

## Prof. S. Kannaiyan Memorial Oration-2014

### 'Wellness and *Morinda citrifolia* L.

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President of Inaugural function Dr. V. A. Parthasarathy; Dr. Kirti Singh, Chairperson, World Noni Research Foundation & President, International Society for Noni Science; Lion Dr. K. S. Rangasamy, Founder and Chairman, KSR Group of Educational Institutions; Prof. R. R. Hanchinal, Chairperson, Protection of Plant Varieties & Farmers' Rights Authority, GOI, New Delhi, Prof. H. Devaraj, Vice-Chairman, University Grants Commission, New Delhi; Dr. K. Thyagrajah, Principal, KSR Rangasamy College of Technology, Tiruchengode; Dr. D. J. Bagyaraj, Vice-President, National Academy of Biological Sciences; Dr. M. Anandaraj, Editor, NABS News letter; Dr. T. Marimuthu, Secretary, NABS; Dr. T. L. Baskaran, Treasurer, NABS; Dr. P. Ponmurugan, Coordinator of the National Seminar; members of NABS; distinguished delegates; students; staff members from various colleges; ladies and gentlemen, Wellness morning to every one of you!.....

At the outset let me express my sincere thanks and gratitude to National Academy of Biological Sciences for having chosen me for "Prof. S. Kannaiyan Memorial Award" for the year 2014 which is considered one of the prestigious awards in the country bestowed on eminent scientist every year since 2012.

Prof. S. Kannaiyan is one of the close associates of World Noni Research Foundation. His immense contribution, as one of its members of Research Advisory Board of World Noni Research Foundation, to its growth and development is noteworthy. I am really honoured to receive the prestigious award instituted in fond memory of the noble man, a great agricultural scientist

and an educationist. I am privileged to deliver "Prof. S. Kannaiyan Memorial Oration" on "**Wellness and *Morinda citrifolia* L.**"

Wellness is oneness. Wellness is not the opposite of illness!, but it is the individual experience of the balanced state of body, mind and spirit. Wellness is birth right of everyone in the universe. Wellness envisages the wellness of mind, emotion, physical, spiritual, social, environment and occupational. One has to look at wellness on holistic angles to provide sustainable wellness and it is a continuous process. Wellness is the result of making changes in your whole life, anchored by the understanding of the body as a whole system. We often refer to this systemic view as the Mind-Body-Spirit connection. Each of these three components requires attention to support the interconnectedness among them.

### **What is sustainable wellness?**

Sustainable Wellness is an integrative approach to medicine and health care based around translation change (embracing new things) and transformation change (letting go of old things). Sustainable Wellness, offers solutions and results rather than focus on treating the costly illness after it shows up. Sustainable Wellness focuses more on preventing it in the first place by making certain small steady changes, anyone can improve their health now and help prevent future illness from occurring. At its core, Sustainable Wellness means achieving good health by renewing oneself on an ongoing basis and cultivating an awareness of the choices made through daily mindful meditation.

To create sustainable change in health, one needs to have something to work towards. Along with proper nutrition and exercise, daily practice rooted in mind, non- judgment, non-striving and acceptance will help readers take that transformative journey to better and lasting health.

Sustainable Health and Wellness provides holistic, natural therapies in a quiet, unhurried, and harmonious atmosphere: a space in which to reclaim

health, vitality and balance in body, mind and soul; a space in which to relax and rejuvenate, and from which to re-emerge with renewed vigour and a refreshed spirit.

Most approaches to nutrition dwell on calories, carbohydrates, fats, proteins. Instead of creating lists of restrictions and good and bad foods, it is necessary to create a happy, healthy life in a way that is flexible, fun and free of denial and discipline.

### **Can we achieve the sustainable wellness through *Morinda citrifolia* ?**

*Morinda citrifolia* L., popularly known as Indian mulberry, Nuna in Tamil cheese fruit or noni in Hawaii, belonging to family *Rubiaceae*, is an ever green small tree which flowers and fruits throughout the year and naturally spread in the tropical regions of the world. The species is generally found from sea level to 400 m above MSL, although it adapts better to coastal regions. It is one of the underutilized and unexploited fruits.

### **How Noni can provide sustainable wellness?**

Noni with bundle of more than 160 nutraceuticals and pharmaceutical elements can play a vital role in building up the sustainable wellness. *Morinda citrifolia* fruit has a long history of 2000 years of use as a food in tropical regions throughout the world. Written documentation of the consumption of this fruit as a food source precedes the twentieth century. Noni is a nutritive booster and general tonic. Noni boosts general health and performance and dramatic improvement is seen in weakened conditions. It also promotes the absorption of nutrients and vitamins. It is a powerful antioxidant which could protect against free radical damage in the system. With intake of Noni definite increase in body weight in debilitated and devitalized conditions have been observed. Captain James Cook of the British Navy noted in the late 1700's that the fruit was eaten in Tahiti. A publication brought out in 1866 in London explained that *Morinda*

*citrifolia* fruit was consumed as a food in the Fiji Islands. Later publications describe the use of this fruit as a food throughout the Pacific Islands, South East Asia, Australia, and India. In Rorotonga “the fruit was often eaten by the natives”.

Australian Aborigines were “very fond” of the fruit. In Samoa, Noni fruit was common fare, and in Burma, the fruit was cooked in curries or eaten raw with salt. In 1943, Merrill described *Morinda citrifolia* L as an edible plant in a technical manual of edible and poisonous plants of the Pacific Islands, in which the leaves and fruits could be used as emergency food. The tribes *i.e.*, Nicobarese are known to have consumed this fruit raw with salt as well as cooked as vegetable. Noni had been used as a food, drink, medicine, and colorful dye. Vitamins have been reported in the fruit, mainly ascorbic acid (24-158 mg/100 g dry matter) and pro vitamin A. Phenolic compounds have been found to be the major group of functional micronutrients in Noni juice. Scopolectin of Noni increases serotonin levels in brain. This is effective in correcting mental depression, anxiety disorders, schizophrenia, sleep disorder, migraine and head ache, alzheimer's disease, alcohol addiction and sexual behavior. Noni also stimulates melatonin secretion which regulates body's physiological rhythm.

### **Health benefits of Noni**

The major ten health benefits of Noni are listed below:

1. **Analgesic** – Noni has the nicknames of “The Tree for Headaches” or “The Painkiller Tree”. Studies have shown that noni reduced pain comparable to the drugs tramadol and hydrocortisone, making it effective for arthritic and other joint pains.
2. **Immune system booster** – Noni activates macrophages and strengthens the immune system, which then produces more

lymphocytes. It also contains antibacterial agents that fight infectious bacteria, including *Staphylococcus aureus* and *Escherichia coli*.

3. **Antidepressant / sedative** – Noni stimulates serotonin and melatonin, two very important hormones. Serotonin affects mood, emotions, and sleep; imbalance in levels of serotonin may contribute to depression. Melatonin regulates the Circadian rhythm, which helps you sleep; keeping this regular will help you get a good night's rest, also improving your mood.
4. **Skin, hair care** – Noni's properties are useful on skin and scalp conditions, such as eczema and ringworm; also rubbed on scalp for lustrous hair; and will keep your skin young. Just rub some juice on affected skin/scalp, leave on for 15 minutes, rinse off. Ingestion of juice may help your nails to grow stronger.
5. **Anti-tumor/anti-cancer** – Noni stimulates the production of nitric oxide. Nitric oxide is an extremely useful substance, one that is at the base of many of noni's benefits. In this case, it reduces tumor growth and helps your body fight against the cancerous replication of cells. It also contains an immunomodulatory polysaccharide rich substance known as noni-ppt that further fights cancer. The immune boosting properties I mentioned in an above section are also a great help. One more thing that's important are the amount of phytochemicals in noni that fight cancer. Phytochemicals are found in vegetables and herbs, if eaten regularly will build up preventive amounts. In the case of cancer already being present, noni and other plants with high amounts will slow, stop, or totally reverse the cancer process.
6. **Hypertension** – Noni is high in phytonutrients, selenium, and vitamin C, which fights free radical damage on blood vessel walls; scopoletin, a compound that may lower blood pressure; it is alkaline,

which keeps bodily fluids from becoming too acidic, therefore hurting free radicals. It also has proxeronine, which is needed for the body to produce xeronine. Xeronine helps coordinate the cells to work harmonious, lowering stress and in turn, blood pressure. Also has the amino acid, tryptophan. When tryptophan enters the blood stream and goes to cells, it helps produce other substances that are important, such as even more serotonin, which is great for lowering blood pressure by way of its relaxing effect.

7. **Cholesterol** – Noni prevents the absorption of LDL cholesterol, thus reducing plaque in arteries, keeping you healthy and alive longer.
8. **Memory** – Noni, as mentioned before, prevents absorption of cholesterol by way of its large amount of phytosterols. This directly helps your brain stay healthier, and plaque does not build up in arteries feeding the brain, keeping it properly oxygenated.
9. **Irritable Bowel Syndrome / constipation** – Noni is high in soluble fiber, which helps ease the strain on your intestines and softens stool. Also has necessary vitamins and minerals to keep your intestines healthy.
10. **Antibacterial/antifungal/antiviral** – Noni has properties to fight infections comparable to that of prescription drugs. It contains anthraquinones, scopoletin, and terpenes, among others all work together to fight diseases.

A retrospective study by Neil Solomon reviewing the effect of Noni on the results of 10,000 Noni users has revealed the following beneficial effects:

- 67% of 847 cancer patients had lessening of symptoms.
- 97% of patients had increased energy levels.
- 72% over weight patients showed loss of weight.
- 87% of hypertensive had decrease in BP.

- 97% with chronic pain had decrease in pain.
- 87% arthritic patients reported decrease in symptoms.
- 80% of heart diseases-decrease in symptoms.
- 83% of diabetics had relief in all aspects.
- 89% reported improved digestion.
- 85% with allergies had relief.
- 77% with depression felt better.

Noni is effective in treating chronic cigarette smokers. It prevents them from smoking and also prevents the harmful effect of smoking. The antioxidant effect of Noni prevents free radical induced oxidative damage and lipid per oxidation. This reduces cancer risk. One month double blinded clinical study on smokers has proved this fact.

### **Some of the key achievements made through World Noni Research Foundation**

WNRF undertakes research through its own National Research Centre for Noni as well as out sourcing by funding to various public and private research organizations.

### **Crop Improvement and Management**

- Intensive field surveys and collections of *M. citrifolia* and its allies chiefly from two Southern states (Tamil Nadu and Kerala) has revealed several interesting features. Natural populations of *M. citrifolia* show varied levels of ecotypes / morphotypes. Depending on the location of the population the habit of *M. citrifolia* ranges from a foliose shrub to a medium sized tree. The latter forms are mostly seen in sheltered fields and private campuses. They thrive well in coconut plantations sometimes becoming a revenue yielding inter crop. During this project which commenced in May 2009 till 2012 January 60 Field trips have been

undertaken with a collection of 1101 voucher specimens. Following standard taxonomic procedures they have been processed, mounted, accessioned and identified.

- The National Research Centre at Salavakkam, Tamil Nadu identified about ten elite clones of Noni and shortlisted them for release of suitable high yielding variety for the first time in the history of Noni, though WNRF through its outsourced research projects could come out with more accessions having desired economic traits. They were deposited to NBPGR, New Delhi. The Indian Noni Tissue Culture laboratory under WNRF standardized mass multiplication of Noni plant. WNRF has already developed descriptors for Noni (*Morinda citrifolia* L.), which will be of great help to scientists to follow a standard description of variations occurring among Noni at national and international levels (WNRF, 2010). WNRF through Divine Noni Cultivation Council helps to grow Noni seedlings with buy-back arrangements thus helping sizable number of farmers to take up Noni cultivation.

### **Plant Protection**

- For the first time, explorative surveys were made and existence of pests and diseases was brought out including a few noni diseases (root knot nematodes, *Alternaria* leaf blight, anthracnose on leaf and fruit, dry and wet rot of noni fruits). Excellent ecofriendly management strategies were also developed to manage important pests and diseases of Noni.

### **Clinical and Pharmacological Studies**

- The anti-inflammatory and antimicrobial activities of Noni have been established.
- The scopoletin isolated from *M. citrifolia* L. fruit juice had anti-proliferative effect against retinoblastoma Y 79 cell line which is the first report from India.



- The effect of noni fruit juice on checking proliferation of cancer cells (glioma) has been established.
- Anti HIV activity and hepato-protective activity of noni fruit juice were established which is a breakthrough.
- Noni juice increased the proliferation of lymphocytes in young Wistar rats indicative of immune-enhancing effects of Noni fruit extracts.
- Noni juice also reversed the age-associated decline in Catalase, SOD and GST in middle-aged and old rats when compared with age-matched controls.
- The age-associated increase in the extent of lipid peroxidation and glutathione peroxidase activity were significantly reduced in middle-aged and old rats following noni shelf juice treatment. Treatment with Noni juice significantly reduced the activity of glutathione peroxidase in all the three age groups probably because of the reduction in free radicals due to the scavenging effect of Noni.

Noni is becoming popular round the world which is mainly fruit juice of *Morinda citrifolia*. By and large the fruits of Noni are being collected from wild. Few countries including India are cultivating *Morinda citrifolia*. These places, most of them do not have improved or specific variety (ies)/ hybrids of *Morinda citrifolia*. To have quality raw materials, importance of which need not be over-emphasized, there is a need to have strong crop improvement programme in Noni. A small beginning at WNRF made at National Research Centre would develop suitable varieties/ hybrids for different regions of the country and world. There is a need to develop specific chemical/ biomolecule rich, such as scopoletin, variety of noni *etc.* This will facilitate development of food supplement out of Noni to manage particular health problem. Through such programme, availability of Noni fruits with desired quality would be enhanced to support noni wellness food supplement industry.

The demand for quality noni fruits are on the increase which can be met by large scale cultivation of Noni. Needless to emphasize the development noni cultivation protocols for different agro-climates for mass production of Noni fruits. Some of the indigenous /traditional knowledge of therapeutic potentials of Noni fruits juice have been scientifically authenticated at WNRF and elsewhere in the world. But lot more, yet to be done.

Host of wellness products out of Noni fruit juice are available in the market. Some of them are in great demand. Suppliers and manufactures of Noni wellness products over the years are multiplying. This is likely to swell further with the progress in awareness of these products.

Recently, International Society of Noni Science (ISNS) has been established (in 2010) whose life membership has reached over 725. This society would assist in development and dissemination of knowledge on noni, its scientific cultivation and utilization of its fruits for maintaining good health and wellness, food supplements, nutraceuticals, pharmaceuticals, cosmetics and medicines. The society would be promoting wellness by developing scientific knowledge on Noni plant.

### **Wealth through Noni**

*Morinda citrifolia* generates wealth in the following ways.

- 1 Noni is a God gift to the human being. Several health benefits of Noni juice have been listed above and elsewhere in literature round the world. To produce Noni juice large acreage of noni farms are coming up. The tree yields round the year providing continuous return to orchardists over 25 years. Subhash et al in Indian Journal of Agriculture Economics, vol. 63(3) report an annual return of Rs. 4.7 lakh with net return of Rs 2.0 lakh per hectare from five year old

plantations in Andaman and Nicobar Islands. Farmers of these islands are advised by Central Agricultural Research Institute of Indian Council of Agricultural Research, Port Blair to undertake plantation of *Morinda citrifolia*. The institute gets supports from AYUSH, Ministry of Health and Family Welfare through National Medicinal Research Board, New Delhi for research on standardization of package of cultivation of *Morinda citrifolia*. Noni plant starts giving returns within two years of planting. From three year onwards one can expect return from Noni orchards. Noni is an ideal intercrop in orchards of coconut, mango and a border/bio-fence to orchards in tropical climate.

- 2 Mature noni fruits can be solar dehydrated to make noni whole fruit powder which in turn can be used to make several products of Noni. There is good global market for Noni whole fruit powder.
- 3 One can enter in manufacture of Noni products on small, medium or large scale. Several Noni products which are popular in the market are Noni fruit juice, squash, herbal drink, wine, different fruits juices flavored with noni juice.
- 4 At home scale noni fruit jam, jelly, juice, pickle, leather etc can be made and marketed through cooperatives or food stores.
- 5 There are several food supplements, functional foods, herbal preparations, health products made using Noni fruit which are becoming popular in markets world over. One can undertake manufacturing of these as a business.
- 6 Marketing of Noni products (juice, soap, cosmetics etc) is a sizeable business and is progressing fast. One can enter into noni marketing to have good income. Interested person can contact M/S Noni Bio-Tech Pvt Ltd, Chennai (website [www.nonifamily.net](http://www.nonifamily.net)) for

marketing/trading of its Noni products.

### **World Wellness Organization**

- We are born in and live in a loving Universe. Our creator has placed us in this Universe with all the resources we need to live a healthy and happy life. Wellness is our birthright. Life is meant to be happy and beautiful.
- World Wellness Organization (WWO), which is a non-profit organization, was founded in 2001, based on the above concepts. Our Vision is to create a World of Wellness, where everyone is healthy, happy and wealthy. Our Mission is to create Wellness Awareness among One Billion people by the year 2020.
- Over the last 13 years, the organization has focused on educating and empowering people to live a quality life. We believe that, our thoughts create our experiences. Change the thought process and the experiences will also begin to change.
- We are in the midst of a very interesting era where most people are living in a vicious cycle of reacting to an external stimuli and blaming an external source for their state of living, while another part of the population is seeking freedom from mundane life from an external source. It is extremely crucial at this point in time to bring the focus within, because within you lay all the answers you will ever need.
- We believe that there is a World of Wellness within each one of us and our focus is to empower all people to discover the World of Wellness, within.
- One of our goals is to give an opportunity to everyone to get access to top quality nutrition for their mind and body. One of the lavish resources of Nature is the array of fruits and vegetables available to us. One of the most valuable fruits given to us is Noni (*Morinda citrifolia*).

- Noni Biotech Pvt Ltd is pioneer to organically cultivate and produce Original Noni Fruit Drink concentrate in India. We are also the only official growers of Noni plant in the country. Through mass cultivation of Noni fruit in India, we support the rural poor, down trodden and landless labourers, to create livelihood.
- Our product 'Prof. Peter's Original Divine Noni Gold' is manufactured with an intention of creating wellness and well being for all its consumers. Divine Noni Gold is nature's perfect gift to humanity. It is an all natural wholesome food for cells. It provides optimum nutrition to the cells of the body, thus creating good health and wellness in a holistic way – body and mind. Millions of people all over the world, from all walks of life and all age groups, are using Divine Noni. They have all experienced positive health benefits with regular use of Divine Noni. Divine Noni Gold is a wellness product and proceeds from sales of this product are used to create Wellness and Well being of people, through the channel of the World Wellness Organization. At World Wellness Organization, we believe that Wellness is the birthright of every person beyond all social-economic barriers. World Wellness Organization has taken several initiatives to create a happy, healthy and wealthy life for people.

**A few of our initiatives are:**

1. Support to HIV+ve and Leprosy people: Divine Noni Gold is provided free to several institutions caring for HIV+ve and Leprosy affected people. We get regular feedback from these institutions on how the patients are experiencing a pain free and happy life, by regular use of Divine Noni.
2. Support to fishermen community in Tamil Nadu: We conduct Wellness Awareness programs for the fishermen community in Tamil Nadu,

supporting them to lead a healthy, happy life and to improve their economic condition.

3. Support to unorganized labourers in India: We conduct Wellness Awareness programs for unorganized labourers and have special Wellness Marketing programs to support them to improve their financial condition.
4. Support to auto driver community: We have launched a very special and exclusive business opportunity for the auto driver community of India. This initiative was launched this year on 15 August, 2013 and we received over whelming response from the auto drivers in Chennai.
5. World Wellness Life Success Academy: We have a hi-tech meeting and training centre in Chennai where every week free training is given on various aspects of life success like, self-improvement, relationships, financial management and also simple techniques are taught to improve health and wellness.
6. Vaazhiya Nalam and Empower: Monthly Wellness magazines in Tamil and English which have a huge circulation in India.
7. IGNOU Wellness Community College: One of its kind community college in India, where various courses on health and wellness are conducted. This is the only institution in India where the entire course fee is refunded after successful completion of the course.
8. Self-help groups for Women: We work with various self-help groups for women in Tamil Nadu to create Wellness Awareness and sharing with them the simple techniques on how to live a healthy and happy life. We also plan to introduce a special business plan for these women, to help them improve their financial condition.

I deem it a great pride in leading an organization which is dedicated for the betterment and upliftment of the poor, less-fortunate and ordinary people of the country. We have completed 12 years of glorious service to humanity this year.

In the 13<sup>th</sup> year of our inception, we are stronger in our willingness to attain our Vision of health, happiness and wealth for everyone.

We appreciate the patronage of millions of our customers from all over the world so far.

I thank the Universe for the huge platform provided to us as an organization to help, support, serve and up-lift others. True growth lies in service to the other.

