

# LINK *Natural Products* Digest

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LINK NATURAL PRODUCTS (PVT) LTD

# LINK Natural Products Digest

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### EDITORIAL

*This is the inaugural issue of the Link Natural Products Digest, which will become a periodical feature in the years to come. This issue is a unique one. It combines the twin goals of introducing the company and its products and philosophy to its customers, as well as underpinning the scientific and technological foundation based on which these products are manufactured. The idea is to be transparent in regard to its activities, and to share with its customers the methodology and rigour with which the company's products are made. We wish to underscore the issue that when the company sells its products, with them the company also sells the underlying research and scientific knowledge.*

*The company's interest in the world of herbal health care products will also be highlighted in this issue as well as in the issues to follow.*

*Link Natural Products is a truly Sri Lankan company, dependent on Sri Lankan and International expertise. It bears as its main objective the enhancement of the health of the people of this country and others, through the knowledge of the ancient ayurvedic system as prevalent in this country, and the supply of truly authenticated, scientifically designed and manufactured herbal health care and other plant-derived products.*

*The secret is in our approach of respect towards traditional knowledge and the appropriate use of modern science & technology.*

# ABOUT LINK

Link Natural Products Pvt Ltd, a totally Sri Lankan company came into existence in 1982 mainly for the production of essential oils. Later, the company moved to expand its portfolio to include a wide range of healthcare products. The philosophy of the company was to utilize the knowledge of the indigenous systems of healthcare, and, combined with the techniques of modern science and technology, to develop its own range of healthcare products.

Now, over two decades on, the company has emerged as the leading producer of herbal healthcare products. The range of products now includes generic ayurvedic preparations, brand name products derived via the company's own research and development efforts, standardized extracts, essential oils, and spice oleoresins. The total number of different products now manufactured by the company exceeds two hundred. The company is uncompromising in its adherence to strict measures of good manufacturing practices and quality management. All the raw plant materials used in the production process are selected from approved supply sources, or cultivated under the supervision of the company, and strictly quality assessed by the company's experts. The company has developed scientifically optimized protocols, for post harvest treatment as well as for processing. The company's trained personnel carefully monitor adherence to them.

The company is justly proud of its Research and Development Centre. The centre is well equipped with state-of-the-art analytical instrumentation such as TLC-densitometry, High Performance Liquid Chromatography, and Gas-Liquid Chromatography etc. A well-trained team of scientists, and technologists man the center, and they are supported by consultants with proven national and international expertise and experience in the field of natural products. The center carries out research as well as rendering strong analytical support in quality assessment of raw materials and products. Indeed the company as a policy

recognizes Total Quality and Environmental Management as a key determinant in the success of all its operations within a natural product-based industry. This outlook also encompasses the faith and belief in the traditional methodology, which decidedly is environment-friendly.

The company also believes in a continual improvement of its own technological capacity. Accordingly it has recently invested in state-of-the-art process equipment for commercial production of oleoresins and other plant extracts. This is housed in an elegant, modern, multi-storied complex in the company's campus at Dompe.

It may be mentioned that the company was the recipient of the ISO 9001 certification in March 2001 for its system of quality management; and also the ISO 14001 in 2002 for the environment friendly methodologies it has adopted. The essential oils and oleoresins from spices that are produced by the company, have been "Kosher certified" by, the London based Beth din Kashrut division of the Court of the Chief Rabbi.

During the course of 2003 - 2004, the Chemical Industries (Colombo) Ltd., a well established group of companies with an annual turnover of over Rs.10.0 billion, secured a shareholding of 49.5% of Link Natural Products Pvt. Ltd. They also purchased a further 18% of total equity as non-voting shares. This is considered to be an association for mutual benefit of the two companies. The vibrant R&D outfit of Link together with its scientifically groomed processing and product developing capacity matches promisingly with the financial and infra-structural muscle of CIC. The CIC's capability in the Agro-industrial sphere will serve to considerably enhance Link's plant raw material base, and so boost the capacity to generate new innovative products for the future. The partnership of the country's Agri-business giant and the leader in the production of herbal healthcare and aromatic products augurs well for the industrial future of the country.

# A MANNER OF APPROACH

*Incorporated in Link Products, we also market our scientific knowledge and our leading-edge technology*

For well over two decades the name of Link Natural Products has been associated with unmatched quality in herbal healthcare products and natural essential oils, not only nationally, but internationally as well.

Good Agricultural Practices (GAP) in the cultivation of selected raw materials, selective and judicious purchasing of other raw materials, Good Manufacturing Practices (GMP) in our scientifically monitored industrial production, coupled with rigorous analytical surveillance, make us comply with the exacting demands of the international market.

The products that we market are the results of the combination of the traditional ayurvedic wisdom, our innovative ideas and R&D capabilities.

The ideas come from a panel of ayurvedic practitioners associated with Link, who meet regularly at our factory, to discuss various matters regarding the Company's products and initiatives.

Link personnel are engaged in researching the treasures of the ancient ayurveda, using state-of-the-art techniques of modern science, enabling new frontiers to be developed. They are adding to the frontiers of phytopharmaceutical knowledge, with new techniques of Quality Assessment and Control, new formulations of old life-benefiting therapies and scientific understanding of the vast ayurvedic system.

This is why our product portfolio today, includes such diverse elements as natural essential oils, ayurvedic pharmaceuticals, standardised extracts of medicinal plants, balms, medicated oils, medicinal toothpastes and products from skin care to toiletries for use by ayurvedic practitioners and the public.

Link Natural Products has its eye on the welfare of its growing clientele for a better quality of life tomorrow, blending our ancient systems with modern science & technology.

**Devapriya Nugawela**  
Chairman/Managing Director  
Link Natural Products (Pvt) Ltd



# AN INDUSTRY BASED ON SCIENTIFIC RESEARCH

The aim of Link is to produce herbal products based on its own strict protocols that conform to the WHO Guidelines on the Assessment of Herbal Medicines (WHO/TRM/91.4). To fulfil this, Link has set up a modern Instrumental Analytical Laboratory for Quality Assurance and Control of all their products and also to conduct basic R&D.

No company in a small developing country such as Sri Lanka could afford to produce such a range of products in conformity with modern standards of safety and quality, without access to state-of-the-art knowledge of the relevant science and technology. Link is fortunate, not only to possess within its ranks considerable knowledge and expertise, but also to have access to reliable, internationally recognised personnel for consultation, both in Sri Lanka as well as abroad. In addition, Link sponsors research in areas of particular interest to their products, at the Institute of Indigenous Medicine of the University of Colombo, the Department of Chemistry, University of Sri Jayawardenepura and the Department of Chemistry, University of Kelaniya.

Besides this, Link has initiated an innovation which makes full use of an advisory panel of practising Ayurvedic physicians who meet regularly to assist the company with expert knowledge.

Link's own R&D centre is expanding its activities in the area of Analytical approaches to multi component products and to the development of new products based on the ayurvedic concepts. The R&D centre and its laboratory for QA/QC are equipped with modern facilities for instrumental analytical work. The QA/QC facility closely monitors and controls the raw materials used, the

processing operations and the finished products, reaching up to standards that are fully acceptable at international market level.

One of the features that has made Sri Lankan products singularly acceptable in the markets of the world, is the special quality of the raw materials the island produces. Either as a result of the microclimatic conditions which prevail in the island, or as a result of factors hitherto scientifically not fully understood, the raw materials from the island have acquired a special reputation. This applies to most of its products, not only its Tea and Spices, but these are the best known. It is axiomatic that quality products can only be obtained from quality raw materials. No degree of sophisticated technology can remedy the negative effects of poor quality raw materials. The cultivation practices within Sri Lanka's home gardening system are unique in that use is exclusively made of the natural habitat. Only compost or cattle dung is employed to enrich the soil and its nutrient quality. No artificial aids such as chemical fertilisers or pesticides are employed. Hence, Link is in a position to offer to the market genuine "organic" essential oils, spice oleoresins and herbal extracts.

**R.O.B. Wijesekera**



# LINES OF DEVELOPMENT

## HERBAL HEALTH CARE PRODUCTS

Total extracts of selected medicinal plants used in ayurvedic therapy. These are standardised and quality controlled using modern analytical methods including finger printing.

## HERBAL TOILETRIES

Herbal extracts incorporated into toiletries such as are commonly used in the country.

These include shampoos, tooth pastes and toilet creams.

## SPICE OLEORESINS

These are the solvent-extracts of the dried whole spices. They contain all the essential oils as well as other constituents that make up the natural spice, such as waxes, fatty oils, pungent principles, pigments, tannins, etc. Oleoresins are thus a concentrated form of the natural spice.

## AYURVEDA PHYTOMEDICINES

These are products prepared based on official recipes in the Ayurveda Pharmacopoeia and other approved recipes, using herbs as main ingredients and processed according to stipulated procedures. These too are standardised.

## LINK SPECIAL FORMULATIONS

Based on Ayurvedic formulations (prescriptions of herbs) Link produces modern technologically improved dosage forms of the same.

The classic example is  
Link Samahan.

## ESSENTIAL OILS

Essential oils are the steam volatile constituents of spices and are mainly responsible for their odour characteristics.

## OTHER SPICE-RELATED PRODUCTS

The following sundry products are also produced.

Piperine (from *Piper nigrum*)

Nutmeg wax (from *Myristica fragrans*)

## STANDARDISED HERBAL EXTRACTS (STANDEX)

Link produces Standardised Extracts of herbs widely used in the ayurvedic system. The contents of the active compounds in each type of extract is determined using chromatography and spectroscopy.

# PRODUCT REVIEW

## LINK HERBAL HEALTH CARE PRODUCTS



### SAMAHAN

Extracts of 14 selected herbs and spices, which together are able to prevent cold or its symptoms and effect a quick relief.

### SUDANTHA

A herbal toothpaste which includes medicinal plants used in ayurveda for centuries for keeping teeth & gums healthy. It prevents tartar build up, bad breath, tooth decay and sensitive teeth.



### FIVE HERBS

(HERBAL TEA)

A soothing formulation which cleanses the body and has a calming effect. It is presented as Osu Pan in bulk packs and sachets (filter bags) for ready use.



### ESSENTIAL OILS

Black Pepper Oil  
Black Pepper Oil (Premium Blue)  
Clove Bud Oil  
Clove Bud Oil (English Distilled)  
Cardamom Oil  
Cinnamon Bark Oil  
Cinnamon Leaf Oil  
Nutmeg Oil  
Mace Oil  
Ginger oil

### OLEORESINS

Black Pepper Oleoresin  
Nutmeg Oleoresin  
Cinnamon Oleoresin  
Cardamom Oleoresin  
Ginger Oleoresin

### HERBAL EXTRACTS

Link Gotukola Standex  
Link Lunuwil Standex  
Link Adathoda Standex  
Link Bulu Standex



### DEKATONE

(DASHAMOOLARISHTA)

A herbal alcoholic product made from the roots of 10 medicinal plants and 70 other herbs. This product is a powerful restorative for people suffering from diminished appetite and recovering from serious illness or surgery.

### VIRITONE

(ASHWAGHANDHARISHTA)

Made meticulously according to an ancient formula. Promotes longevity and vitality; restoring virility and a feeling of well being.



### KESHA

Herbal hair oil with the extracts of plants that benefit the scalp and hair.



### MUSCLEGARD

A herbal ointment, which, in general, increases muscular activities by nourishing and strengthening muscle fibers.

# GLOSSARY OF SOME AYURVEDIC PRODUCTS - 1

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## **ASAWA & ARISHTA**

These are both alcoholic ayurvedic medicaments. The difference is in the mode of preparation.

Asawas are prepared from the fresh plants or water soaked dry plants, while Arishtas are prepared from the decoction of the drug. Both are allowed to undergo fermentation with sugars or jaggary.

## **AVALEHA / LEHA**

Herbal extracts thickened to a semisolid consistency by evaporation into which powdered herbs, natural sugars, ghee and edible oils are added.

## **GULI**

(syn. GUTIKA, VATICA, VATI)

Powdered mixtures of vegetal, mineral or animal substances rolled into boluses with the use of a suitable excipient like honey, fresh herbal juices, exudates or oils.

## **KALKA**

Fine wet pastes prepared by grinding vegetal, mineral and animal substances with fresh juices, honey or oils.

## **LEPA**

Paste or plasters prepared from medicinal herbs, mineral and animal substances by adding or mixing with fresh juices, honey or oils (for external use).

## **CHOORNA**

These are fine powders of vegetal, mineral and animal substances. They may contain a single drug or a mixture of several drugs, to give a homogenous powder.

## **GRITHA**

These are prepared by boiling the fresh juice, decoction and paste together with ghee until the aqueous layer is completely removed by evaporation.

## **KWATHA (syn. KASAYA)**

This is a decoction of a range of herbs. Alcohol is added as a preservative.

## **THAILAYA**

Medicated oils prepared by boiling fresh juice, decoction or paste together with a vegetable oil.

## **EXTRACTS (SARA)**

Plant concentrates prepared in full accordance with modern technology from selected plant material.

## **SYRUPS**

Aqueous extracts of herbs formulated with cane sugar.

## **RASAYANA**

Special preparations of Ayurvedic formulations having rejuvenating properties and nutritional value.



# REVISITING TRADITIONAL THERAPY

The spectacular developments and progress in Science and Technology commenced in Europe after the the Industrial revolution. Medicine was, at the time, based mainly on herbal therapy and was quite similar to the status of Ayurveda today in Sri Lanka.

About that time, Moliere, the celebrated French playwright wrote his play *La malade imaginaire*. The play was considered to reflect the state of affairs in France at the time; it was also analogous to the situation in Sri Lanka during the 1950's, so that, the late Dr. Ediriweera Sarathchandra translated the work of Moliere to Sinhala. He called it *Veda Hatana*. This work was produced by the University of Peradeniya Dramatic Society, with the help of Professor Ludowyk, who arguably is the father of Drama in this country, and a Rumanian producer by the name of Neuman Jubal. The play drew crowds wherever it was performed.

The play exposed the flaws of the practice of medicine in Europe at the time. How did the medical therapy from that time in Europe climb up to its stature of today? The answer is, quite simply, that European science and technology, which was developing fast at the time, came to be incorporated to the development of newer and more reliable therapies.

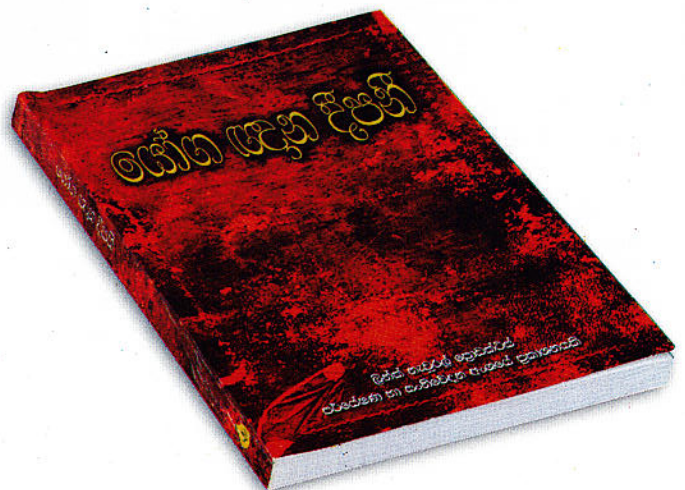
The message is clear to us in Sri Lanka. No longer can the valuable knowledge of the traditional therapy be allowed to languish, and perhaps die at the hands of traditional practitioners, who for selfish considerations, keep this knowledge to themselves, and allow it to perish with them. We do have a duty to mankind to harness its undoubtedly rich heritage, using all of the advantages of modern science and technology. The process of a scientific and technology-driven approach helped western medicine to be what it is today. Even so, some of the therapies of our own Ayurvedic system are being harnessed by this very means by western scientists, and

their own therapy will benefit in the manner it has done.

How many drugs have been incorporated into western medicine from the plants used in Ayurvedic therapy?

There are so many like : Reserpene, Forskolin, Cephaeline, Tetrahydrocannabinol, Deserpidine, Sennosides, Valopotriates, Guggul steroids and numerous others. There are also many others used in the form of standardized extracts which are now becoming popular on account of the observed fact that sometimes these extracts are more effective and less toxic than the component purified compounds.

Western scientists are now looking at the prospects of discovering new immunostimulants, from the drugs used in the Ayurvedic system because the very foundation of this system is to enhance the immune system. A revisit to the Ayurvedic system armed with good scientific expertise and sound technological ideas will indeed profit the country and its health care system. This should be a major thrust area in the research and development plans of the country, and all those companies engaged in such endeavour should receive the fullest support. It is an initiative that should develop a long term goal oriented partnership of the public and private sector institutions and the Universities as well.



## The Story of a successful Sri Lankan initiative

The common cold still continues to baffle and plague mankind. It is singly responsible for the discomfort and consequent absenteeism of a large section of the country's work force. The causes are comparatively unclear, except that a virus now identified as the 'influenza virus' is commonly associated with its origin. In the old days here in Sri Lanka, the household medicinal chest provided the treatment for the common cold and we do know how effective it was. The treatment which must surely have been originally inspired by a local *veda mahathmaya*, would be that which is now known as the PEYAWA. This would consist of a specific combination of herbs. The Ayurvedic system inherited from India does not include this combination, and so it has to be assumed that it is derived from our own indigenous system known as the *Deshiya* system. This is understandable as some of the plants included are not those used commonly in Ayurveda and are those more indigenous to our country. But as the rural lifestyle of people slid towards the rough and tumble of urban style, with its time constraints, stresses and the inevitable pressures, the usage of *peyawa* seemed to give way to the convenience of modern formulations such as those containing aspirin and paracetamol. But the effectiveness of *peyawa* was legendary and the remedy overcame the most unpleasant after-symptoms that were characteristic of an attack of influenza; such as body-aches and tiredness.

The scientists and technologists at Link Natural Products, a fledgling outfit in R&D at the time, saw the challenge in this. It was to provide the effective *peyawa* in a form that was efficacious as well as convenient in the milieu of the modern

urban society. It also had to have the advantage of the original, in the matter of price. The story of SAMAHAN represents the saga of how Link Natural Products successfully met this challenge and produced a formulation that is now a household word in the battle against the common cold virus. It is a scientific fact that viruses are not effected by modern antibiotics although practitioners are known to indulge in prescribing them for viral related influenzas.

SAMAHAN today sells at the average rate of 70 million satches per year. It is our nation's answer to the common cold virus, based on our own indigenous research and technology and produced in the factories of Link Natural Products (Pvt) Ltd at Dompe.

SAMAHAN is now virtually all over the world, almost everywhere, particularly, where Sri Lankans dwell, in the United States and Canada, in Australia and New Zealand, and even in Europe. It has been formally launched in India, and Malaysia, where too it is immensely popular and well accepted. The efficacy of SAMAHAN more than matches its traditional precursor, and yet its packaging is as attractive, convenient and scientifically streamlined as any modern preparation. Now, over several years there has not been any untoward reaction caused by its extensive usage in many countries, that has up to now been recorded.

So, what is the secret of the safety and efficacy of SAMAHAN? Arguably it is better than any other option as a remedy for the common cold, if administered as prescribed at the beginning or the onset of the influenza, or it may be taken as a

prophylactic against the influenza if such is suspected to be imminent. All of its increasing numbers of users will testify to that.

The answer lies in the rigorous research and development work of Link Natural Products over a seven year period, the development of optimized process protocols that govern manufacturing practice, and the care and attention that continues to be applied in quality assessment and control over the entire continuum of its production, from the selection of the herbs to its packaging and sales counters.

Let us take a brief scan of its manufacturing process. It commences with the chosen herbs being acquired in the appropriate condition. The complement of herbs was first decided upon by the panel of Ayurvedic practitioners who advise Link Natural Products. This panel studied many versions of the so-called peyawa and their constituent plant species and decided on the formulation that could best be assigned the old traditional mandate. It is the members of this panel and the resident Ayurvedic Consultant who advise on the suitability of the plants that are taken in for processing. Once these are approved (they are either purchased from reliable sources or sometimes cultivated under supervision), they are passed on for post-harvest preparation and storage for use. The developed process protocols, which have the optimized parameters for every stage of the processing, are strictly observed and qualified personnel supervise the operations. The extraction procedures are based on modern technology and are thus more efficient than any cottage-style procedures. Much more of the active ingredients are extracted from the raw material and the lesser time taken for the extract governs against decomposition.

The R&D laboratory carries out Quality control analysis at all stages so that any problems may be detected. Such quality control tests are carried out finally with the end-product and strict records are maintained. Every batch must conform to the standards developed by Link in every respect.

So the final SAMAHAN which reaches the consumer is a very modern product at a very modest price. It has been scientifically manufactured and controlled. Furthermore, it is a totally herbal product, Cane Sugar being the only additive. The feedback to Link prompts the observation that it is even more effective than the traditional remedy.

In SAMAHAN, therefore, the customer gets a truly Sri Lankan product up to the highest scientific standards. Many of the plant constituents are today proven by scientific research to have activities related to strengthening the body's immune system. So we have the very secret here of why SAMAHAN is so effective in combating the common irksome cold. It does so by strengthening the body's own resistance and therefore is effective, and completely devoid of any untoward side effects.

SAMAHAN has blazed a trail in the manufacture and marketing of herbal products in this country as well as internationally, and Link is justly proud of its flagship product.

**A truly third world product that is in the international category.**



# SAMAHAN IN THE REGIONAL MARKET

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FOLLOWING THE SUCCESSFUL INTRODUCTION OF SAMAHAN TO THE INDIAN MARKET IN THE YEAR 2000, THE PRODUCT WAS LAUNCHED THIS TIME IN KUALA LAMPUR, MALAYSIA, IN NOVEMBER 2002.

LINK NATURAL PRODUCTS DIGEST PUBLISHES BELOW THE TEXT OF THE OPENING SPEECH DELIVERED BY THE CHAIRMAN MANAGING DIRECTOR OF LINK NATURAL PRODUCTS, DR. DEVAPRIYA NUGAWELA.

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Mr. Chairman, Distinguished Guests, Ladies & Gentlemen,

I consider it an opportunity of unique significance, to have the privilege of addressing a few words on this occasion. It is a landmark event that we are today launching SAMAHAN - which means balance and harmony. SAMAHAN is a uniquely Sri Lankan product now brought to a country reputed for its impressive pace of economic and social development in this modern era. Yours is also a country with an accepted reputation for blending its modernity with its own indigenous traditions. In many ways as you shall see therefore, there is a great similarity between our product SAMAHAN, and the milieu in which we are seeking to launch it.

SAMAHAN is a product derived from the formula that springs from the system of medicine practiced in our country since very ancient times and known as the 'Deshiya System'. This system combines the influences of several systems of medicine known throughout our region, and which our small island country with its natural placement on the direct sea routes of the world, have over centuries been privy to. These influences come from the ubiquitous Ayurveda, the Unani System which originates in ancient Persia, and developed into what is known as the Greco-

Arabic System, the Siddha System which was prevalent in the South of India, as well as the vast Chinese system of medicine.

So, SAMAHAN has a pedigree that harmonises the best of the systems of medicine that have dominantly influenced this part of the world. One common factor is that all of these systems regard treatment in a 'holistic' fashion that is treating the entire body system and not merely the disease symptoms. They also regard disease as related to a disturbance of the systems that are in balance in a healthy individual and treatment is related to restoring of this inherent balance. So the philosophy is almost the same within each of the systems.

Within the Sri Lankan '*Deshiya System*' is the treatment for virus related diseases such as influenza, which takes the form of a decoction of several herbs and known as '*Peyawa*'. This decoction is the commonest treatment for fever caused by viruses, and has been in use for many centuries. Its mode of action is now believed to exist on account of the several plants within its formula, which are recognised by modern researchers to contain immune-stimulating agents. The product we are about to launch today is derived from the same array of plants but instead of the decoction of old, we present the same remedy in a modern form to fulfil the needs of the

consumer of today. This form as you will see, has many advantages that have full consumer acceptance. It is a very enjoyable drink with a very pleasant taste and aroma, which brings about quick soothing relief. It is conveniently water soluble and acceptable to the consumer to be drunk in any warm liquid medium like tea or coffee, in addition to water.

SAMAHAN serves as a prophylactic as well in regard to virus related disorders in view of its profound effects in stimulating the body's own immune system without any side effects such as drowsiness or loss of appetite. To safeguard the efficacy of the product its packaging is designed to counteract moisture absorbency.

The preparation of this product represents the result of the research and development work of the company Link Natural Products carried out over a period of seven or more years. Now the product has the added benefit of its use in Sri Lanka, India, Australia and several countries of the European Community as well. There has been nothing like any untoward side effects observed - only its undisputed efficacy and absolute safety.

Our Company has an avowed philosophy of Total Quality Management (TQM) in relation to all of its range of products. This commences with the selection, authentication and post-harvest technology in relation to all the raw materials used, the production process parameters and the final product. The carefully determined and optimised process protocols observed with great fidelity and rigour ensure the quality and consistency of the end product. SAMAHAN is a product of this rigorous product development system.

As I have already stated, during the last seven years or more, it has been universally accepted in the island of Sri Lanka as well as in other parts of the world to which it has been introduced. It has become a byword in the

battle against the irksome common fever derived from viruses, and as a prophylactic. It is a truly modern product based on science and technology, utilising the proven knowledge of the traditional pharmacopoeias.

A renowned philosopher has said, 'Learn all you can from the knowledge of the past, but do not imagine that the last word could have been said thousands of years ago'.

The genesis of SAMAHAN, epitomises this philosophy, and Link Natural Products is happy to offer a fully modern product where the virtues of the traditional usage are enhanced, combined with the convenience of state-of-the-art packaging and presentation. Today in Sri Lanka approximately 50 million sachets are consumed annually. Our extensive and efficient distribution system throughout the country, which services more than 70,000 outlets, ensures that the consumer is guaranteed that SAMAHAN is always available in their favourite store. Our marketing team constantly consolidates SAMAHAN's position in the market place through its advertising, - you will be entertained to a display of this shortly.

Meanwhile, I am privileged to present SAMAHAN to you with our best wishes.

Thank you



# OLD RECIPES AND NEW RESEARCH - 1

## Have You Heard of PROPOLIS ?

Propolis is yet another ancient remedy that has stood the test of time. It was recognized for its medicinal properties by the Greek and Roman physicians, such as Aristoteles, Dioscorides, Pliny and Galen. It was also used by Arab physicians in ancient times. It was known in unconnected regions such as South America, whose Old World civilizations like the Incas used it. It is used in the Ayurvedic system and in the Chinese system as well.

What then is this Propolis? The name comes (according to a recent article in *Fitoterapia*) from the Greek and signifies "defense of the bee hive". Propolis is the glue of the bee hive, a brown resinous material collected by the worker bees from the leaf buds of numerous tree species. Bees also incorporate into this exudates from plants such as: lipophilic material on leaves, mucilages, gums, resins, etc. Once they collect these, they enrich the material with enzymatic and salivary secretions. The collected material is used to cover the walls of the bee hives to fill the cracks and crevices, and it serves as a protective layer against invader insects.

During the earliest times, Propolis was used as an antiseptic agent and as a cicatrizant in the treatment of wounds. It gained a reputation as an antipyretic as well. Modern herbalists recommend it for its antibacterial, antiviral, antifungal, antiinflammatory properties. It also claims to be able to enhance the resistance properties of the body and to counter the effects of duodenal ulcers. Applied externally, Propolis relieves skin infections, caused by bacteria and fungi. The London pharmacopoeia of the seventeenth century listed Propolis as an official drug. In Europe it was popular on account of its undisputed antibacterial properties.

Today, Propolis is available in a large range of modern dosage forms either with other agents or by itself. It is used in many healthcare

products. Modern research has recently delved into the mystery of this simple but effective ancient remedy. A large amount of polyphenols are responsible for the antibacterial and antifungal properties. The compounds responsible are pinocembrin, galangin and pinobanksin. Other active compounds present are the esters of caffeic and coumaric acids, and prenylated para-coumaric acids also possess antibacterial and cytotoxic activity. Caffeoylquinic acid derivatives show immunomodulatory and hepato-protective activity, while furanolignans inhibit the growth of bacteria. Caffeic acid phenyl ethyl ester (CAPE) is also toxic towards tumour cells. Modern research has established the activity of Propolis, now known to be a very complex mixture of over 180 compounds, against gram positive and gram negative bacteria, fungi and the herpes and influenza viruses. A recent study has established that an ointment containing Propolis was effective in healing genital herpetic lesions and in reducing local symptoms.

A topical treatment with extracts or ointments is useful in dentistry, dermatology and otorhinolaryngology. It exhibits antiinflammatory effects against acute and chronic models of inflammation. It is also an immunostimulatory and immunomodulatory agent. Thus, the ancient reputation of this simple drug has been well established and thorough clinical studies are now in progress to establish its effect as an anti-atherosclerotic agent. The conclusion of a group of researches is that standardized preparations of Propolis are safe and less toxic for these indications than many synthetic medicines.

Anissa

*(For a detailed review on the researches on Propolis vide: Fitoterapia 73, Supplement 1, 2002, from whence this information is extracted. Fitoterapia is a Scientific Journal for the study of Medicinal Plants, Published by ELSEVIER).*

# AYURVEDA NEEDS RESEARCH

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A large percentage of the people in South Asia depend on Ayurveda and other systems of traditional medicine for their healthcare needs. There is also a global interest in traditional medical systems due to a variety of reasons - in particular, the realization of the limitations of modern medicine and a growing appreciation of the value of a holistic approach to life.

However, for the traditional systems to develop further, and be more adaptable to the needs of the modern society, it is necessary for them to utilize the facilities afforded by modern technology and to use the modern scientific methodology in rationalising and interpreting the systems in terms of modern science.

Three major areas in which research needs to be carried out are:

- \* **Diagnostic methods and classification of diseases**
- \* **Therapeutic methods**
- \* **Drugs**

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## **Diagnostic methods and classification of diseases**

Ayurvedic diagnosis is based mainly on a clinical evaluation. These methods need to be understood, developed and enhanced by modern science and technology. In this endeavour, modern diagnostic methods should be adapted for their use in Ayurvedic diagnosis as well. This is no far fetched idea. Western medicine too was without any of the present accuracy of diagnostic instrumental tools not many decades ago. Physical methods came to be adapted for medical diagnosis. Ayurveda should be enhanced by the same methodologies. The relationship between the various disease categories in the traditional and modern systems, which will be based on the results of diagnostic tests, is an important area of study.

## **Therapeutic methods**

There is an urgent need to interpret the concepts of therapeutic methods used in Ayurveda, and to understand the methodologies of ayurvedic therapy. There is also the need to collect data, on the Ayurvedic methods, and to interpret in terms of modern science the clinical performance of the acknowledged methodologies. This is particularly so in today's context where teaching and treatment is institutionalised. It is necessary to make choices based on evidence, and this calls for research initiatives.

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## **Drugs**

In today's context where Ayurvedic drugs are manufactured by big industrial concerns, the quality control and standardization of these drugs is essential. Much research in terms of the identification and authentication of plants, plant propagation methods, processing, formulation, stability, etc is necessary. The development of new convenient dosage forms for traditional drugs and development of new drugs based on Ayurveda theory are also important areas of research.

Research attention in these areas will help greatly in enhancing the healthcare programmes of our nation. It will also spell a way of gaining fuller use of the value cures that lie within the Ayurvedic system of medicine.

**R. Gamage**  
**A. M. Abeysekera**

Profiles:

*Dr. R. Gamage is Senior R&D Officer (Ayurveda), Link Natural Products (Pvt.) Ltd.*

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# MECHANISM OF DESIGN AND DEVELOPMENT

## NEW HERBAL HEALTH CARE PRODUCTS AT LINK

Design is a creative process that brings forth a tangible product in response to an idea or requirement. The ultimate goal of the design function is to understand customer expectations and to convert them into processes that result in new products.

With emphasis on ISO 9001, Product Development Protocols have become prerequisites to formalize the entire development process. Product development at Link is carried out according to written protocols that comply with the requirements of the ISO 9001 standards.

The initial idea or expectation of the customer need is formulated into a product concept or idea, which is then converted into a product brief by the Review Committee. The product brief is approved by the Managing Director, who assigns qualified persons to conduct design activities. The Design and Development Committee (DDC) is appointed to conduct all activities from Design input stage to the final product launch, and the DDC appoints special subcommittees to carry out different aspects of the design process. Presently, the following subcommittees operate.

**Ayurvedic subcommittee :** comprising of a minimum of five qualified and experienced Ayurvedic physicians, responsible to prepare a list of the plants used in intended development giving the parts used, indicate the literature and intended claims of the products and suggest herbal ingredients to be included in development. They also participate in the relevant design and development activities.

**Technical subcommittee :** comprising of a product specialist, a technical specialist, R&D/QA Manager, a Factory Manager and a consultant functioning as the Chairman. The subcommittee is fully responsible for the review of scientific and ayurvedic literature, collection of data on intended development and machinery required, recommendation of suitable formulation for trial product and coordination of all design and development activities.

**Brand Development subcommittee:** comprising of a Marketing Consultant, the Sales Manager, the R&D/QA Manager, Ayurvedic consultants and the Marketing Manager who functions as the Chairman. The subcommittee is fully responsible for the suggestion of suitable names for the products, development of packaging and promotional materials, carry out post marketing surveillance and product launch activities.





## How do the subcommittees operate ?

At the initial stage of the design function, the subcommittees report to the DDC, which prepares the draft design input document. This is done after considering all incomplete and ambiguous modifications of conflicting activities, customer and regulatory requirements, design aspects, materials and process requirements and analysis. All design and development activities are conducted accordingly to a time-phased Design and Development Programme (DDP), which is prepared based on input requirements. It is updated periodically based on reviews by the DDC.

The R&D department is fully responsible for conducting all design and development activities. At the development stage, progress of development activities are reviewed by the technical subcommittee. The R&D/QA department consults technical specialists to help resolve critical issues.

The progress of brand development activities are evaluated by the Brand development subcommittee. The DDC prepares the Draft Design output based on design activities and the trial production activities are carried out by R&D/QA department.

The verification and validation of design input requirements at each stage of design is performed by the DDC and subcommittees. The validation of the design which ensures that the end product conforms to user or customer requirements, is carried out by accelerated laboratory conditions so that any weakness in the design is exposed, and also to identify if customer surveys are needed under

actual field conditions. Design output is, ideally, the technical response to design input. The Design output is prepared by the DDC and consists of product specifications, test methods, formulation, process instructions etc. A design that has been released for production after design validation, cannot be considered absolutely final. It may need modifications for a number of reasons such as manufacturing difficulties in bulk production, non-availability of certain raw materials, changes in statutory requirements, changes in process procedures or process equipment, etc. The necessary design changes shall be approved by the DDC prior to the commencement of production.

The R&D/QA department carries out the product registration as per statutory requirements. The Logistics department records the working and production instructions in the Process Manual (PM) based on the design input document and starts production planning. Thereafter, the Factory Manager and the Production Manager are totally responsible for commercial production, while R&D/QA Manager is responsible for monitoring the quality of the new product. Finally, the product launch activities and post marketing surveillance are carried out by the marketing department.

Link's new herbal health care products are guaranteed to satisfy customer needs as they come through this very rigorous process of design and development. Health benefit to the customer is our primary goal.

**T. M. S. G. Tennakoon**

R&D/QA Manager

Link Natural Products (Pvt.) Ltd.



# RESEARCH ON PLANT THERAPIES USED IN TRADITIONAL PHARMACOPOEIA

## WHO INITIATIVES AND GLOBAL TRENDS

There is no serious argument today about the need to intensify the research efforts of the world in relation to the therapies of the traditional pharmacopoeias, or in a word - Phytotherapy.

This is powered by the realization that, firstly, there are a number of diseases which have no satisfactory therapy although diagnostic procedures exist which can ensure early diagnosis; and, secondly the more mundane and far less altruistic consideration that here we are talking of a billion dollar industry. The WHO has for long promoted the use of Phytotherapy in health care efforts. The WHO Tropical Diseases Programme and the Special Programme for Research on Human Reproduction employed the philosophy of investigation of the knowledge of traditional therapy in their worldwide research efforts.

As early as 1978 in their publication, *The Promotion and Development of Traditional Medicine*, the WHO identified certain strategic areas for their research. Besides the area of human reproduction, the WHO identified several other areas for worldwide research attention. They were the following:

- \* Tropical diseases such as, the parasitic diseases - malaria, schistosomiasis, filariasis, leprosy, trypanosomiasis, and leishmaniasis
- \* Dependence on narcotics
- \* Cancer chemotherapy
- \* Rheumatoid Arthritis
- \* Cardiovascular diseases
- \* Diabetes

Added to this are, general ailments such as burns, fractures, kidney stones and gall stones. It was felt that, based on the indications from the worldwide scan of the traditional literature there would appear to be some possible new leads in the treatment of these and other diseases. WHO regarded that the research already carried out at the time on some of the traditional therapies in India and

China, on the treatment of Rheumatoid arthritis and liver diseases warranted research programmes directed towards the development of new methods of treatment for these ailments.

Present trends and the changed disease patterns at the turn of the millennium could add to this list. The following conditions can also be addressed in the research vein: Immune related diseases, Ovarian and Breast Cancers, Alzheimer's disease, Viral diseases, Diseases related to inflammatory conditions.

Accordingly, in the search for new therapies, the research must be directed in the fashion where the efforts are requirement-driven. The presently available information, therefore, suggest an approach that targets the above classes of diseases for attention. This means that studies on the traditional knowledge base have to be carried out prior to embarking on a programme of research, given that funds, personnel and time are limiting factors.

### IN LIGHTER VEIN....

### MIND OR MATTER ?

"In a laboratory in northern New Jersey, researchers are probing the molecular intricacy of memory, hoping to create the brain's own type of Viagra - the kind of Chemical test that reinvigorates an organ that is past its prime"

Robert Langreth  
Readers' Digest, 81, July 2003

# KNOWLEDGE ROUND UP

## CULLED FROM LITERATURE

### *Zingiber officinale* (Ginger, Sinh. *Inguru*)

*Zingiber officinale* (Roscoe) - (Zingiberaceae), is the ginger that is commonly used in food and ayurvedic preparations. It is a significant constituent of the popular LINK SAMAHAN. In fact ginger is used in traditional medicine as a carminative, a diaphoretic, an antispasmodic against intestinal colic and as an antiemetic.

Recent research has confirmed its overall effect in several other dimensions. Its effect in combating gastric ulcers is due to the presence of a potent anti-ulcerogenic compound, +angelicoidenol-2-o-D-glycopyranoside, among others. Furthermore, daily administration of 10 grams of ginger has been reported to significantly reduce platelet aggregation and also reduce serum cholesterol levels in hypercholesterolemic patients.

#### Ref:

[1]. Yashikawa *et al.* (1994) Chem. Pharm. Bull. Tokyo, 42 (6): 226-230

[2]. Bordia *et al.* (1997), Prostaglandins Leukot. Essential Fatty Acids. 56 (5): 379-384

### *Silybum marianum*

The fruits of *Silybum marianum* are used in ayurveda as a remedy for diseases of the liver, rheumatoid arthritis and for treating gastric ulcers. "Silimarin", a group of flavanolignans isolated from the fruits of *S. marianum*, is recognised as having hepatoprotective properties and anti-ulcer activity. It has also been recently found to exhibit significant anti-inflammatory and antiarthritic activity. "Silimarin" is a mixture of three isomers: Silybin, Silydianin and Silichristin.

The hepatoprotective effect is attributed to membrane stabilising and protein synthesis enhancing effect coupled with antioxidant and free radicals scavenging activities.

Gastric anti-ulcer activity has been attributed to its inhibitors of enzymatic peroxidation in the lipoxygenase pathway and thereby leukotriene synthesis. Its anti-inflammatory and antiarthritic activity is attributed to inhibition of 5-lipoxygenase.

#### Ref:

Gupta *et al.* Phytomed. (1999) 21-24

### *Murraya koenigii* (Sinh. *Karapincha*)

Effect on alloxan-induced diabetes in rats. Extracts of "Karapincha" were found to cause reduction in the blood sugar levels in rats which were diabetic (induced by alloxan). Whereas in normal rats the blood glucose reduction was negligible, in diabetic rats a significant reduction occurred.

#### Ref:

Yadav *et al.* J. Ethnopharmacology (2002) 82 (2-3) p. 111-116

### *Tinospora cordifolia* (Sinh. *Rasakinda*)

*Tinospora cordifolia* is used in ayurveda as a "Rasayana", ie. a decoction. It is frequently coupled with *Phyllanthus emblica* (Sinh. *Nelli*) in a two component prescription.

Recent research has confirmed the immunostimulant properties of *Tinospora cordifolia*. Clinical studies were carried out in India [1] using a formulation of an aqueous extract of Rasakinda on immunosuppressed patients. The extract was standardised and characterised to give a reproducible HPLC pattern. A 50 mg tablet was administered thrice daily (Ethical clearance had been obtained for use with volunteer human subjects). The safety and solubility of the formulation was confirmed.

A double blind placebo controlled study proved that mortality was reduced from 39% to a mere 6.25% [2].

#### Ref:

[1]. Dahanukar & Thatte (1997) Phytomed 4 (4), 359

[2]. Bapat *et al.* Improved Survival with *Tinospora cordifolia* in surgical jaundice. HPB Surgery Supplement 2: 210 (1990)

# CARING FOR OUR WORK FORCE

Link Natural Products ranks the Human Resources as the most valued asset, in achieving the organizational objectives. In this regard, the Company has developed a systematic training and development plan for all its employees. Training is regarded as a very effective tool in fulfilling the requirements of improving the capabilities in individuals, in guiding them in career advancement and in achieving organisational goals. Training needs arise due to the requirements of new comers, shortfall in employee performance, organisational needs for change or individually expressed needs. Training is a service provider to narrow the gap between where an employee is and where he wants to be. Systematic training and development of individuals make them a committed resource rather than a resource working on compliance.

Some important aspects of the procedure are as follows:

## \* Identifying Training Needs.

Link Natural Products analyses it's training needs through annual appraisals, on the job review, periodical inspection of documents or by behavioural change.

## \* Defining Training Objectives

Training is conducted to achieve measurable goals, expressed in terms of change or improvement expected in the trainees in corporate, functional, departmental or individual performance.

## \* Preparing the Annual Training Plan

Our Training plan is based on the two issues\ stated above, and will give the appropriate training method, the selection of trainers and trainees, the implementation of training plans and maintaining of training records.

## \* Analysing the Results

The above is done after completion of six months of training to ascertain the effectiveness & achievements of each training programme against its objectives.

## \* Feedback of Results & Evaluation

The subject matter stated on the above issues are examined, so that training plans, programmes and techniques can be further improved.

The benefits derived from systematic training are significant to the individual as well as for the organisation. A few of the benefits are, an improved job performance, reduced cost, commitment to the job, individuals identified with the Company and the reduction of labour turnover reduced.

The Company's ultimate aim in training is producing high quality products, services and people, innovation being another output of systematic training. Link Natural Products, in keeping with the above, currently has in its employment an Assistant Production Manager, a Production Executive & five Supervisors who joined the organisation as Production Helpers.

I. J. R. De Silva

Manager, Human Resources & Administration  
Link Natural Products (Pvt.) Ltd.

## Prof. Sharadini Dahanukar IN MEMORIAM



Link Natural Products (Pvt) Ltd. records with deep regret the demise of Prof. Dahanukar. She, a pharmacologist, authority on both western and ayurvedic medicine, delivered a guest lecture for Link Natural Products in 1999 at the Taj Samudra Hotel, Colombo.

Prof. Dahanukar (b.1945) did her M.B.B.S., M.D. and Ph.D. from Bombay University. After working as a Research Assistant in Michael Reese Hospital, Chicago, she joined the Pharmacology Department of Seth G. S. Medical College. She received a number of awards for her research papers, and undertook some prestigious assignments abroad. Her contribution to Ayurveda won her recognition from the National Academy of Indian Medicine of Baranas Hindu University. Her premature demise is a great loss to the world of science, as well as to humanity. Our condolences go out to her family and colleagues.

Colleagues at Link Natural Products.

# LANDMARKS IN THE PROGRESS OF LINK

**1982**

Incorporated as a Limited Liability Company in Sri Lanka, for manufacturing Spice Oleoresins and Essential Oils for export

**1984**

Commenced manufacturing of Generic Pharmaceuticals.

**1989**

Established R&D facility backed by multi-disciplinary teams and commenced development of herbal health care products

**1995**

Launched SAMAHAN in the Sri Lankan market.



Ayurvedic cure for cold & cold related symptoms



**1998**

Launched MUSCLEGARD Herbal ointment for muscular & neuralgic pains



**1997**

Launched KESHA Herbal beauty hair oil for total hair care and beauty



**2000**

Launched SUDANTHA Herbal tooth paste for total oral care.  
\* SAMAHAN launched in India

**2001**

The Company was awarded ISO 9001:1994 accreditation



**2003**

The Company was awarded ISO 9001:2000



**2002**

The Spice Oleoresin Extraction facility installed



Samahan launched in Malaysia

ISO 14001:1996 accreditation for Environmental Management System.



Chemical Industries (Colombo) Ltd. joined Link Natural Products in Partnership.

