachta Leaf Extract 7732-18-5 – Aqua (Water) 7732-18-5 (EU) – Aqua (Water) 57-55-6 – Propylene Glycol 57-55-6 (EU) – Propylene Glycol</p> <p><b>84696-25-3 / 90063-92-6 – Melia Azadirachta Leaf Extract</b> <b>7732-18-5 – Aqua (Water)</b> <b>57-55-6 – Propylene Glycol</b></p> <p>290-052-2(1) – Melia Azadirachta Leaf Extract 283-644-7 / 290-052-2 (EU) – Melia Azadirachta Leaf Extract 231-791-2(1) – Aqua (Water) 231-791-2 (EU) – Aqua (Water) 200-338-0(1) – Propylene Glycol 200-338-0 (EU) – Propylene Glycol</p>

<p><b>EINECS# (EINECS Name)</b>  <b>(EC REGULATION NO#1272/2008</b>  <b>AMENDED NO#790/2009) and compliant</b>  <b>to the GHS</b></p> <p>EINECS Name and Number  EINECS# EU  European Commission–Health &amp; Consumer  Cosmetics–Cosing</p> <p>RISK PHRASES  SAFETY PHRASES 25-26</p> <p><b><u>GHS CLASSIFICATION :</u></b>  This material is Non-hazardous according  To UN-GHS Criteria.</p> <p><b><u>GHS LABEL ELEMENTS:</u></b></p>	<p><b>283-644-7 / 290-052-2 – Melia Azadirachta</b>  <b>Leaf Extract</b>  <b>231-791-2 – Aqua (Water)</b>  <b>200-338-0 – Propylene Glycol</b></p> <p>Melia Azadirachta Leaf Extract  <a href="http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=78090">http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=78090</a>  Melia Azadirachta Leaf Extract - 283-644-7 /  290-052-2 (EU)</p> <p>Aqua (Water)  <a href="http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=31959">http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=31959</a>  Aqua – 231-791-2 (EU)</p> <p>Propylene Glycol  <a href="http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=37269">http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=37269</a>  Propylene Glycol – 200-338-0 (EU)</p> <p>None  Not Mandatory</p> <p>PICTOGRAM : NONE</p> <p>No GHS Pictogram (Totally Non-Hazardous)  Division 1.6; No Hazard Statement.</p>
<b>4 FIRST AID MEASURES</b>	
EYE CONTACT:	Wash with water or standard eye wash solution. Seek medical advice, if irritation occur and persist.
ORAL INGESTATION:	Edible in small quantity (10 – 50 grams) with bland to bitter sweet after taste.
SKIN CONTACT:	Wash with water or shower
<b>5 FIRE FIGHTING MEASURES</b>	
<b>NON-COMBUSTIBLE AND PRESENTS NO SPECIAL FIRE HAZARD.</b>	
EXTINGUISHING MEDIA:	Treat as oil fire when store in HDPE drums with CO <sub>2</sub> , dry foam or dry chemical.
PROTECTIVE EQUIPMENTS FOR FIGHTERS:	Standard Equipments.
<b>6 ACCIDENTAL RELEASE MEASURES</b>	
ABSORB ONTO AN INERT MATERIAL AND SCRAPE UP. REMOVE RESIDUE BY SCRUBBING WITH HOT WATER OR DETERGENT SOLUTION.	
<b>7 HANDLING AND STORAGE</b>	
STORE IN SEALED CONTAINERS UNDER NORMAL COOL, DRY WAREHOUSING CONDITIONS.	

<b>8</b>	<b>EXPOSURE AND PERSONAL PROTECTION</b>	
	IN ACCORDANCE WITH GOOD INDUSTRIAL PRACTICE AND HANDLING USING STANDARD EYE PROTECTION.	
<b>9</b>	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>	
	PHYSICAL FORM:	Liquid
	COLOUR:	Green
	ODOUR:	Characteristic-faint aromatic
	BOILING POINT:	100 – 105°C
	MELTING POINT:	-
	VISCOSITY:	-
	FLASH POINT:	> 160°C
	FLAMMABILITY SOLID/GAS:	N/A
	AUTO FLAMMABILITY:	N/A
	SPECIFIC REFRACTIVE:	1.300 – 1.450
	EXPLOSIVE PROPERTIES:	N/A
	pH: (100% Concentrate)	N/A
	OXIDIZING PROPERTIES:	N/A
	VAPOUR PRESSURE:	N/A
	DENSITY:	1.010 – 1.200
	WATER SOLUBILITY:	Infinitely Soluble
	OTHER SOLUBILITY:	In most cosmetic solvents
	BULK DENSITY:	-
	PARTITION COEFFICIENT: (OCTANOL/WATER)	-
	EXPLOSIVE LIMITS:	-
<b>10</b>	<b>STABILITY AND REACTIVITY</b>	
	THERMAL DECOMPOSITION:	Stable under normal conditions of use.
<b>11</b>	<b>TOXICOLOGICAL DATA</b>	<b>Animal Tests Last Done 1992, as requirements of the then EC DIRECTIVE 91/155/EEC</b>
	ORAL:	LD <sub>50</sub> > 9,000 MG/KG (Body Wt.) Rat Essentially Non-Toxic and Edible in Small Quantity.
	DERMAL:	Expected To Be Essentially Non Toxic.
	INHALATION:	N/A
	<b>SPECIFIC CONCENTRATION LIMITS</b>	9,000 MG/KG (Body Wt.); CATEGORY 5
	<b>M-FACTORS</b>	Essentially Non-Toxic and Edible in Small Quantity.
	<i>(EC REGULATION NO#1272/2008</i>	
	<i>AMENDED NO#790/2009) compliant to</i>	
	<b>the GHS.</b>	
	<b>TOXIC EFFECTS:</b>	
	SKIN:	Primarily Irritation Index (PII) = 0.0 ( Non-Irritating - Skintex ), Not A Primarily Irritant. Non-irritant / Non-sensitizer as per Repeated Patch Insult Test on 50 Human volunteers.  Human Repeated Patch Test 48 hours: 50/50 completely non-irritating / non-erythema causing ingredient at 50% concentrate in water on 50 human volunteers
	EYE:	Very Mild/Minimal-not A Transient Conjunctival Irritant at 3% concentrate in water (Eyetex Classification).  <i>Summarized toxicological data as shown here are formation bounded under Non-Disclosure Agreement with various clients as when these Toxicological Data were established or their exclusive uses.</i>



<b>12</b>	<b>ECOLOGICAL INFORMATION</b>	
	BIODEGRADATION:	Expected To Be Ultimately Biodegradable.
	FISH TOXICITY:	No Data
	BACTERIAL & VIRAL TOXICITY:	Potential toxicity ascertained to micro-organisms.
	WGK CLASS:	WGK (Self Classification)
<b>13</b>	<b>DISPOSAL CONDITIONS</b>	
	DISPOSE OFF ACCORDING TO A RECOGNISED METHOD OF CHEMICAL WASTE DISPOSAL.	
<b>14</b>	<b>TRANSPORT INFORMATION</b>	
	UN NUMBER# :	N/A
	UN NAME:	Not Assigned
	IMDG CODE/CLASS:	Not Hazardous
	IMDG CODE PAGE NO.	N/A
	ICAO/IATA AIR CLASS:	Non-Hazardous
	ICAO/IATA AIR CLASS PACKING GROUP:	N/A
	RID/ADR CLASS:	Non-Hazardous
	ADNR CLASS:	Non-Hazardous
	<b>LABELLING:</b> (EC REGULATION NO#1272/2008 AMENDED NO#790/2009) and compliant to the GHS.	
	PICTOGRAM SIGNAL WORD CODE(s):	No GHS Pictograms (Totally Non-Hazardous)
	HAZARD STATEMENT CODE(s):	Division 1.6; No Hazard Statement
	SUPPLEMENTARY HAZARD STATEMENT CODE(s):	Similar Division 1.6; No Hazard Statement
<b>15</b>	<b>REGULATORY INFORMATION</b>	
	OCCUPATIONAL EXPOSURE LIMITS:	N/A
	U.S. State of California Proposition 65 INGREDIENTS Presence	None (Exempted from CA Prop 65 Register)
	EU Commission Regulation No.358/2014/9 of 9 <sup>th</sup> April 2014 amending Annexes II and V, to EU Regulation No No.1223/2009 of The European Parliament and of The Council on Cosmetic products	“Contains No Parabens and nor contains any Branched Chain Parabens”.(EU Regulation No.358/2014/9 of 9 <sup>th</sup> April 2014)
<b>16</b>	<b>OTHER INFORMATION</b>	
	USES AS A COSMETIC ADDITIVE	3.5 – 50.0 %
	This format and information is compiled by Kampoyaki Novel Natural Product Chemistry/ Novel Drug Discovery cGMP Labs Kobe, Japan; for Campo Research, Kyoto and Singapore.	*Please take note that all specifications are liable to changes without prior notice.

Campo Neem Leaf Extract ©.

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**Other MSDS (for oils, Fractionation B, C; etc) are available on request.**

# Campo Neem Wax NGP200

## Botanical Non ionic emulsifying wax

**Neem Wax NGP200** is a seed wax-fractionate, which is a nonionic self-emulsifying wax that produces a smooth and elegant oil-in-water emulsion. **Neem Wax NGP200** is inert to the more common cosmetic and pharmaceutical active agents.

## Emulsifying properties:

As an emulsifier, **Neem Wax NGP200** is of the self-bodying class. In concentrations in excess of 5% it produces a thick solid emulsion without the addition of stiffening waxes. By varying the concentration of **Neem Wax NGP200**, emulsions may be formed ranging from thin mobile liquids to rigid solids. It is an excellent product for emulsifying such products as oils, fats, and waxes and for the preparation of powder suspensions.

## Method of use:

**Neem Seed Wax NGP200**, is suggested to be mixed together with all oil-soluble materials and the temperature raised to about 75°C. Water and water-soluble components are heated separately to about 80°C. The oil phase is poured in a thin stream into the aqueous components and the whole stirred until the emulsion thickens or the temperature falls to around 30°C.

## Handling and storage:

**Neem Seed Wax NGP200** is supplied in 15-kg net cartons and 40-kg net kegs. It will remain usable for 2 years if stored unopened in dry conditions away from sources of heat.

Campo Research

## **CAMPO NEEM WAX NGP 200**

### **A NOVEL BOTANICAL NON-IONIC EMULSIFYING WAX**

#### **SPECIFICATION**

<b>PRODUCT NAME:</b>	<b>CAMPO NEEM WAX NGP 200</b>
<b>OTHER TRADE NAME:</b>	<b>NEEM SEED WAX NGP 200</b>
<b>PRODUCT NUMBER:</b>	<b>Melia azadirachta Linn Semen Cera</b> 97.08-5443
<b>BOTANICAL SPECIES:</b>	Melia azadirachta Linn.
<b>PLANT PARTS USED:</b>	Cured seeds kernel- 95%
<b>APPEARANCE:</b>	White wax granules
<b>ACID VALUE:</b>	1.5 - 1.8 max.
<b>EMULSIFYING PROPERTIES:</b>	Smooth and stable (10% w/w)
<b>MELTING POINT (°C):</b>	46 - 53
<b>pH VALUE (3% AQUEOUS)</b>	5.5 - 7.5
<b>SAPONIFICATION VALUE:</b>	7.8 - 15.0

Campo Research

**“(SAFETY DATA SHEET – compliant to GHS)”**  
**CONFIRMS TO EC DIRECTIVE 91/155/EEC, EC REGULATION**  
**NO#1272/2008, AMENDED EC REGULATION NO#790/2009 and**  
**Complies to The EU Cosmetic Products Regulation (Regulation (EC) No**  
**1223/2009) effective on July 2013., and to EU Commission Regulation**  
**No.358/2014/9 of 9<sup>th</sup> April 2014 amending Annexes II and V, to EU**  
**Regulation No No.1223/2009 of The European Parliament and of The**  
**Council on Cosmetic products, (Effective Date 31<sup>st</sup> October 2014) AND to**  
**US DEPT.OF LABOR-Occupational Safety & Health Admin directives**  
**and compliant to Globally Harmonized System of Classification and**  
**Labeling of Chemicals (hereinafter referred to as “the GHS”)., and**  
**Complies and Confirms to the Requirements of State of California**  
**Proposition 65.**

A Quality Management System, compliant to the International Standard ISO 9001, was used to manufacture and test this material

<http://www.osha.gov/dsg/hazcom/ghs.html>

[http://www.unece.org/trans/danger/publi/ghs/ghs\\_welcome\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html)

<http://www.hc-sc.gc.ca/ahc-asc/intactiv/ghs-sgh/index-eng.php>

DATE OF FIRST ISSUE	May 5th 1996-Reviewer - Dr Balasubramaniam PhD
DATE OF LATEST REVISION	Jan. 20th 1997- Reviewer- Dr Fergus Jes .G.Velasquez Bsc. Med Tech, MD <b>Mr Jimmy Kee, 30<sup>th</sup> June 2003</b> <b>Mr Teo SH 5<sup>th</sup> Jan 2004</b> <b>Balasubramaniam M,PhD 21<sup>st</sup> August 2007</b> <b>Mr Joshua Teo, 21<sup>st</sup> Jan 2011</b> <b>Februrary 5<sup>th</sup> 2013 – Reviewer –</b> <b>Dr Balasubramaniam M PhD</b> <b>12<sup>th</sup> February 2015 - Joshua Teo BSc. Chem,</b> <b>Dr Balasubramaniam M. PhD &amp; Oksana</b> <b>Nemchenko MD</b> <b>15<sup>th</sup> May 2016 - Joshua Teo BSc. Chem,</b> <b>Dr Balasubramaniam M. PhD &amp; Oksana</b> <b>Nemchenko MD</b>
<b>1 PRODUCT AND COMPANY IDENTIFICATION</b>	
COMMERCIAL NAME:	<b>CAMPO NEEM WAX NGP200</b>
OTHER TRADE NAME:	NEEM SEED WAX NGP200
LATIN NAME:	Azadirachta indica A.Juss (Syn: Melia azadirachta Linn)
CTFA ADOPTED NAME / INCI NAME:	Melia Azadirachta Seed Oil
CHINESE TRANSLATION:	印度楝 (MELIA AZADIRACHTA) 籽油
<b>INTERNATIONAL CHEMICAL IDENTIFICATION</b> <i>(EC REGULATION NO#1272/2008 AMENDED NO#790/2009) and Compliant to the GHS:</i>	<b>Melia Azadirachta Seed Oil</b>
EPA (USA) GENERIC NAME:	Neem Extract / Vegetable Extract

MANUFACTURER: (cGMP MFG. FACILITIES)	CAMPO RESEARCH Pte Ltd Level 30, 6 Battery Road Singapore 049909
EMERGENCY TELEPHONE NUMBERS:	(+65) 6383 3631 / (+65) 6322 8503 (Singapore)
<b>2 HAZARDS IDENTIFICATION</b>	
NOT CLASSIFIED AS DANGEROUS ACCORDING TO DIRECTIVE 67/548/EEC OR ITS AMENDMENTS.	DIVISION 1.6; NON-HAZARDOUS NO HAZARD STATEMENT
HAZARD CLASS and CATEGORY CODE(s)	PICTOGRAM : NONE
HAZARD STATEMENT CODE(s) (EC REGULATION NO#1272/2008 AMENDED NO#790/2009) and compliant to the GHS	No GHS Pictogram (Totally Non-Hazardous) Division 1.6; NO HAZARD STATEMENT
<b><u>GHS CLASSIFICATION :</u></b> This material is Non-hazardous according To UN-GHS Criteria.	PICTOGRAM : NONE No GHS Pictogram (Totally Non-Hazardous) Division 1.6; No Hazard Statement.
<b><u>GHS LABEL ELEMENTS:</u></b>	No GHS Pictogram (Totally Non-Hazardous) Division 1.6; No Hazard Statement.
<b>3 COMPOSITION / INFORMATION ON INGREDIENTS</b>	
100 PERCENT CARBON-DIOXIDE GAS EXTRACTED MELIA AZADIRACHTA LINN. SEEDS-CURED. -PLANT PARTS WATER AND OIL SOLUBLE COMPONENTS	
CTFA Monograph ID:	9308 – Melia Azadirachta Seed Oil
CAS#	8002-65-1 – Melia Azadirachta Seed Oil
CAS# EU	8002-65-1 / 90063-92-6 (EU) – Melia Azadirachta Seed Oil
CAS NO# (CAS Name) (EC REGULATION NO#1272/2008 AMENDED NO#790/2009)and compliant to the GHS	<b>8002-65-1 / 90063-92-6 – Melia Azadirachta Seed Oil</b>
EINECS Numbers and Name EINECS# EU	N/A – Melia Azadirachta Seed Oil 290-052-2 (EU) – Melia Azadirachta Seed Oil
EINECS# (EINECS Name) (EC REGULATION NO#1272/2008 AMENDED NO#790/2009) and compliant to the GHS	<b>290-052-2 – Melia Azadirachta Seed Oil</b>
EINECS Name and Number EINECS# EU European Commission–Health & Consumer Cosmetics–Cosing	Melia Azadirachta Seed Oil <a href="http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=35207">http://ec.europa.eu/consumers/cosmetics/cosing/index.cfm?fuseaction=search.details_v2&amp;id=35207</a> Melia Azadirachta Seed Oil - 290-052-2 (EU)
RISK PHRASES SAFETY PHRASES 25-26	None Not Mandatory
<b><u>GHS CLASSIFICATION :</u></b> This material is Non-hazardous according To UN-GHS Criteria.	PICTOGRAM : NONE

<b><u>GHS LABEL ELEMENTS:</u></b>		No GHS Pictogram (Totally Non-Hazardous) Division 1.6; No Hazard Statement.
<b>4</b>	<b>FIRST AID MEASURES</b>	
	EYE CONTACT:	Wash with water or standard eye wash solution. Seek medical advice, if irritation occur and persist.
	ORAL INGESTATION:	Essentially edible in small quantity.
	SKIN CONTACT:	Wash with water or shower
<b>5</b>	<b>FIRE FIGHTING MEASURES</b>	
	NON-COMBUSTIBLE AND PRESENTS NO SPECIAL FIRE HAZARD.	
	EXTINGUISHING MEDIA:	Treat as oil fire when store in HDPE drums with CO <sub>2</sub> , dry foam or dry chemical.
	PROTECTIVE EQUIPMENTS FOR FIGHTERS:	Standard Equipments.
<b>6</b>	<b>ACCIDENTAL RELEASE MEASURES</b>	
	ABSORB ONTO AN INERT MATERIAL AND SCRAPE UP. REMOVE RESIDUE BY SCRUBBING WITH HOT WATER OR DETERGENT SOLUTION.	
<b>7</b>	<b>HANDLING AND STORAGE</b>	
	STORE IN SEALED CONTAINERS UNDER NORMAL COOL, DRY WAREHOUSING CONDITIONS.	
<b>8</b>	<b>EXPOSURE AND PERSONAL PROTECTION</b>	
	IN ACCORDANCE WITH GOOD INDUSTRIAL PRACTICE AND HANDLING USING STANDARD EYE PROTECTION.	
<b>9</b>	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>	
	PHYSICAL FORM:	Wax Granules
	COLOUR:	White
	ODOUR:	Characteristic-faint
	BOILING POINT:	-
	MELTING POINT:	46 – 53°C
	VISCOSITY:	-
	FLASH POINT:	-
	FLAMMABILITY SOLID/GAS:	N/A
	AUTO FLAMMABILITY:	N/A
	SPECIFIC REFRACTIVE:	-
	EXPLOSIVE PROPERTIES:	N/A
	pH: (3% Aqueous)	5.5 – 7.5
	OXIDIZING PROPERTIES:	N/A
	VAPOUR PRESSURE:	N/A
	DENSITY:	-
	WATER SOLUBILITY:	Soluble
	OTHER SOLUBILITY:	In most cosmetic solvents
	BULK DENSITY:	-
	PARTITION COEFFICIENT: (OCTANOL/WATER)	-
	EXPLOSIVE LIMITS:	-
<b>10</b>	<b>STABILITY AND REACTIVITY</b>	
	THERMAL DECOMPOSITION:	Stable under normal conditions of use.
<b>11</b>	<b>TOXICOLOGICAL DATA</b>	<b>Animal Tests Last Done 1992, as requirements of the then EC DIRECTIVE 91/155/EEC</b>
	ORAL:	LD <sub>50</sub> > 9,000 MG/KG (Body Wt.) Rat Essentially Non-Toxic and Edible in Small Quantity.

DERMAL:	Expected To Be Essentially Non Toxic.
INHALATION:	N/A
<b>SPECIFIC CONCENTRATION LIMITS</b>	9,000 MG/KG (Body Wt.); CATEGORY 5
<b>M-FACTORS</b>	Essentially Non-Toxic and Edible in Small Quantity.
<i>(EC REGULATION NO#1272/2008</i>	
<i>AMENDED NO#790/2009) compliant to</i>	
<i>the GHS.</i>	
<b>TOXIC EFFECTS:</b>	
SKIN:	Primarily Irritation Index (PII) = 0.0 ( Non-Irritating - Skintex ), Not A Primarily Irritant. Non-irritant / Non-sensitizer as per Repeated Patch Insult Test on 50 Human volunteers.
	Human Repeated Patch Test 48 hours: 50/50 completely non-irritating / non-erythema causing ingredient at 3% concentrate in water on 50 human volunteers
EYE:	Very Mild/Minimal-not A Transient Conjunctival Irritant at 3% concentrate in water (Eyetex Classification).
<i>Summarized toxicological data as shown here are formation bounded under Non-Disclosure Agreement with various clients as when these Toxicological Data were established or their exclusive uses.</i>	
<b>12</b>	<b>ECOLOGICAL INFORMATION</b>
BIODEGRADATION:	Expected To Be Ultimately Biodegradable.
FISH TOXICITY:	No Data
BACTERIAL & VIRAL TOXICITY:	No Data
WGK CLASS:	WGK (Self Classification)
<b>13</b>	<b>DISPOSAL CONDITIONS</b>
DISPOSE OFF ACCORDING TO A RECOGNISED METHOD OF CHEMICAL WASTE DISPOSAL.	
<b>14</b>	<b>TRANSPORT INFORMATION</b>
UN NUMBER# :	N/A
UN NAME:	Not Assigned
IMDG CODE/CLASS:	Not Hazardous
IMDG CODE PAGE NO.	N/A
ICAO/IATA AIR CLASS:	Non-Hazardous
ICAO/IATA AIR CLASS PACKING GROUP:	N/A
RID/ADR CLASS:	Non-Hazardous
ADNR CLASS:	Non-Hazardous
<b>LABELLING:</b>	
<i>(EC REGULATION NO#1272/2008</i>	
<i>AMENDED NO#790/2009) and compliant to</i>	
<i>the GHS.</i>	
<b>PICTOGRAM SIGNAL WORD CODE(s):</b>	No GHS Pictograms (Totally Non-Hazardous)
<b>HAZARD STATEMENT CODE(s):</b>	Division 1.6; No Hazard Statement
<b>SUPPLEMENTARY HAZARD STATEMENT CODE(s):</b>	Similar Division 1.6; No Hazard Statement
<b>15</b>	<b>REGULATORY INFORMATION</b>
OCCUPATIONAL EXPOSURE LIMITS:	N/A
<b>U.S. State of California Proposition 65 INGREDIENTS Presence</b>	None (Exempted from CA Prop 65 Register)

	<b>EU Commission Regulation No.358/2014/9 of 9<sup>th</sup> April 2014 amending Annexes II and V, to EU Regulation No No.1223/2009 of The European Parliament and of The Council on Cosmetic products</b>	“Contains No Parabens and nor contains any Branched Chain Parabens”.(EU Regulation No.358/2014/9 of 9 <sup>th</sup> April 2014)
<b>16</b>	<b>OTHER INFORMATION</b>	
	USES AS A COSMETIC ADDITIVE	0.5 – 5.0 %
	This format and information is compiled by Kampoyaki Novel Natural Product Chemistry/ Novel Drug Discovery cGMP Labs Kobe, Japan; for Campo Research, Kyoto and Singapore.	*Please take note that all specifications are liable to changes without prior notice.

**Campo Neem Wax NGP200 ©.**

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## **NEEM LEAF TOTAL EXTRACT-powder crystalline**

**Synonyms: Azadirichta indica A. Juss. Folium (leaves)- ---  
-total fractionation extractum–crystalline powder.**

INCI NAME: NEEM (MELIA AZADIRACHTA, LINN) EXTRACT CAS # 992-20-1 (11141-17-6)

### **Characteristics**

**C<sub>4</sub>H<sub>6</sub>N<sub>4</sub>O<sub>3</sub>** - crystalline extract

### **General**

**Neem Leaf Total Extract** and the two combination compounds **Neem Leaf Total Extract Fraction B** and **Neem Leaf Total Extract Fraction C** have been proven to be valuable active constituents both in cosmetics and in dermatology on account of their compatibility with the skin and their skin-regenerating effect. **Neem Leaf Total Extract Fraction B** has a mild astringent action. The active spectrum is thus widened, without limiting the possibilities of combining the substances with other cosmetic and pharmaceutical ingredients.

### **Specification**

Assay (acidimetrically, calc. For the dried substance)	98 - 102%
IR-spectrum	Conforms Standard
pH (0.5% solution)	4 – 6
Decomposition point	>220 <sup>0</sup> C
Appearance	Colorless, shiny, monoclinic plates or prisms or a crystalline powder
Odour	None
Taste	None
Chloride (Cl)	<0.005%
Sulfate (SO <sub>4</sub> )	<0.02%
Heavy metals (as Pb)	<0.0005%
Iron (Fe)	<0.001%
Arsenic (As)	<0.0002 %
Urea (TLC)	<0.5%
Nimbidin (TLC)	<0.5%
Loss on drying (105 <sup>0</sup> C)	<0.1%
Sulfated ash	<0.1%
Particle size	>95% <75µm

## Solubility

Solvent	Temperature	Solubility
Water	25 <sup>0</sup> C	About 0,6%
Water	40 <sup>0</sup> C	About 1,1%
Water	70 <sup>0</sup> C	About 3,6%
Ethanol (96%)	25 <sup>0</sup> C	About 0,04%
Ethanol	40 <sup>0</sup> C	About 0,65%
Ethanol/Water (1/1)	25 <sup>0</sup> C	About 0,35%
	40 <sup>0</sup> C	About 0,65%
Isopropanol	25 <sup>0</sup> C	About 0,02%
	40 <sup>0</sup> C	About 0,02%
Isopropanol / Water (1/1)	25 <sup>0</sup> C	About 0,3%
	40 <sup>0</sup> C	About 0,6%
1,2-Propylenglycol	25 <sup>0</sup> C	About 0,3%
	40 <sup>0</sup> C	About 0,6%
	70 <sup>0</sup> C	About 0,7%
Water/1,2-Propylenglycol (1/1)	25 <sup>0</sup> C	About 0,4%
	40 <sup>0</sup> C	About 0,9%
	70 <sup>0</sup> C	About 2,7%
Glycerol	25 <sup>0</sup> C	About 0,015%
	40 <sup>0</sup> C	About 0,036%
Glycerin / Water (1/1)	25 <sup>0</sup> C	About 0,6%
	40 <sup>0</sup> C	About 0,9%
Sorbital Fliiquid SK	25 <sup>0</sup> C	About 0,01%
	40 <sup>0</sup> C	About 0,34%

Neem Leaf Total Extract is insoluble in ether and chloroform. No pharmaceutically or cosmetically useful solubilisers have been discovered as yet. Neem Leaf Total Extract dissolves freely in alkalis, with degradation. Neem Leaf Total Extract is amphoteric.

### **Decomposition range:**

Neem Leaf Total Extract does not have a definite melting point, which could be used as a criterion of purity. It merely shows a decomposition range which varies according to the method employed (e.g. USP X VIII, method Ia: about 230°C; Fus-o-mat: about 244<sup>0</sup>C).

### **Optical isomers:**

The stable form of Neem Leaf Total Extract is the optically inactive racemic form, which is the one available commercially.

### **Stability:**

Neem Leaf Total Extract exhibits good stability in dry formulation. Hydrous pharmaceutical and cosmetic preparations are sufficiently stable in an acid to neutral environment under normal storage conditions. After being heated to 80<sup>0</sup>C for 1 hour, a 0.5 % aqueous solution and by the action of strong alkalis.

### **Storage:**

The substance should be kept in tightly sealed containers; solutions should be stored room temperature and protected from light.

### **Action**

The action of Neem Leaf Total Extract in the treatment of wounds is complex: the damaged tissue is first cleansed; rapid regeneration of tissue follows due to cell-proliferation promoted by the Neem Leaf Total Extract. In most cases relief from pain is felt soon after initial administration of Neem Leaf Total Extract. One further important feature for practical usage is its keratolytic action. Neem Leaf Total Extract has mild antiseptic effect. In surface injuries, too, or in areas of skin treated harshly and exposed to the inclemencies of weather Neem Leaf Total Extract(s) produces cell proliferation and rapid formation of epithelium. Skin-irritation, chapping and cracking of the epidermis disappear, together with other blemishes. When used on intact facial and body skin Neem Leaf Total Extract(s) produces a silky, smooth and healthy appearance.

Details on the active mechanism of Neem Leaf Total Extract(s) are not yet fully established yet, but it is assumed that Neem Leaf Total Extract(s) produces a transient local increase in leukocytes.

Under certain conditions Neem Leaf Total Extract(s) may be degraded chemically or by enzymatic action to form urea. However, this degradation does not occur in the human organism; thus the wound healing effect is due to Neem Leaf Total Extract(s) itself and not to the presence of urea. This has been demonstrated in animal experiments.

### **Tolerance**

Neem Leaf Total Extract(s) is tolerated very well. As yet no findings have been published on toxic side effects, allergic reactions or irritation of treated skin areas. Previous observations exclude carcinogenic activity.

### **Uses**

On this basis Neem Leaf Total Extract(s) represents an active principle which is eminently suitable as a supplement to a number of pharmaceutical and cosmetic formulations. Preparations of this type may contain Neem Leaf Total Extract(s) as the only active ingredient. In addition, Neem Leaf Total Extract is compatible with a large number of drugs used in pharmaceutical and dermatological preparations and cosmetics, so that all types of combinations are possible for preparations with specific uses. Neem Leaf Total Extract(s) may therefore also be incorporated without difficulty in specialties already available. The employment of Neem Leaf Total Extract(s) is very economical because the concentrations required is rather low.

The following table gives an insight into the many uses of **Neem Leaf Total Extract, Neem Leaf Total Extract Fraction B (II) and Neem Leaf Total Extract Fraction C (III)** in cosmetic and dermatological formulations.

Uses	Formulation	Concentration of NeemLeaf T. Extr.	Concentration of Fraction II (B)	Concentration of Fraction III (C)
Acne preparations	Lotions, Creams	0.1 – 0.2 %	0.5 – 2%	0.5 – 2%
After-shave preparations	Lotions	0.2%	0.2 – 0.25%	--
Soaps and shaving creams		0.15 – 0.2%	--	0.15 – 0.2%
Hair tonics		0.2%	--	--
Eye preparations	Eye drops	0.2%	--	--
Oral hygiene	Tooth pastes	0.1 – 0.2%	0.15 – 0.2%	0.1 – 0.2%
Antiperspirants and deodorants	Sprays, Lotions, Creams	0.1 – 0.2%	0.25 – 0.5%	--
Skin creams and sun screens	Lotions, Creams	0.2%	--	0.2 – 0.4% up to 2%
Baby care	Creams Powders	0.2%	--	0.2 – 1.0%
Lipsticks and make-up		0.1%	--	0.1 – 0.2%
Foot care preparations	Lotions, Creams, Powders, Sprays	0.2%	0.2 – 0.3%	0.2 – 0.3%

**Cosmetics**

When incorporated in cosmetic formulations Neem Leaf Total Extracts promotes cell-regeneration in skin which has been subjected to the harsh treatment of external influences, and in addition takes care of intact facial and body skin, keeping it in a healthy condition.

**Skin creams, sunburn preparations**

The incorporation of Neem Leaf Total Extract(s) into hand creams and lotions soothes chapped and cracked skin and leaves hands smooth and supple. Le Van and colleagues investigated the effectiveness of a hand lotion containing Neem Leaf Total Extract(s) using a fairly large number of housewives suffering from badly damaged skin. For about 90% of the women using that particular hand lotion daily the symptoms disappeared completely. For the remainder, at least considerable improvement was observed.

In addition, formulations containing Neem Leaf Total Extract(s) are eminently suitable for the care of the very tender skin of infants and small children. In skin creams of various types, such as nourishing creams, day or night creams, lip preparations and sunburn creams and lotions, Neem Leaf Total Extract(s) will intensify the healing and regenerative action of these preparations.

**Hair tonics**

Because of its excellent keratolytic properties, Neem Leaf Total Extract(s) is a very valuable additive in various hair tonics, especially for the treatment of dandruff.

**Oral hygiene**

The curative effect of Neem Leaf Total Extract(s) underlines its ideal application as a supplement to mouthwashes and dentifrices.

**After-shaves**

The slight cuts and scrapes often occurring during shaving are soon healed by after-shaves containing Neem Leaf Total Extract(s).

**Miscellaneous preparations**

In lipsticks, antiperspirants and sun screening preparations Neem Leaf Total Extract(s) guards against skin damage. On the average, 0.1 – 0.2% of Neem Leaf Total Extracts is added to cosmetic preparations. The Neem Leaf Total Extract(s) concentration may be increased to 0.5% depending on the use of the preparation. It makes no difference as to the complete effectiveness of the product whether the Neem Leaf Total Extract(s) is in solution, suspension, or dry, powder form.

**Pharmaceutical and dermatological preparations**

Incorporation of Neem Leaf Total Extract(s) in various healing ointments promotes the cleansing of wounds and their healing. The field of indications for preparations of this type covers everything from minor everyday injuries, lacerations, rhagades, cuts and burns to stubborn and suppurating wounds, refractory ulcers of various genesis, including the treatment of burns of varying cause and severity, for instance, those following exposure to heat, x-ray and solar irradiation. Preparations containing Neem Leaf Total Extract(s) also have a beneficial effect on eczema, contact dermatitis of the hands, hyperkeratosis, paronychia and aphthae. Of particular advantage is the fact that wound healing proceeds without keloid development. In addition, internal and external haemorrhoids respond well to suppositories and ointments with Neem Leaf Total Extract(s).

In pharmaceutical formulations the dosage is usually 2%. Depending on the use of the preparation and type and number of ingredients present in addition to Neem Leaf Total Extract(s), this dosage may be reduced or increased.

**Incorporation**

It is recommended that Neem Leaf Total Extract(s) be dissolved, together with the other water-soluble ingredients, in the aqueous phase of the respective preparation, or in water at about 75°C. The aqueous phase is then stirred vigorously – in the preparation of an emulsion, for instance – into the fatty phase.

## Neem Leaf Total Extract Derivatives

### Neem Leaf Total Extract Fraction B

INCI NAME: NEEM (MELIA AZADIRCHTA, LINN) EXTRACT

CAS # 992-20-1 (11141-17-6)

#### USES: -

##### Acne preparation

For these preparations a concentration of 0.5 – 2% is recommended. The mild astringent effect promotes the drying of oozing skin areas and pustules. It decreases infected eruptions, heals the affected skin portions and has a soothing effect.

**Neem Leaf Total Extract Fraction B** may also be combined effectively in a 0.5% aqueous alcoholic solution and in ointments with antimicrobial compounds (**recommended: Linacre japonica Extract**) for the control of acne.

##### Mouthwashes

When concentrations of 0.25 – 0.2% **Neem Leaf Total Extract Fraction B** are added to mouthwashes and gargles, these preparations achieve a mild astringent effect. The active ingredient is very compatible with the usual additives, and augments the bacteriostatic or bactericidal effect of finished preparations. The compound does not affect the taste, and helps fortify the gums.

##### After-shave preparations

These preparations should contain concentrations of 0.25 – 0.25% **Neem Leaf Total Extract Fraction B** the slight irritation and injuries often occurring during shaving are rapidly relieved.

##### Antiperspirants and deodorants

Concentrations of 0.25 – 0.5% of **Neem Leaf Total Extract Fraction B** have proved suitable for these preparations. The slight irritation frequently noted with antiperspirant or deodorant preparations is alleviated by the addition of this active ingredient. Therefore, in many cases a combination of **Neem Leaf Total Extract Fraction B** with aluminium chlorohydroxide is recommended in mixtures consisting of 1 % **Neem Leaf Total Extract Fraction B** and 99% aluminium chlorohydroxide.

#### Specification

Assay (acidimetrically, calc, for the dried substance)	24 – 32 %
Assay (from N, Neem Leaf Total Extract(s))	36 – 44 %
Chloride	8 – 11 %
Water	6 - 9 %
IR spectrum	Conforms standard
Appearance	Fine white powder
pH (1 %, Water)	4.0 – 5.0
Sieve analysis (max.100 µm)	Min. 95 %

#### Solubility

Solvent	Temperature	Solubility
Water	20°C	About 1.3 %
Methanol (50%)	20°C	About 1.2 %
Ethanol (50%)	20°C	About 0.8 %
Isopropanol (50%)	20°C	About 1 %
Methanol (96%)	20°C	Insoluble
Ethanol (96%)	20°C	Insoluble
Ether	20°C	Insoluble
Chloroform	20°C	Insoluble

# Neem Leaf Total Extract Fraction C (Neem Vegetable Cortisone Powder)

[click here for Neem Vegetable Cortisone Liquid](#)

(EU INCI) US INCI NAME: NEEM (MELIA AZADIRACHTA) EXTRACT

CAS # 992-20-1 (11141-17-6)

## Specification

Assay (acidimetrically,calc,for the dried substance)	15 – 28 %
Assay (from N, Neem Leaf Total Extract(s))	50 – 60 %
Water	6 - 12 %
IR spectrum	Conforms standard
Appearance	Fine white powder
pH (1 %, Water)	4.0 – 5.0
Sieve analysis (max.100 µm)	Min. 95 %

## Solubility

Methanol (96%)	Insoluble
Ethanol (96%)	Insoluble
Benzene	Insoluble
Chloroform	Insoluble
Water	Insoluble

## USES: -

**Neem Leaf Total Extract Fraction C** is suitable for the treatment of sensitive and inflamed areas of skin and for the drying of discharging wounds. It keeps the skin soft and dry and prevents abnormal pH fluctuation of the skin surface. The main uses of this compound are in the following fields.

Skin creams, acne preparations, sun screens.

For preparations of the type, usually a concentration of 0.2-04% **Neem Leaf Total Extract Fraction C** is employed. In the cases, for instance in acne preparations, the concentration may be increased to 2%. A combination of **Neem Leaf Total Extract Fraction C** with other active ingredient prevents irritation compatible with skin is of advantage.

## Baby cares preparations

**Neem Leaf Total Extract Fraction C** may be added to baby powders and baby creams in amounts of 0.2 – 03%. These formulations have been proven to be of great value, as the active ingredient prevents irritation of the, as is caused by urine, acid or alkali. **Neem Leaf Total Extract Fraction C** binds these irritants and in addition extras a positive effect on the skin.

## Dentifrice's

In toothpaste's and similar preparations **Neem Leaf Total Extract Fraction C** may be used in concentrations of 0.1 – 0.2%. Owing to this adsorptive capacity, a gum cleansing effect and also a healing effect is attributed to the preparation. In dental preparations, a combination of **Neem Leaf Total Extract Fraction B** and **Neem Leaf Total Extract Fraction C** is also recommended.

## Soaps and shaving creams

For these preparations a concentration of 0.1-02% **Neem Leaf Total Extract Fraction C** is suggested.

## Lipsticks and make-up

For preparations of this type **Neem Leaf Total Extract Fraction C** concentrations of 0.1-0.2% may be used.

## **Neem Seed-Servative®**

Propylene Glycol (and) Water (and) Neem Seed (Melia Azadirachta Seed) Extract  
 INCI NAME: NEEM (MELIA AZADIRACHTA, LINN) EXTRACT **CAS# 992-20-1 (11141-17-6)**  
**(Cosmetic Botanical Preservative)**

Neem Seed-Servative® is gaseous carbon dioxide fractionate extract of Neem seeds and blended with distilled water and propylene glycol. This active ingredient is broad-spectrum cosmetic preservative, which provides broad range protection against gram positive bacteria, gram negative bacteria, yeasts and molds.

The components are, Neem Seeds Fraction Complex - consisted mainly of fractions I, II, III, IV, V and VI, which are isolated as a complex rather than isolating the individual components. The ethno-botany knowledge is based on the use of Neem seeds in Village Pharmacy and Dietary practice of East Indians, of the Indian Sub-Continent. They have been determined to be safe for as a Cosmetic Ingredient. (Matrex, Skintex, & Human volunteers Repeat Insult Assays available).

The ratios of the 6 fractions are at a level typically suitable for use in cosmetic products. At this ratio, Neem Seed Servative® combines the best qualities of all preservation properties of the six fractions into one, easy to handle liquid that disperses readily in a cold system.

### **TYPICAL PROPERTIES:**

Appearance:	Clear Liquid, colorless to very slight reddish blue taint or yellow-greenish taint (Color may differ slightly batch to batch)
Odor:	Very faint-characteristic Neem
Alpha Color:	200 Maximum
pH (10% Aq.):	6.0 - 8.0
Water %:	6.0 Maximum

### **PRINCIPAL USE: Cosmetic Preservative**

Use Level 0.1 to 3.0 %

*This product is an ethnic dietary article and used as a village food-preservation article and delicacy in India, Bangladesh, Sri Lanka and Pakistan, but in USA, EFTA and EEC this active ingredient should only to be used as cosmetic preservative. It is not registered with U.S. EPA as a general biocide and may only be used in exempt applications such as*

*Cosmetics. **A 100% pure powder form is also available upon request - usage level from 10 - 100 ppms with Broad- spectrum anti-microbiological rapid kill rate activity, for usage in cosmetics, food / herbal supplements***

**PACKAGING** Available in 500-pound net/ 226.8kgs gallon opens head fiber drums or 140 pound/ 60kg net plastic drums.

**NOTE:** Because individual requirements vary, it is urged that purchasers perform their own product preservative stability Tests and investigations to determine the effectiveness of Neem-Seed-Servative® in their system.



**Melia Azadirachta in floral blossoms**

**Reference:**

1. Evaluation of four Azadirachtin Rich Fractions from Neem *Azadirachta-Indica* A. Juss family Meliaceae as Mosquito larvicides Raodr: Reuben. R; Gitanjali.Y; Sri Mannarayana.G; Centere Res. Med. Entomol.  
  
Madurai-625003. India.
2. Biological activity of limonoids from the Rutales. Cahmpagne. D.E.; Koul. O; Isman. M.B; Scudder.G.G.E;
3. Towers.G.H.N. Department of Botany, University of British Columbia, Vancouver, British Columbia, V6T 1Z4, Canada. *Phytochemistry* Vol.31 (2): p.377-394 (1992)



# Neem Leaf-Servative

**Product Name:** Total Neem Leaf Liquid Extract

**Other Name:** Neem Leaf – Servative Liquid Extract

**Product Number:** 95.009/97

**Description:** Neem Leaf-Servative is a gaseous carbon dioxide fractionate extract of Neem leaves-cured blended with distilled water and propylene glycol. It is applied as a preservative on plant drug extract for health food supplement products as well as in cosmetics.

## SPECIFICATION:

**INCI Name:** Neem (*Melia azadirachta* Linn.) Extract  
CAS # 992-20-1 (11141-17-6)

**Plant parts used:** cured leaves

**Appearance:** reddish brown liquid

**Odour:** faint characteristic

**pH Value:** 6.0 – 8.0

**Specific gravity:** 1.010 – 1.130

**Refractive Index:** 1.330 – 1.500

**Dry Residue:** 5 (max.)

**Water Solubility:** soluble

### Microbiology:

Yeast/mold: < 100 cfu/ml

Bacteria: < 100 cfu/ml non pathogenic

**DOSAGE:** **0.1 – 3.0%**  
(As a cosmetic additive/supplementary dietary/food use)

**KAMPOYAKI RESEARCH &EXPORTS SYS.**

**(SINGAPORE)**

**KAMPOYAKI RESEARCH SDN.BHD**

**(KUALA LUMPUR / JOHOR BAHRU, MALAYSIA)**

**NEEM FLORAL BLOSSOMS**



**NEEM SEED SERVATIVE (EDIBLE GRADE)**

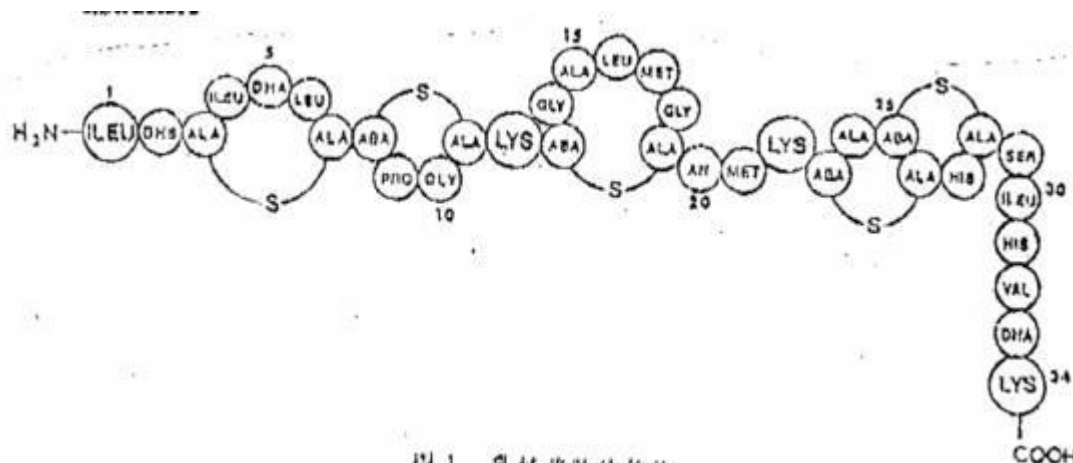
## SUMMARY-SPECIFICATION

KAMPOYAKI TRADE NAME:	Neem seed servative ( <b>EDIBLE GRADE</b> )
Product Number:	KRSB-1998-01-02-95
LATIN NAME:	Azadirachta indica A. juss.
SYN. NAME:	Melia azadirachta Linn.
PLANT PARTS USED:	Seeds
DESCRIPTION :	Gray powder, to Brown buff powder
POTENCY:	(iu/mg): $\geq 900$
HEAVY METAL (AS PER Pb,mg/kg):	$\leq 20$
As (AS PER As,mg/kg):	$\leq 3$
PATHOGENIC BACTERIA:	None – found (Negative)
DOSAGE:	100mg-200mg/kg
SHELF LIFE:	Two years in dry, cool 4° C - 25° C condition
FUNCTIONS:	Efficiently inhibits and kills gram-positive bacteria.
MERITS:	Safe with no known toxicity and no known side effect. The addition of Neem seed servative can reduce the energy consumption in heating processing improve nutritional value, appearance, taste and texture of the products and increase the shelf life significantly
USAGE:	Thermal processed foods particular in canned food, dairy products, cured meat, alcoholic beverages; preserving functional food supplements, vitamin capsules, & tablets; Plant extracts, jams, wine, beverages, and other food products.

Neem seed servative is a polypeptide fraction isolated from Neem Seeds. This polypeptide is a natural plant product that inhibits streptococcus growth and prevents Bulgaria lactobacillus producing acid. This simple Neem plant seed's substance (a polypeptide) is isolated and purified from the Neem seed wax and could inhibit the growth of many kinds of gram-positive bacteria and thus it is named via its trade name "Neem Seed Servative (Edible Grade)". Following is the outline of its physiochemical properties, bacteriostatics, functions and application in food preservation.

## I. Physiochemical properties

### Structure



### Dissolvability stability

The dissolvability of Neem seed servative is likely to increase notably with the decrease of the value of pH. Kampoyaki Research Sdn.Bhd's head of research staff; Dr Jes F.Velasquez has made a careful study on the influence of pH to the dissolvability of Neem seed servative (EG). It was found that when the value of pH is two and six; its dissolvability will be 57mg/ml and 1.5mg/ml respectively. Neem seed servative (EG) cannot dissolve in the alkalinous or neutral solution, and when the value of pH is 8.5, then its dissolvability will be only 0.25 mg/ml.

The solubility of Neem seed servative (EG) is also connected with solution's value of pH. It was reported that when Neem seed servative (EG) is dissolves in the thin HCL whose value of pH is two, Neem seed servative (EG) can still have activity under the treatment of high-pressure pasteurization, about 115.6°C. However when the value of pH is five, Neem seed servative (EG) will lose more than 40% of its activity, and when the value of pH is 6.8, it will lose more than 90% of its activity. But with the protection of big molecules of milk and meat soup, etc., Neem seed servative (EG)'s stability can be improved greatly after it is added into foods.

The stability of Neem seed servative (EG) is also closely linked temperature. According to the research conducted, if the pasteurized refine cheese with the addition of Neem seed servative (EG), 250 iu each mg, whose value of pH is 5.6 – 6.0, and whose water capacity is 54-58%, this stored in different temperatures, 30 weeks later, the remains of Neem seed servative (EG) in the temperature of 20°C, 25°C and 30°C will be about 90%, 55% and less than 40% respectively. Some data concerned shows the stability of Neem seed servative (EG) is still related to the base food of preservative, the condition of treatment and the time of shelf life.

## **II Antibacterial property and mechanism of action**

### **Antibacterial spectrum**

Neem seed servative (EG) has no effect on the true nucleus microbe and gram-negative bacteria; it has only has inhibitory power towards gram-positive bacteria including staphylococcus, streptococcus, micrococcus, mycobacterium, corynebacterium, listeria monocytogenes bacteria and lactobacillus.

The important value of Neem seed servative (EG) in the preservation of food lies mainly in its activity against clostridium and bacillus, which can produce spore-forming and these kinds of bacteria are the key organisms that cause putrefaction.

Tests are conducted that have proved that Neem seed servative (EG) can effectively prevent the sprouting of clostridium botulinum A,B and E, but these three kinds of spores have different sensitivity towards Neem seed servative, among which spore E is the most sensitive one, its inhibition concentration is 50-1000 iu/ml. Nevertheless the inhabition concentration of spores A and B is 500-2500 iu/ml.

The known bacillus stearothermophilus, which can produce heat-resisting spore, is very sensitive to Neem seed servative (EG).

### **Mechanism of action**

Many research works were conducted and reported the action model of Neem seed servative (EG) towards gram-positive nutrient cells and spores. The action point of Neem seed servative (EG) on nutrient cells is their membrane. It can inhabit the biosynthesis of peptidoglycan in the cell walls and thus restrain the synthesis of the cell membrane and phosphates, and at the same time, cause the outer discharge of the cell's inner substance and ATP, etc. and even, in serious cases, may result in the splitting of cells. The relevant studies indicate that Neem seed servative (EG) can cause the mercapto-radical of cell walls to lose activity and thus the walls may get damaged.

Tests show that Neem seed servative (EG) inhabits the gram-positive spores form sprouting at the early stage of their swelling. By using bacillus Stearothermophilus spores in various tests have found evidence that the spores, which have been damaged by pure heat, is more sensitive to Neem seed servative (EG) than the common ones, and this explains why Neem seed servative (EG) may have a good action in thermal processed canned food and save large energy resources as well.

### **Safety**

Neem seed servative (EG) is universally acknowledged as a non-poisonous, natural food preservative derived from a natural food plant seed. Test on hydrolytic enzyme's digesting into amino acid; (this test) shows that after people having chocolate milk containing Neem seed servative (EG), the minutes later, and the activity of Neem seed servative cannot be found in the people's sativa. This test also indicates that Neem seed servative will not change the normal bacterial flora in people's intestinal canals and become drug-fast like the other antibiotic drugs most in use, neither will it cause intersected drug-fast against other antibiotic. The studies on Neem seed servative's toxicity and biology, which include induced-cancer property, survival ability, reproducibility, blood chemistry, kidney function, brain function, stimulus reaction and pathology of animals organs, have shown the safety and non-toxicity of Neem seed servative (EG). Its half-lethal dose (LD<sub>50</sub>) is about 7000 mg/kg (weight of human body), which is similar to that of common table salt

### **III. The application of Neem seed servative (EG) in the preservation of foods**

Owing to its unique properties- Neem seed servative (EG) and its other related polypeptides are been accepted by more and more countries throughout the world and has been widely researched for use as of natural food preservatives, especially in countries like Tanzania, Kenya, Brazil, India, and China. Currently, it is an acknowledged plant material that Neem seed servative (EG) is a safe food additive - as that Neem seed servative (EG) is being applied to the process of traditional home canning and is viably used in canning mushroom products.

### **Fields of present viable applications and the potential future uses of Neem seed servative (EG)**

#### **Diary products**

Neem seed servative (EG), first used in India, as the native cheese preservative was success in solving the problem of the sporting of clostridium bacillus and its toxin forming in cheese. The most effective way is to add Neem seed servative (EG) directly into defatted milk. Research has shown that by adding Neem seed servative (EG) 500-100 iu/g, the sprouting of clostridium botulinum A and B may be effectively prevented. If the cheese has high quantity of water and low quantity of sodium chloride and phosphate, then more Neem seed servative (EG) will be needed.

The bacterial mixture produced with the mingling of Neem seed servative (EG)'s antibiotic activity (Neem seed servative EG's addition in the bacterial mixture) will make the cheese high-quality rate reach more than 90%, which is in sharp contrast with that of 41% by using routine cheese making methods.

Other research studies have reported that by adding Neem seed servative (EG), 80 iu/ml, into the common milk and chocolate milk, then after thermal treatment,  $FO=3$ , the result showed that among 792 tin of pasteurized milk being tested, those kept in the temperature of  $37^{\circ}\text{C}$ , could be preserved of six months; and those kept in the temperature of  $55^{\circ}\text{C}$ , could be preserved for 21 days without any putrefaction. Otherwise, thermal treatment,  $FO=9\sim 11$ , could be needed, all of this indicates that the addition of Neem seed servative (EG) can not only ensure the security of pasteurized milk, but also have saved a great deal of energy resources.

Neem seed servative (EG) will give full play to the effective action of preservative especially in the countries and areas where fresh milk is lacked and dried milk is needed to produce diary products and where insecure potable water supplies may give rise to the pollution of organisms. Currently, in Egypt; usage of low concentration of Neem seed servative (EG) in the sterilization of buffalo's milk and chocolate milk which saved about 80% quantity of heat and the sterilized milk could be preserved in the temperature of  $37^{\circ}\text{C}$ . for 21 days. In India, the application of Neem seed servative (EG) made the sterilized milk's storage time reaches over 60 days, which could be otherwise only preserved for 3-7 days.

#### **Canned foods**

In canned food, some bacterial spores, which have great heat resisting, power; such as the spores of bacillus stearothermophilus and clostridium the rmosaccharolyticum often cause contamination. Once permitted, they will grow and cause producing acid putrefaction. Therefore, public health department of each country has paid more and more attention to the security of canned foods. Owing to Neem seed servative's favorable property, the application of this kind of food preservative can not only ensure the safety of canned foods, good appearance and texture, but also save energy, lessen the process of thermal treatment and improve the nutritional value of canned foods. The result of the studies show that when the value of  $F_0$  is 3, the canned mushroom, without the addition of

Neem seed servative (EG) will be completely putrescent under the temperature of 55°C in three weeks; However, if Neem seed servative (EG) 40-80 iu/ml, is added, then the canned mushroom will be aseptic under the same condition, and also the time of thermal treatment will decrease from 28 minutes to 12 minutes. Neem seed servative (EG) can be successfully applied in many kinds of canned foods, such as carrot jams mushrooms, peas, tomatoes, soups and many other canned foods. For detailed information please refer to table1

The function of canned food for heat processing

Canned Food	pH value	FO Value*	
		Without Neem seed servative (EG)	With Neem seed servative(EG)**
Chocolate milk	0.0	9.3 - 9.6	2.6 - 3.4
Thick cheese	5.0	28.8 – 30	9.1 – 9.9
Vegetable soup	4.5 ~ 5.0	24.8 – 30	9.0 – 9.9
Meat soup	4.5 ~ 5.0	15.4 – 30	8.1 – 10.3
Vegetable	4.0 ~ 6.0	16.4 – 40.7	7.9 – 12
Pea	5.5	6.0 – 7.2	4.1 – 5.1
Mushroom	6.0	17.6 – 19.3	2.5 – 3.3
Tomato	4.5	0 – 0.3	0 – 0.3
Fruit	3.8 –4.5	0 – 0.8	0 – 0.4
Meat	5.5	19.2 – 19.7	3.1 – 10.8
Fish	5.0	3.4 – 7.3	3.9 – 5.4
Grain	5.0	30 – 40	9.0 – 9.6

\*FO value is the heat processing time (measured by minutes) keeping the temperature of 121°C in center of the food.

\*\* Every grain food adds consistency of Neem seeds servative (EG) from 40-200iu.

Neem seeds servative (EG) can also be used in foods containing high protein, such as ham, ox tongue and various meat and fish sandwich, to improve their appearance and texture obviously, and to prolong their storage time effectively. Studies on how to replace nitrite with Neem seeds servative (EG) the results shows that the addition of Neem seeds servative (EG) only 75 PPM, can inhabit the sprouting of the spores of PA 3679 and its effect of preservation is far superior to that of nitrite, 150 PPM. It is suggested that by using little quantity of nitrite (40ppm), as reagent to produce colors together with Neem seeds servative (EG) as preservative, the quantity of nitrite needed can be lowered.

## **Alcohol Beverage**

Neem seeds servative can inhibit gram-positive bacteria and it has no effect on yeast bacteria, by making use of this property, Neem seeds servative (EG) can be applied to making of alcohol beverage, such as beer, fruit wine, distilled alcohol and spirit to avoid the putrefaction caused by lactic acid bacteria. There are three kinds of applied methods mentioned here: Neem seeds servative (EG) can either be added directly into fermented solution to inhabit the growth of sundry bacteria such as lactobacillus and pedococcus. The experiments prove that only 100iu/ml of Neem seeds servative (EG) can have effective action without any influence on the special flavor and pleasing smell of beer; or Neem seeds servative (EG) can be added into bottle or barreled beer in which the harmful bacteria (that may be present after the brewing pasteurization process) are not killed as to prolong its (beverages) storage time.

Neem Seed Servative (EG) addition before the pasteurization process to kill harmful bacteria may help to reduce the time and lower the temperature; and can lower the cost of pasteurization without defects in the final products of textures, tastes, or smell.

Neem seeds servative (EG) can also be used to remove the polluted and contaminated lactic culture in yeast bacteria instead of conventional acid pickling method which has harmful effects on the yeast's vitality, fermented power and cohesive power.

In addition, Neem seeds servative (EG) can also be used in grape wine, apple juice and other distilled beverages to inhibit the contamination of the other unnecessary lactic culture.



## TOXICOLOGY PROFILE OF TESTS

Sample Name:	Neem Seed Servative (EG) (A-long-chain Polypeptide)
Testing Animal:	Swiss White mice.
Testing Method:	40 Healthy Grown-up 18-22 grams Mice, 20 Males and 20 Females. Divided them at random into 4 groups. Each group has 10 Mice, 5 Males and 5 Females. Designed dose is 2150, 4640, 10000, 21500 mg/kg body weight. Flow to the stomach of the experiment mice after 16 hours over night starvation. Thereafter bring the animals to normal diet and observing them for 14 days. Record Toxicois symptoms and calculate LD <sub>50</sub> .
Results:	Experimental animals' abnormal reaction is not found and observed.  Male LD <sub>50</sub> > 21500mg/Kg Body Weight  Female LD <sub>50</sub> >21500mg/Kg Body Weight
Summary:	According to food toxicology safety evaluating procedure and method, Neem Seed Servative (EG) is a non-toxicity and safe natural food supplementation substance.

## "Neem Vegetable Cortisone Like"(Campo Neem-Corti-Like) LIQUID

### **Technical Specification:**

Trade Name:	<b>Neem Vegetable Cortisone</b>
Other Trade Name:	<b>Neem Vegetal Corti-Like (Campo Neem-Corti-Like)</b>
Product No:	1991-01909 (Developmental Product*)
<a href="#">INCI Name: (US)</a>	<a href="#">NEEM (MELIA AZADIRACHTA) LEAF EXTRACT</a>
Click here Intl INCI	
<a href="#">INCI Name:(EU)</a>	<a href="#">MELIA AZADIRACHTA</a>
Click here for EU INCI	

### [VEGETABLE CORTISONE LIKE POWDER](#) (CLICK Here)

Appearance	Light Yellowish to Colorless - Buff White Liquid
Odor	Characteristic
Parts Used / Species	Leaves of Melia Azadirachta L (Azadirachta Indica Juss)
Density (Specific gravity):	1.020-1.200
Refractive index:	1.350 -1.450
Solvent	Water and Carbon Dioxide
Total Germs	<100 cfu/g (non - pathogenic)
Total Yeasts/Molds	<100 cfu/g
Heavy Metals	< 0.5 PPM
(Pb, As )	

### **Uses:**

Neem Vegetal Cortisone Like (Neem Vegetal Cortisone) is suitable for the treatment of sensitive and inflamed areas of skin and for the drying of discharging wounds. It keeps the skin soft and dry and prevents abnormal pH fluctuation of the skin surface. The main uses of this compound are in the following fields.

### **Skin creams, acne preparations, sun screens and Skin-Whitening creams/lotions**

For preparations of the type, usually a concentration of 0.5% Neem Vegetal Cortisone-Like is employed.



In the cases, for instance in acne preparations, the concentration may be increased to 2%. A combination of Neem Vegetal Cortisone Like with other active ingredients prevents irritation compatible with skin is of advantage. Neem Vegetal Cortisone Like enhances skin-lightening effect of Songyi Mushroom Gel Oil and Songyi Gel Ceramide Extract

### **Baby cares preparations**

Neem Vegetal Cortisone Like may be added to baby powders and baby creams in amounts of 0.5 - 1.%. These formulations have been proven to be of great value, as the active ingredient prevents irritation of the, eyes as is caused by acid or alkali. Neem Vegetal Cortisone Like binds these irritants and in addition has an extras positive effect on the skin.

### **Dentifrice's**

In toothpaste's and similar preparations Neem Vegetal Cortisone Like may be used in concentrations of 0.2%. Owing to this adsorptive capacity, a gum cleansing effect and also a healing effect is attributed to the preparation. In dental preparations, a combination of Neem Leaf Total Extract Fraction B and Neem Leaf Total Extract Fraction C is also recommended.

**Soaps and shaving creams**

For these preparations a concentration of 0.5% Neem Vegetal Cortisone Like is suggested.

**Lipsticks and make-up**

For preparations of this type Neem Vegetal Cortisone Like concentrations of 1.0% may be used.

**Comments:**

This is a vegetable extracted developmental product to replace the synthetic counterpart, Campo Research Pte Ltd reserve the right to shelf this product if it is market-wise not feasible to promote the use of this ingredient. Vegetal replacement of 'Cortisone Steroids' for Cosmetics and OTC topicals

## Literature References: Abstracts

=====

Indian J Exp Biol 1998 Apr;36(4):418-20

Possible biochemical mode of anti-inflammatory action of *Azadirachta indica* A. Juss. in rats.

Chattopadhyay RR

Biometry Research Unit, Indian Statistical Institute, Calcutta, India.

The water soluble part of alcoholic extract of *A. indica* leaves at a dose of 200 mg/kg, p.o., exerted significant antiinflammatory activity in cotton pellet granuloma assay in rats. The extract also inhibited significantly the biochemical parameters (viz. DNA, RNA, lipid peroxide, acid phosphatase and alkaline phosphatase) studied in cotton pellet exudate.

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Quintessenz 1971 Jul;22(7):25

[Influence of Neem tree extracts on inflammatory changes of the gingiva].

[Article in German]

Rathje R

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Biochem Mol Biol Int 1998 Aug;45(5):931-9

RAPD profile variation amongst provenances of neem.

Farooqui N, Ranade SA, Sane PV

Centre for Plant Molecular Biology, National Botanical Research Institute, Rana Pratap Marg, Lucknow, India.

Neem, described as a tree for solving global problems, is an evergreen, long-lived, multipurpose tree of the tropics with a wide distribution range in India. It is believed to be highly cross-pollinated. Inter-provenance variations have been reported in neem in case of morphological and physiological characters. Yet no reports about the genetic determinism for these variations are available to our knowledge. In order to have an idea about the extent and/or nature of genetic (DNA) variation in neem, the powerful RAPD technique has been employed. RAPD profiles of 34 accessions/provenances of neem were generated with 200 decamer random primers, of which the data from the 49 primers, that resulted in reproducible amplification products, were considered for analysis. Based on the presence/absence of bands, a similarity matrix was computed. Dendrogram was constructed by UPGMA method based on the pairwise similarities amongst the RAPD profiles. The similarities in RAPD profiles amongst the different DNAs was more than that expected due to the cross-pollinated nature of the tree and furthermore, these more-than-expected similarities were not due to random chance. These results suggest that neem may have a narrow genetic base.

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J Ethnopharmacol 1997 Jan;55(2):133-9

Immunomodulatory effects of NIM-76, a volatile fraction from Neem oil.

SaiRam M, Sharma SK, Ilavazhagan G, Kumar D, Selvamurthy W

Defence Institute of Physiology and Allied Sciences, Timarpur, Delhi, India.

The immunomodulatory properties of NIM-76 have been described in this paper. Pre-treatment of rats with a single i.p. injection of NIM-76 resulted in an increase in polymorphonuclear (PMN) leukocytes with a concomitant decrease in lymphocyte counts. The immunomodulatory activity of NIM-76 was found to be concentration-dependent. At 120 mg/kg body weight, there was an enhanced macrophage activity and lymphocyte proliferation response, while the humoral component of immunity was unaffected. At higher concentrations of NIM-76 (300 mg/kg body weight), there was a stimulation of mitogen-induced lymphocyte proliferation, while macrophage activity remained unaffected. However, a fall in primary and secondary antibody titres was observed. The study indicates that NIM-76 acts through cell-mediated mechanisms by activating macrophages and lymphocytes.

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Natl Med J India 1996 Nov-Dec;9(6):297

Cytotoxicity of neem leaf extract (*Azadirachta indica*, Juss): an antitumour activity!

Gogate SS

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Biol Trace Elem Res 1996 Aug;54(2):113-21

Minor and trace elemental determination in the Indian herbal and other medicinal preparations.

Samudralwar DL, Garg AN

Department of Chemistry, Nagpur University, India.

Medicinal plants described in the Indian "Ayurvedic" literature viz. Tulsi (*Ocimum sanctum*), Gulvel (*Tinospora cardifolia*), bitter Neem (*Azadirachta indica*), Kanher (*Nerium Andicum*), Vekhand (*Acorus calamus*), and Peacock's feather (ash) were analyzed for minor and trace elements by instrumental neutron activation analysis. The samples and the standards from the National Institute of Standards and Technology, USA and IAEA, Vienna were irradiated for 5 min, 1 h, 5 h, and 10 h with thermal neutrons at a flux of  $10^{12}$ - $10^{13}$  n cm<sup>-2</sup> s<sup>-1</sup> in APSARA and CIRUS reactor at BARC, Bombay. High resolution gamma ray spectrometry was performed using a 45 cm<sup>3</sup> HPGe detector and a 4096 MCA system. Concentrations of 13 elements were determined. Zinc, manganese, and sodium were significantly higher in Tulsi leaves while zinc is higher in Neem leaves. Peacock's feathers were found to be rich in manganese, iron, copper, and zinc. A high concentration of mercury was also found in the peacock's feather ash. The therapeutic significance in restoring ionic balance is discussed.

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Trop Geogr Med 1992 Jan;44(1-2):178-81

The use and efficacy of *Azadirachta indica* ADR ('Neem') and *Curcuma longa* ('Turmeric') in scabies. A pilot study.

Charles V, Charles SX

Medical and Cancer Research and Treatment Centre, Nagercoil, India.

In the Ayurvedha and Sidha system of medicine (Indian system of medicine) *Azadirachta indica* ADR ('Neem') and *Curcuma longa* ('Turmeric') has been used for healing chronic ulcers and scabies. The 'Neem' and 'Turmeric' was used as a paste for the treatment of scabies in 814 people. In 97% of cases cure was obtained within 3 to 15 days of treatment. We find that this is a very cheap, easily available, effective and acceptable mode of treatment for the villagers in the developing countries. We have noticed no toxic or adverse reaction so far. However, further research is needed.

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Sci Am 1992 May;266(5):132

Village pharmacy. The neem tree yields products from pesticides to soap.

Stix G

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Int J Immunopharmacol 1992 Oct;14(7):1187-93

Immunomodulatory effects of neem (*Azadirachta indica*) oil.

Upadhyay SN, Dhawan S, Garg S, Talwar GP

National Institute of Immunology, New Delhi, India.

Immunomodulatory effects of neem oil were studied in mice. The animals were treated intraperitoneally (i.p.) with neem oil; control animals received the emulsifying agent with or without peanut oil. Peritoneal lavage, collected on subsequent days, showed a maximum number of leukocytic cells on day 3 following treatment with neem oil; peritoneal macrophages exhibited enhanced phagocytic activity and expression of MHC class-II antigens. Neem oil treatment also induced the production of gamma interferon. Spleen cells of neem oil-treated animals showed a significantly higher lymphocyte proliferative response to in vitro challenge with Con A or tetanus toxoid (TT) than that of the controls. Pre-treatment with neem oil, however, did not augment the anti-TT antibody response. The results of this study indicate that neem oil acts as a non-specific immunostimulant and that it selectively activates the cell-mediated immune (CMI) mechanisms to elicit an enhanced response to subsequent mitogenic or antigenic challenge.

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Z Hautkr 1988 Jun 15;63(6):499-502

[Experimental study of the effect of raw materials of the neem tree and neem extracts on dermatophytes, yeasts and molds].

[Article in German]

Khan M, Schneider B, Wassilew SW, Splanemann V

Dermatologische Klinik der Stadt. Krankenanstalten Krefeld.

In traditional Indian medicine, various parts of the neem tree have been used for centuries, especially with skin diseases. These products are often applied in human mycoses. We tested some dried neem materials, neem oils as well as simple neem preparations and extracts with regard to their effect on 14 of the most common pathogenic fungi. Neither the dried neem materials nor the medical preparations and oils had any effect on fungal growth; most of them were even contaminated with molds. Some of the extracts, however, showed antimycotic properties, which decreased with rising solvent polarity. Petrolether leaf extract proved most effective. One of the possible explanations might be the fact that it contains quercetin, a flavonoid.

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Gen Pharmacol 1997 Mar;28(3):449-51

Effect of *Azadirachta indica* hydroalcoholic leaf extract on the cardiovascular system.

Chattopadhyay RR

Biometry Research Unit, Indian Statistical Institute, Calcutta, India.

1. The effect of *Azadirachta indica* hydroalcoholic leaf extract on the cardiovascular system was studied. 2. The leaf extract was found to reduce a dose-dependent hypotensive effect without altering the amplitude or rate of respiration. 3. In isolated frog heart, there was no noticeable change in amplitude of contraction or rate of the heart at lower doses of leaf extract. However, at higher doses, there was temporary cardiac arrest in diastole. 4. The results are discussed.

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Int J Clin Pharmacol Ther Toxicol 1988 Apr;26(4):176-84

Folklore therapeutic indigenous plants in periodontal disorders in India (review, experimental and clinical approach).

Patel VK, Venkatakrishna-Bhatt H

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Though a number of plants and their parts are used for dental ailments among population in rural and urban areas of developing countries, in India however, the most common house-hold, road-side plants are mango (*Mangifera indica*), neem (*Azadirachta indica*; *Melia azadirachta*), ocimum (*Ocimum basilicum*), tea-dust (*Camellia sinensis*) and uncommonly murayya, i.e., currey leaf (*Murayya koenigi*) [Chopra et al. 1958, Kirtikar and Basu 1935, Nadakarni 1954, Satyavati 1984]. The leaves of these plants are folded and brushed (massage with teadust) against the teeth. Therefore, the present study is restricted only to the fleshy leaf extracts [Jindal et al. 1975] (except tea) of these plants inspite of certain limitations in the methodology and arbitrations in the microbial identification and isolation in the light of recent advances in folk dentistry. The investigation was carried out in two parts: 1) Experimental study: The efficacy of various dentifrices (commonly available in the market) and the potentiating effect of the leaf extract (LE) of the aforesaid indigenous plants when amalgamated with the tooth-paste against pathogens, were investigated. Further, the protection afforded by the said plant extracts (PE) over the conventional allopathic medicines on the human plaque cultures and gram negative bacteria from patients were studied. 2) Clinical study: The therapeutic effects of the said PE (individually) on clinical application among severely infected patients were examined.

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