Some viral Diseases and Research Happened In Siddha Stream

1. Documentation of Treatment Guidelines in vector borne diseases(2009)

This documentation project is highly useful in collecting various treatment claims on vector borne diseases used for treatment and prevention. Among the 38 claims more than 60% reported for Chikunguniya. Nilavembu Kudineer and Bramananda Bairavam tablets are the frequently documented claims. It is noteworthy to mention here that mass treatment with Nilavembu Kudineer is adopted in southern states especially in Tamil Nadu whenever there is a reported outbreak of either Chikunguniya or dengue.

Outcome: Monograph published by CCRAS - Treatment guidelines for Chikungunya.

http://www.ccras.nic.in/sites/default/files/22092016_MANAGEMENT%20OF%20CHIKUNGUNYA%20THROUGH%20AYURVEDA%20AND%20SIDDHA-A%20TECHNICAL%20REPORT.pdf

2. Prospective case control study in Dengue with Nilavembu kudineer- National institute of Siddha Clinical study.(201

A Prospective case-control study with Retrospective data collection has been carried out in National Institute of Siddha, Chennai. Fever patients with clinical symptoms of viral fever(Dengue) and / or Thrombocytopenia were included as trial "Cases". Patients without symptoms of viral fever but age-sex matched with case-subject as "Controls". A person who has consumed minimum 5 days of Nilavembu Kudineer was considered as Nilavembu consumed person.Pateints with Malarial fever, Enteric fever, Filarial fever, Sepsis, Leptospirosis etc. were excluded. 76 cases and 352 controls were studied for 4 months. The odds of Nilavembu Kudineer consumed persons for developing viral related fever was 0.24 (CI: 0.13 to 0.45) which was statistically significant ($p < 0.0001$). Sex wise analysis reveals the odds of Nilavembu Kudineer consumed female persons for developing viral related fever was 0.47 (CI: 0.22 to 0.99) which was moderately significant ($p=0.048$). Whereas amongst the male group the odds was only 0.09 (CI:0.02 to 0.29) which was statistically highly significant ($p < 0.0001$). Consumption of Nilavembu Kudineer as a prophylactic measure prevents significantly the occurrence of Viral fever in all age groups invariably.

Christian et al., IJPSR, 2015; Vol. 6(4): 1656-1660. Protective effect of Polyherbal siddha formulation-Nilavembu kudineer against common viral fevers including dengue – a case-control approach, International journal of pharmaceutical sciences and research. https://ijpsr.com/bft-article/protective-effect-of-polyherbal-siddha-formulation-nilavembu-kudineer-against-common-viral-fevers-including-dengue-a-case-control-approach/?view=fulltext

3. In vitro and in vivo evaluation of therapeutic potential of various Siddha drugs upon chikungunya virus infection.

An Extra mural research funding has been sanctioned to international Centre for Genetic Engineering and Biotechnology, Aruna Asaf Ali Marg,New Delhi By Ministry Of AYUSH to evaluate the efficacy of Siddha drugs upon Chickungunya infection
Following are the publications in this research Project

1.*Sujathasunil et al*, In Vivo Evaluation of Withania somnifera-Based Indian Traditional Formulation (Amukkara Choornam), Against Chikungunya Virus-Induced Morbidity and Arthralgia., J Evid Based Integr Med. 2018 Jan-Dec;23:2156587218757661. doi: 10.1177/2156587218757661.
https://journals.sagepub.com/doi/full/10.1177/2156587218757661

2. *Sujathasunil et al,* Standardization of in vitro assays to evaluate the activity of polyherbal siddha formulations against Chikungunya virus infection, Virusdisease. 2018 Mar; 29(1): 32–39.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5877857/

4. In- vitro evaluation of therapeutic potential of various Siddha drugs upon H1N1 infection. (CCRS and VIT Colloborative study)

A study is done to assess the neuraminidase inhibition potential of the ***Nilavembu Kudineer Chooranam*** and ***Kabhasura Kudineer Chooranam*** in the inactivated influenza virus H1N1 has been documented in the study. For this analysis, inactivated influenza is employed and the assay is performed with the help of NA-Fluor™ Influenza Neuraminidase Assay Kit (PN 4457091). The provided compositions were subjected to aqueous soxhelet extraction, the extracts were then lyophilized. The extracts were further analyzed with GC-MS and checked for their neuraminidase inhibition ability.Our results provided conclusive validation for using poly herbal formulations as source material for antiviral drug discovery which inhibited neuraminidase in the following percentage.

Inhibition percentage of ***Nilavembu Kudineer Chooranam*** at least concentration 2.5µg/ml – 91.78%; the inhibition at highest concentration 1280 µg/ml - 90.32%

Inhibition percentage of ***Kabhasura Kudineer Chooranam*** at least concentration 2.5µg/ml – 80.35%; the inhibition at highest concentration 1280 µg/ml -87.35%.

Publication status: Under review.

5. **Antiviral activity of Ethanolic extract of Nilavembu Kudineer against dengue and chikungunya virus through in vitro evaluation.**

It is a CCRS and ICGEB Collaborative study

Currently, no vaccines or modern drugs are available for dengue and chikungunya and only symptomatic relief is provided to the patients. Siddha medicine, a traditional form of indigenous medical system uses specific polyherbal formulations for the treatment of such infections with considerable success. One such polyherbal formulation for the treatment of chikungunya and dengue is Nilavembu kudineer (NVK). The mechanistic details of this drug as an antiviral for chikungunya virus (CHIKV) and dengue virus (DENV) is poorly understood.

The current study was undertaken to study the efficacy of NVK as an antiviral formulation against CHIKV and DENV. Cytotoxicity assays (MTT) were performed to determine the role of NVK as an antiviral during chikungunya and dengue infections in the following conditions-i). post infection, ii). during active infections and iii) protective, not allowing virus infection.

It was observed that NVK provides protection against CHIKV and DENV-2 during active infection as well can help to prevent virus infection in the cells and it mainly depends on the cellular availability of drugs for maximum protection against both the infections.

Our study establishes that extraction protocols are important to ensure maximum efficacy of NVK along with the time of addition of the drug during CHIKV and DENV infections in the cells. This study provides insights to the possible mode of action of NVK in in vitro condition during CHIKV and DENV infection.

1.*Sujathasunil et al,al*, Antiviral activity of Ethanolic extract of Nilavembu Kudineer against dengue and chikungunya virus through in vitro evaluation, J Ayurveda Integr Med. 2019 Jan 23. pii: S0975-9476(18)30073-1. doi: 10.1016/j.jaim.2018.05.006.

https://www.ncbi.nlm.nih.gov/pubmed/30685096.

6. Siddha Medicine and Clinical Presentation of Dengue Fever at Tertiary Care Hospital of Chennai, Tamil Nadu, India,

Dengue fever is nowadays most common in metropolitan cities. It is an arthropod borne viral disease belongs to family flaviviridae, having four serotypes that spread by the bite of infected aedes mosquitoes. The present aim of the study to investigate outcome of dengue virus infection in patients on administration of Siddha herbal formulation (Nilavembu kudineeri). This prospective descriptive study was conducted in inpatients admitted at tertiary care hospital, with suspected dengue fever. However, case series was conducted at the department of Siddha medicine in collaboration with the general medicine department of MMC Hospital, Chennai, during the November-December months 2013 of Dengue fever. Clinically and serologically confirmed cases of dengue fever and who are willing to participate in the study were included. Data was analysed with graph pad prism version-5. Mean age of the patients was 34.37+17.54 years and majorities (15, 63%) were male. Seropositivity for dengue was found in 74%. The study did not find significant. Statistical associated with dengue seropositivity. Our study conclude that on administration of siddha herbal formulation (Nilavembu kudineeri) fever associated with chills and rigors, body aches, bone pain, headache, myalgia, rash, low platelet count, decreased TLC, raised serum ALT and Hemorrhagic manifestations are improved satisfactory in suspected dengue virus infection in 24 cases.

https://www.researchgate.net/publication/267866032_Siddha_Medicine_and_Clinical_Presentation_of_Dengue_Fever_at_Tertiary_Care_Hospital_of_Chennai_Tamil_Nadu_India/link/545ba1cb0cf249070a7a78eb/download.