

# HEALTH HERITAGE

## SANGAM\* OF ANCIENT WISDOM AND MODERN SCIENCE

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**WIPO – IGC MEETING**

**17 June 2002**

**\*SANGAM ~ CONFLUENCE**

# ORGANISATION OF PRESENTATION

- **Background**
- **Objectives**
- **Features**
- **Contents**
- **Demonstration**
- **Bridge between TK and Modern Science**
- **IPR Issues**
- **Current trends**
- **Achievements so far**
- **Into the Future**

# BACKGROUND

- **Ayurveda – Indian System of Medicine**
- **Knowledge codified in Sanskrit since 12<sup>th</sup> century B.C.- Scriptures Available in Public domain**
- **Institutionalised Education, Research and Practice**
- **Medicinal plants - primary source of medicine**
- **Extensive research on Natural Products and Plant Chemistry**
- **Isolation and characterisation of chemical constituents**
- **Study of structure - activity relationships**
- **Knowledge useful for Life Science Industry**

# OBJECTIVES

- **Put TK which is already in public domain in modern electronic format in English language**
- **Link traditional knowledge to modern scientific and patent literature**
- **Use database for defensive and positive legal protection**
- **Address 'Patentability' issues**
- **Increase International recognition of Traditional Knowledge Systems**
- **Catalyse Scientific Collaboration**

# FEATURES OF HEALTH HERITAGE DATABASE

- **Non-patent and patent literature on medicinal plants widely used in Ayurveda**
- **Reproduction of traditional knowledge (original Sanskrit, transliteration and translation)**
- **Summary of chemical, biological and medicinal/clinical studies done on medicinal plants and their extracts**
- **Structures of new chemicals isolated**
- **Full text of patents**
- **Bibliographic references**
- **Free text search facility**
- **[Demo of Health Heritage / WIPO Portal](#)**

## BRIDGE BETWEEN TK AND MODERN SCIENCE

**IS THE ACETYLCHOLINE RECEPTOR A RABIES  
VIRUS RECEPTOR ?**

## ABSTRACT

Rabies virus was found on mouse diaphragms and on cultured chick myotubes in a distribution coinciding with that of the acetylcholine receptor. Treatment of the myotubes with  $\alpha$ -bungarotoxin and d-tubocurarine before the addition of the virus reduced the number of myotubes that became infected with rabies virus. These findings together suggest that acetylcholine receptors may serve as receptors for rabies virus. The binding of virus to acetylcholine receptors, which are present in high density at the neuromuscular junction, would provide a mechanism whereby the virus could be locally concentrated at sites in proximity to peripheral nerves facilitating subsequent uptake and transfer to the central nervous system.

*Lentz et. al.*

# BRIDGE BETWEEN TK AND MODERN SCIENCE

## Datura as a prophylaxis for rabies

प्रतिह्यादगदैः सर्पिः पुराणं पाययेत च ॥

अर्कक्षीरयुतं ह्यस्य दद्याच्चापि विशोधनम् ॥५१॥

श्वेतां पुनर्नवां चास्य दद्याद्धत्तूरकायुताम् ॥

पललं तिलतैलं च रूपिकायाः पयो गुडः ॥५२॥

pratihyādagadai: sarpi: purāṇaṃ pāyayēta ca ..

arkakṣīrayutaṃ hyasya dadyāccāpi viśōdhanam ..51..

śvētāṃ punarnavāṃ cāsya dadyāddhattūrakāyutām ..

palalam̐ tilatailam̐ ca rūpikāyā: payō guḍa: ..52..

**The affected person be made to drink the essence of Arka tree. This will clear his stomach of poison, if any, by vomiting. Sveta, Punarnava or Datura be administered. Palala, Oilseeds of Tila and essence of Rupika with Joggery drain the poison of Alarka (mad dog) as the wind drives away the clouds.**

निहन्ति विषमालर्क मेघवृन्दमिवानिलः ॥

मूलस्य शरपुङ्हायाः कर्षं धत्तूरकार्धिकम् ॥५३॥

तण्डुलोदकमादाय पेषयेत्तण्डुलैः सह ॥

उन्तत्तकस्य पत्रैस्तु संवेष्ट्यापूपकं पचेत् ॥५४॥

nihanti viṣamālarka mēghavṛndamivānila: ..

mūlasya śarapuṅhāyā: karṣaṃ dhattūrakārdhikam ..53..

taṇḍulōdakamādāya pēṣayēttaṇḍulai: saha ..

untattakasya patraistu saṃvēṣṭyāpūpakam pacēt ..54..

**Karsa measure of root of Sarapunkha along with a half of Datura measure be mixed with the rice-water be ground with wet rice - this paste be wrapped by Unmattaka leaves and cooked as a cake.**

खादेदौषधकाले तमलर्कविषदूषितः ॥

करोति श्वेविकारांस्तु तस्मिञ्जीर्यति चौषधे ॥५५॥

khādēdauṣadhakālē tamalarkaviṣadūṣita: ..

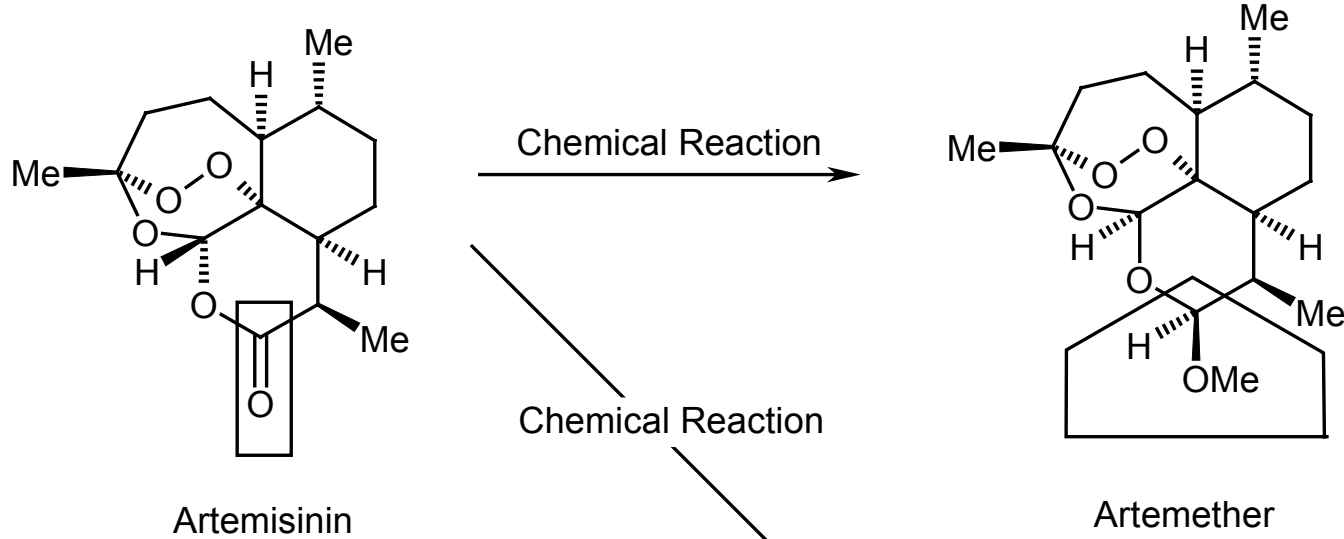
karōti śvēvikārāṃstu tasmiñjīryati cauṣadhē ..55.\*

**This cake be eaten by a person, who is bitten by Alarka and poisoned. Whatever the ills caused by the bite of mad dog are cured by this medicine.**

# **DATURA AS A PROPHYLAXIS FOR RABIES**

- **Chemical constituents of Datura are Scopolamine, Atropine and many other alkaloids**
- **These alkaloids predominantly block the muscarinic action of acetylcholine**
- **Datura for rabies treatment represents the first documented example of prophylaxis by receptor blockade**

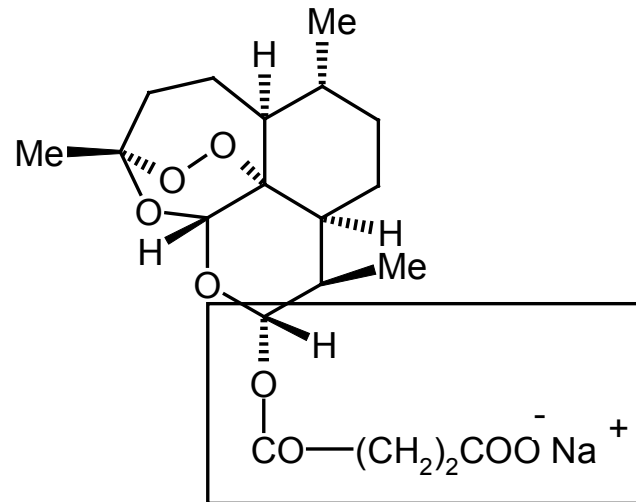
# THERAPEUTICS FOR CEREBRAL MALARIA



**Active Principle of  
Chinese Plant**

***Artemisia annua***

**Known Since 340 AD**



# PATENTS FOR ANTIMALARIAL COMPOSITIONS

United States Patent 5,219,865

Chatterjee , et al. (Hoechst)

June 15, 1993

**Pharmaceutical combination for the prophylaxis and therapy of malaria**

**Abstract**

The present invention relates to combinations of the malaria therapeutics *artemisinin*, *dihydroartemisinin*, *arteether*, *artemether*, *artesunate* or other *artemisinin* derivatives with one or more of the *antimalarials chloroquine*, 10-0-methylfloxacrine, *quinine*, *mefloquine*, *amodiaquine*, *pyrimethamine*, *sulfadoxine* and *primaquine*. Synergistic actions are achieved with them on treatment of mammals, including humans, with *subcurative* doses of the individual substances.

United States Patent 5,677,331

Zhou , et al. (Ciba Geigy)

October 14, 1997

**Antimalarial compositions**

**Abstract**

The invention relates to a synergistic *antimalarial* composition which comprises the *antimalarial* agent *benflumetol* and also an *antimalarial* agent from the *artemisinin* group such as *artemether*. The composition can be formulated into solid dosage forms such as tablets and is useful for the treatment of drug resistant malaria.

# **IPR ISSUES**

- **IP Protection beyond TK on Medicinal Plants**
  - **Active ingredients / chemical constituents**
  - **Combination of constituents of Natural Products and Synthetic compounds**
  - **Minor variants of naturally occurring compounds**
- **Emphasis on ‘Patentability’ and ‘Validity’**

# **CURRENT TRENDS**

- **Validation of Ayurveda concepts on Modern Scientific Principles**
- **Create Value by Synthesis between Ancient Insights and Modern Discoveries**
- **Scientification of Traditional Knowledge**

# **ACHIEVEMENTS SO FAR**

- **Integration of widely scattered and distributed references in a retrievable form**
- **Increased Awareness at National and International levels**
- **Changes in proposed Indian Patent Act**
- **Sensitisation of stakeholders of traditional and modern systems of medicine**
- **Impetus to modern research on medicinal plants for value addition**

# INTO THE FUTURE

- **Expand the scope to cover all major medicinal plants used in Ayurveda**
- **Convert review style format into a database format**
- **Convert each field into a sub-database with abstracts for each reference and possible link to archives of journals**
- **Web-enabling of database with modified IPDL structure and PCT search engine**
- **Adapt revised IPC classification**

Contd...

# INTO THE FUTURE

Contd...

- **Chemical Abstracts Registry number for Chemical Constituents**
- **Linkages to modern scientific databases (Chemical Abstracts / Biological Abstracts)**
- **Study feasibility of chemical structure based search**
- **Provide financial / technical / administrative resources**
- **Use WIPO Portal for Standardisation and Database Access through a Common Interface**
- **Seamless Knowledge and IP Management**