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### A Review on “Kapa Sura Kudineer”-A Siddha Formulary Prediction for Swine Flu

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#### ABSTRACT

Siddha medicine is one of the oldest medical systems in the world. This system is most commonly practicing in India especially in southern regions. Siddha medicines become popular nowadays because of various outbreaks of communicable and very infectious diseases like chikungunya, dengue, swine flu etc. These diseases of viral origin are very challenge to the modern world because of lack of ideal anti-viral therapy. Pandemic flu is different from ordinary flu because it's a new flu virus that appears in humans and spreads very quickly from person to person worldwide. Because it's a new virus, no one will have immunity to it and everyone could be at risk of catching it. This includes healthy adults as well as older people, young children and those with existing medical conditions. The polyherbal decoction Kapa Sura Kudineer (KSK) is a well-known one in this series next to Nilavembu kudineer (NVK). This KSK is introduced for the prevention and the management of Swine flu. And the people of Tamil Nadu are very attentive about this Siddha drug KSK because to prevent and protect from the deadly life threatening disease, Swine flu. Here, an attempt has been made to review the explored ethno pharmacological activities of the ingredients of KSK to strengthen the scientific facts favoring this formulation.

**Keywords:** Herbal Medicine, Nilavembu, Indian system of Medicine, Kapa suram.

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#### INTRODUCTION

The World health Organization (WHO) estimated that 80% of the populations of developing countries rely on traditional medicines, mostly plant drugs for their primary health care needs. <sup>[1]</sup> The most important of these biologically active constituents of plants are

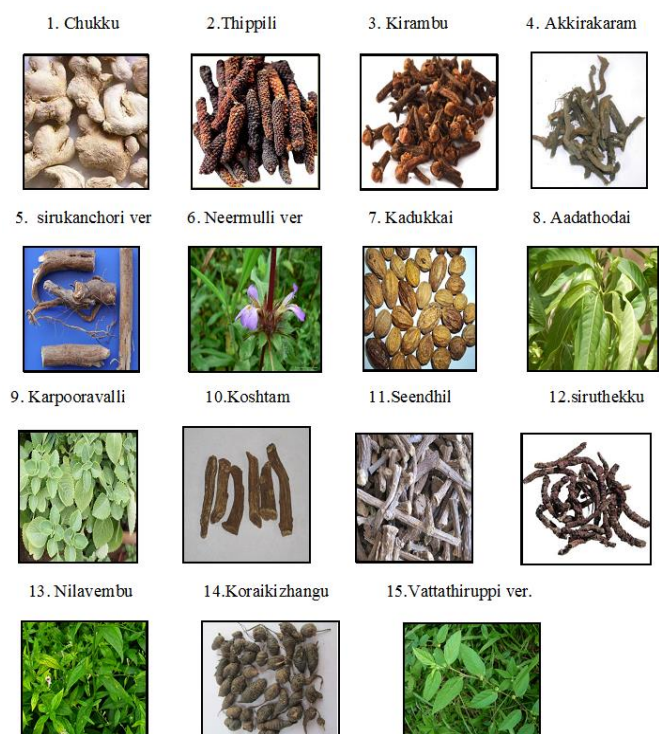
phenolic compounds. <sup>[2]</sup> Mortality rate in some of dreadful viral fevers like Dengue, Chikungunya and Swine flu have been increased which creates panic among the people. Many dreadful viral fevers have been reported recently in India and other Asian countries Swine flu is an emerging viral infection that is a present global public health problem. There are thousand cases of swine flu in the present day. Due to the nature of respiratory virus, the transmission of this pathogenic virus is air borne transmission. Hence, the rapid spreading and difficulty in control of this infection can be expected. <sup>[3]</sup>

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**Table I: Ingredients of KSK with literature review**

| S. No | Ingredients <sup>[11]</sup>                         | Part used <sup>[12]</sup> | Actions <sup>[12]</sup>                              | Indications as per literature <sup>[12]</sup>                                                  |
|-------|-----------------------------------------------------|---------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1.    | <i>Zingiber officinale</i> / <b>Chukku</b>          | Rhizome                   | stimulant, stomachic, carminative                    | Dyspepsia, Heartburns, Flatus, Cough, asthma, diarrhea, sinusitis, Peptic Ulcer, Anemia, Fever |
| 2.    | <i>Piper longum</i> / <b>Thippili</b>               | fruit                     | stimulant, stomachic, carminative                    | Cough, asthma, anemia, aguesia, headache, sinusitis, throat infection, phlegm                  |
| 3.    | <i>Syzygium aromaticum</i> / <b>Kirambu</b>         | fruit                     | stomachic, carminative, Antispasmodic                | vomiting, syncope, diarrhea, dysentery, ear problems, sinusitis, headache, dyspepsia           |
| 4.    | <i>Anacyclus pyrethrum</i> / <b>Akkirakaram</b>     | Root                      | Stimulant, sialogogue, rubifacient.                  | dental problem, tonsillitis, arthritis, epilepsy, fever, dryness of tongue                     |
| 5.    | <i>Tragus involucrate</i> / <b>Sirukanchori ver</b> | Root                      | Diaphoretic, anti-pyretic                            | Skin diseases, itching, fever, thirst, asthma, eczema, and cough                               |
| 6.    | <i>Hygrophila auriculata</i> / <b>Neermulli ver</b> | Root                      | Diuretic, refrigerant, demulcent, tonic              | Anemia, sinusitis, edema, UTI                                                                  |
| 7.    | <i>Terminalia chebula</i> / <b>Kadukkai</b>         | fruit                     | digestive, laxative, tonic, alterative               | liver diseases, stomatitis, diabetes, jaundice, leucorrhea, vitiligo, vomiting, piles, fistula |
| 8.    | <i>Justicia adathoda</i> / <b>Adathodai</b>         | leaves                    | Anti spasmodic, expectorant, diuretic, germicide     | Fever, cough, asthma, throat infection, purpura, Bleeding dysentery                            |
| 9.    | <i>Anisochilus carnosus</i> / <b>Karpooravalli</b>  | leaves                    | stimulant, diaphoretic, expectorant                  | Cough pox, phlegm, sinusitis, and rhinitis.                                                    |
| 10.   | <i>Costus speciosus</i> / <b>Koshtam</b>            | Root                      | expectorant, tonic, diaphoretic                      | Fever, Asthma, Piles, Wounds, Mania, Abscess                                                   |
| 11.   | <i>Tinospora cordifolia</i> / <b>Seendhil</b>       | Root                      | Alterative, stimulant, demulcent, Antiperiodic       | Fever, Diabetes, Skin diseases, Diarrhea, hypertension, purpura                                |
| 12.   | <i>clerodendrum serratum</i> / <b>Siruthekkku</b>   | Root                      | stimulant, sedative                                  | Fever, Asthma, sinusitis, Myalgia, Tridosha                                                    |
| 13.   | <i>Andrographis paniculata</i> / <b>Nilavembu</b>   | Stem, Leaves              | Stimulant, tonic, alterative, stimulant              | All types of Fever, sinusitis, syncope, Arthritis                                              |
| 14.   | <i>Cyperus rotundus</i> / <b>Koraikizhangu</b>      | Root tuber                | Astringent, stimulant, tonic, demulcent, diaphoretic | All types of fever, thirst, Hypertension, Tridosha                                             |
| 15.   | <i>Sida acuta</i> / <b>Vattathiruppi Ver</b>        | Root                      | Tonic, Expectorant Demulcent, diaphoretic            | fever, otalgia, itching, diarrhea, scabies, arthritis                                          |

**Fig. 1: Photographs of the ingredients of Kapa Sura Kudineer (KSK)**

In Siddha clinical practice *Nilavembu Kudineer* (NVK) a decoction based polyherbal Siddha formulation is prescribed for *suram* (fever) of unknown origin (PUO). It is used as first line therapy and general remedy for some types of fever caused by unidentified microbial infections. Like that “*Kapa sura Kudineer*” has taken the main role in the prevention of swine flu nowadays in a

popular manner. The drug KSK has been quoted for *kapasuram*, the symptoms of which is an analogue with swine flu, mentioned in Siddha Formulary of India. The aim and objective of this article is to reveal the scientific records of the ingredients of “*Kapa sura Kudineer*” which may be helpful for scientist, researchers, and practitioners.

#### Swine flu (swine influenza)

It is a respiratory disease caused by viruses (influenza viruses) that infect the respiratory tract of pigs and result in nasal secretions, a barking-like cough, decreased appetite and listless behavior. [4]

#### Main symptoms of swine flu in humans [5]

Direct transmission of a swine flu virus from pigs to humans is occasionally possible (called zoonotic swine flu). In all, 50 cases are known to have occurred since the first report in medical literature in 1958, which have resulted in a total of six deaths. Of these six people, one was pregnant, one had leukemia, one had Hodgkin disease and two were known to be previously healthy. Despite these apparently low numbers of infections, the true rate of infection may be higher, since most cases only cause a very mild disease, and will probably never be reported or diagnosed. According to the Centers for Disease Control and Prevention (CDC), in humans the symptoms of the 2009 “swine flu” H<sub>1</sub>N<sub>1</sub> virus are similar to those of influenza and of influenza-like illness in general.

#### Typical Symptoms [6]

Symptoms include fever, cough, sore throat, body aches, headache, chills and fatigue. The 2009 outbreak has shown an increased percentage of patients

reporting diarrhea and vomiting. The 2009 H<sub>1</sub>N<sub>1</sub> virus is not zoonotic swine flu, as it is not transmitted from pigs to humans, but from person to person.

### Diagnosis

For diagnosis of “swine influenza- A” infection, respiratory specimen (nasopharyngeal swab, throat swab nasal aspirate, nasal washing) would generally need to be collected within the first 4 to 5 days of illness (when an infected person is most likely to be shedding virus).<sup>[3]</sup>

Most of the tests can distinguish between A and B types. The test can be negative (no H<sub>1</sub>N<sub>1</sub> infection) or positive for type A and B. If the test is positive for type B, the flu is not likely to be swine influenza (H<sub>1</sub>N<sub>1</sub>). If it is positive for type A, the person could have conventional influenza strain or swine influenza (H<sub>1</sub>N<sub>1</sub>).<sup>[7]</sup>

**TABLE II: Ethno pharmacological aspects of the ingredients of KSK**

| S. No | Botanical name <sup>[11]</sup> | Family <sup>[11]</sup> | Morphology & Habitat                                                     | Phytochemical constituents <sup>[12-26]</sup>                                                                                                                                                                                                                                                                                                                                                  |
|-------|--------------------------------|------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.    | <i>Zingiber officinale</i>     | Zingiberaceae          | Herbaceous, perennial                                                    | beta-sitosterol palmitate, isovanillin, glycol monopalmitate, hexacosanoic acid 2,3-dihydroxypropyl ester, adenine, gingerol, shogaol <sup>[12]</sup>                                                                                                                                                                                                                                          |
| 2.    | <i>Piper longum</i>            | Piperaceae             | Aromatic climber, perennial woody root                                   | Coumapherine, piperidine, piperolactam A, piperidine, turmerone, aphanamol, bisdemethoxycurcumin, demethoxycurcumin <sup>[13]</sup>                                                                                                                                                                                                                                                            |
| 3.    | <i>Syzygium aromaticum</i>     | Myrtaceae              | Evergreen trees and shrubs                                               | phenylpropanoids such as carvacrol, thymol, eugenol, cinnamaldehyde <sup>[14]</sup>                                                                                                                                                                                                                                                                                                            |
| 4.    | <i>Anacyclus pyrethrum</i>     | Asteraceae             | Perennial herb much like chamomile in habitat                            | anacycline, pellitorine, enetriyne alcohol, hyrdocarolin, inulin (c 50%), traces of volatile oil and (+) – sesamin, amides (I, II, III, IV) <sup>[15]</sup>                                                                                                                                                                                                                                    |
| 5.    | <i>Tragia involucreata</i>     | Euphorbiaceae          | Slender, twining herb with stinging hairs                                | Alkaloids, flavonoids, lipids, phenolic compounds, proteins, saponins and triterpenoids <sup>[16]</sup>                                                                                                                                                                                                                                                                                        |
| 6.    | <i>Hygrophila auriculata</i>   | Acanthaceae            | An aquatic, perennial herb                                               | phytosterols, tannins, carbohydrates, flavonoids, terpenoids, and sterols, lupeol, betulin, and stigmasterol <sup>[17]</sup>                                                                                                                                                                                                                                                                   |
| 7.    | <i>Terminalia chebula</i>      | Combretaceae           | Tree with a diameter of 1.5 to 2.5 m.                                    | tannins -gallic acid, chebulagic acid, punicalagin, chebulanin, corilagin, neochebulinic acid, ellagic acid, chebulinic acid, casuarinin, terchebulin, polyphenols such as corilagin, galloyl glucose, punicalagin, terflavin A, maslinic acid. Flavonol, glycosides, triterpenoids, coumarin conjugated with gallic acids called chebulin as well as other phenolic compounds <sup>[18]</sup> |
| 8.    | <i>Justicia adathoda</i>       | Acanthaceae            | Evergreen, much-branched perennial shrub with a strong, unpleasant odour | Alkaloids, lignans, flavonoids, and terpenoid, steroids-campesterol, stigmasterol, sitosterol, and sitosterol-D-glucoside <sup>[19]</sup>                                                                                                                                                                                                                                                      |
| 9.    | <i>Anisochilus carnosus</i>    | Lamiaceae              | Tender fleshy perennial plant, oregano-like flavor and odor.             | 94.3% of the essential oil. Carvacrol (27.9%), camphor (14.1%) and <i>n</i> -cis-bergamotene (10.2%) <sup>[20]</sup>                                                                                                                                                                                                                                                                           |
| 10.   | <i>Costus speciosus</i>        | Costaceae              | Rhizome tuberous, 1-2 cm thick, highly branched, yellowish-green inside  | diosgenin, prosapogenin B of dioscin, diosgenone, cycloartanol, 25-en-cycloartenol and octacosanoic acid <sup>[21]</sup>                                                                                                                                                                                                                                                                       |
| 11.   | <i>Tinospora cordifolia</i>    | Menispermaceae         | Glabrous climbing shrub with a succulent stem and papery bark            | Berberine, Palmatine, Tembetarine, Magnofl orine, Tinocordifolin. Octacosanol, Heptacosanol, Furanolactone, Tinocordifolioside, Cordioside, Cordifolioside A, Cordifolioside B <sup>[22]</sup>                                                                                                                                                                                                 |
| 12.   | <i>Clerodendrum serratum</i>   | Verbanaceae            | small trees, shrubs & sub herbaceous perennial                           | Serratin along with lupeol <sup>[23]</sup>                                                                                                                                                                                                                                                                                                                                                     |
| 13.   | <i>Andrographis paniculata</i> | Acanthaceae            | Erect annual herb extremely bitter in taste                              | Andrographolide (C <sub>20</sub> H <sub>30</sub> O <sub>5</sub> ) is the major diterpenoid. Other diterpenoids are deoxyandrographolide, neoandrographolide, 14-deoxy-11, 12-didehydroandrographide and isoandrographolide, over 20 diterpenoids and over 10 flavonoids <sup>[24]</sup>                                                                                                        |
| 14.   | <i>Cyperus rotundus</i>        | Cyperaceae             | Perennial plant                                                          | cyprotene, acopaene, cyperene, aselinene, rotundene, valencene, cyperol, gurjunene, trans-calamenene, dcadinene, gcalacorene, cadalene, amurolene, gmurolene, cyperotundone, mustakone, isocyperol, acyprone, 4,11-selinnadien-3-one and 1,8-cineole <sup>[25]</sup>                                                                                                                           |
| 15.   | <i>Sida acuta</i>              | Malvaceae              | Long-lived (i.e. perennial) herbaceous plant or small shrub              | Beta-phenethylamines, quinazolines and carboxylated tryptamines, in addition to choline and betaine combination of sympathomimetic amines and vasicinone <sup>[26]</sup>                                                                                                                                                                                                                       |

### Conventional Treatment

**Neuraminidase inhibitor antiviral medications:** Oseltamivir (Tamiflu), a prodrug that is hydrolyzed by the liver to its active metabolite, oseltamivir carboxylate, with an elimination half-life of about 6–10 h. and Zanamivir (Relenza) is given as inhalational or administered orally. These medications target the early phase of the infection. However, this strain is resistant to adamantanes, such as Amantadine and Rimantadine. The potential, resistant and having different adverse reactions like cough, diarrhoea, dizziness, headache, nausea, sinus inflammation, sore throat, stuffy nose, vomiting. Bronchospasm are the major problem of these drugs.<sup>[8-9]</sup>

Table III: Some Related Pharmacological studies of the ingredients of KSK in the management of Swine Flu.

| S. No | Botanical name                 | Pharmacological studies carried out                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | <i>Zingiber officinale</i>     | Anti-cancer effects [27], Anti-inflammatory effects [28], Antitumor promoting activities of selected pungent phenol substances present in ginger [29], Antiemetic effect of ginger [30], Anti-influenza agents have been isolated from <i>Z. officinale</i> . TNF- $\alpha$ , reported as anti-influenza cytokine [31], Antimicrobial Activities of <i>M. avium</i> and <i>M. tuberculosis</i> in Vitro [32], Ameliorating effect [33], Anti-arthritis activity [34], Antitussive Effects [35]                                                                                                                                                      |
| 2     | <i>Piper longum</i>            | Antiasthmatic activity [36], anti-inflammatory activity against carrageenan induced paw edema [37], antihyperglycemic and antilipidperoxidative effects in alloxan induced diabetic rats [38], Hypocholesterolaemic activity in rats with high cholesterol fed diet [39], Analgesic activity using rat tail-flick method and for NSAID type analgesia using acetic-acid writhing method [40], Antioxidant activity [41], Antiamoebic activity against <i>Entamoeba histolytica</i> [42], Immunomodulatory activity [43], anti-metastasis activity [44], Hepatoprotective activity induced by carbon tetrachloride [45], Antimicrobial activity [46] |
| 3     | <i>Syzygium aromaticum</i>     | Anti-pyretic effect [47], Antioxidant properties [48], antiviral activity against <i>Herpes Simplex virus</i> [49], germicidal effect against various bacteria [50], Anti-stress activity in cold restraint induced gastric ulcers [51], Anti-diabetic activity [52]                                                                                                                                                                                                                                                                                                                                                                                |
| 4     | <i>Anacyclus pyrethrum</i>     | Anticonvulsant and Myorelaxation activity [53], Antidepressant activity [54], Immunostimulating effect [55], Memory-enhancing activity [56], Insecticidal and molluscicidal effect [57], Local anaesthetic effect <i>in vivo</i> [58], Antimicrobial effect [59], Inhibitory effect on 5-lipoxygenase & cyclooxygenase [60]                                                                                                                                                                                                                                                                                                                         |
| 5     | <i>Tragia involucrata</i>      | Cytotoxic activity [61], Analgesic activity using rat tail-flick method [62], Anti-inflammatory activity in carrageenan induced rat paw edema [63], Anti-diabetic activity [64], Anti-tumor activity [65], Bronchodilator activity [66]                                                                                                                                                                                                                                                                                                                                                                                                             |
| 6     | <i>Hygrophila auriculata</i>   | Anti-inflammatory, Antipyretic activity on Brewer's yeast-induced pyrexia in rats [67], Antibacterial and anthelmintic activity [68], Antitumor activity in Ehrlich Ascites carcinoma (EAC) - and sarcoma-180 (S-180)-bearing mice [69], Analgesic activity in hot plate and tail flick by thermal method and acetic acid-induced writhing test [70], Hepatoprotective activity in CCl <sub>4</sub> -induced liver damage [71], hypoglycemic activity streptozotocin-induced diabetic rats [72], <i>In vitro</i> and <i>in vivo</i> antioxidant activities [73], Hematopoietic activity using cyclophosphamide-induced anemia in rats [74]          |
| 7     | <i>Terminalia chebula</i>      | Anti hyperglycemic effect [75], anti salmonellae activities <i>in vitro</i> and <i>in vivo</i> [76], Anti lithiatric activity [77], Bactericidal Activity [78], Inhibition of HIV 1 integrase activity [79], Hepatoprotective activity [80], Antiviral activity and their protective activity against cytotoxic effects caused by influenza A virus [81], Antidiabetic and renoprotective activity [82], Hypo lipidemic activity In atherogenic diet induced hyperlipidemic models [83], Antinociceptive activity [84], Anti-Ulcer activity in aspirin and ethanol-induced ulcer models [85]                                                        |
| 8     | <i>Justicia adathoda</i>       | Anti-inflammatory activity by the modified hen's egg chorioallantoic membrane test [86], Bronchodilatory activity both <i>in vitro</i> and <i>in vivo</i> [87], antibacterial activity against <i>Staphylococcus aureus</i> and <i>Escherichia coli</i> [88], antitussive activity in anaesthetized rabbits [89], Hepatoprotective activity against D-galactosamine induced liver damage [90]                                                                                                                                                                                                                                                       |
| 9     | <i>Anisochilus carnosus</i>    | Hepato protective activity, Analgesic, Antipyretic [91], Anti-Ulcer activity in pyloric ligated rats [92], Anti-microbial activity [93]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 10    | <i>Costus speciosus</i>        | Analgesic effect in acetic acid induced writhing and Eddy's hot plate models, Anti-inflammatory activity against carrageenan induced paw edema, Antipyretic activity by Brewer's yeast-induced pyrexia in rats [94], Antifungal Activity [95], Antidiabetic activity [96], Antihelminthic Activity [97], Anticholinesterase activity was shown by observation on frog rectus muscle and dog blood pressure [98], Antibacterial [99], Free radical scavenging activity, antioxidant activity, nitric oxide scavenging activity, ion chelating activity [100], Antistress Activity [101]                                                              |
| 11    | <i>Tinospora cordifolia</i>    | Antibacterial activity [102], Gastro intestinal and anti-ulcer activity [103], Hepatoprotective activity [104], Anti-neoplastic property [105], Immunomodulatory effect [106], Anti-hyperglycemic property [107], Anti-oxidant activity [108]                                                                                                                                                                                                                                                                                                                                                                                                       |
| 12    | <i>Clerodendrum serratum</i>   | Antihistaminic activity, Antiasthmatic activity in sensitized isolated guinea pig lung [109], Hepatoprotective activity [110], Mast Cell Stabilization [111], Anti-allergic activity by milk induced leucocytosis in Albino mice, Anti-inflammatory activity in carrageenan induced paw edema and cotton pellet implantation methods [112], Anti-pyretic activity [113], Analgesic activity [114], Anti cancer activity [115]                                                                                                                                                                                                                       |
| 13    | <i>Andrographis paniculata</i> | Anti-oxidant activity induced elevated lipid per oxidation [116], Anti cancer activity [117], Anti-hyperglycaemic effects [118], Anthelmintic activity against adult earth worms [119], Hepatoprotective activity CCl <sub>4</sub> -induced liver damage in rats [120], Anti-inflammatory activity in carrageenan induced paw edema [121], Activity of andrographolide and its derivatives against influenza virus <i>in vivo</i> and <i>in vitro</i> [122]                                                                                                                                                                                         |
| 14    | <i>Cyperus rotundus</i>        | Tranquilizing activity [123], Anti-inflammatory, anti-arthritis, analgesic, Anticonvulsant activity against strychnine and leptazol-induced convulsions in mice [124], Anti-emetic activity against apomorphine induced vomiting [125], Hepatoprotective activity in rats by inducing liver damage by carbon tetrachloride [126], Antibacterial activity in disc diffusion method [127], Cytoprotective effects against ethanol induced gastric damage [128], Antidiabetic activity in rats with alloxan induced diabetes [129], Antidiarrhoeal activity in castor oil induced diarrhoea in mice [130]                                              |
| 15    | <i>Sida acuta</i>              | Anti-inflammatory/Analgesic activity [131], Antiulcer against aspirin plus pylorus ligation gastric ulcer, ethanol induced ulcer and water immersion stress induced ulcer in rats [132], Hypoglycemic activity with alloxan induced diabetic in rats [133], Hepatoprotective Effect against liver damage induced by paracetamol overdose [134], Antimalaria activity [135], Antipyretic activity [136], Antibacterial activities [137], Antioxidant activity [138-139]                                                                                                                                                                              |

### Immunization by Vaccines

The U. S. Food and Drug Administration (FDA) approved the new swine flu vaccine for use in the United States on September 15, 2009. Studies by the National Institutes of Health (NIH) show that a single dose creates enough antibodies to protect against the virus within about 10 days. But unfortunately, this according to update reports in Reuters; eight hundred children in Europe have developed narcolepsy an

incurable sleep disorder after taking the swine flu vaccine Pandemrix H<sub>1</sub>N<sub>1</sub> vaccine which is made by GlaxoSmithKline.

### Swine Flu and Siddha Medicine

Siddha system of Medicine explains about 4448 diseases in its text quoted by the saint Agasthiyar. [10] All these diseases are caused due to alteration in three humors of body called Vatham, Pitham, and Kapham.

Siddha promotes the concept that if one's immune system (3 humors) is strong and normal then even if the body is exposed to any microorganism, one will not be affected. During a pandemic or an epidemic attacks, Siddha emphasizes on the resistance of people existing in regions affected by viruses. This medicine promotes the intake of decoctions to increase the immunity level of the people and to neutralize or normalize the 3 humors. Siddha remedies consist of natural herbs which are effective in preventing and controlling swine flu. Moreover, the herbs in the decoction or any other medications are used to relieve swine flu symptoms, and boost the immune system against the H<sub>1</sub>N<sub>1</sub> virus and to relieve from the symptoms. On this way, Siddha treatment for swine flu involves the use of Kapa Sura Kudineer which comprising 15 drugs explained in Table I.

### Ethno Pharmacological Aspects

The Phyto chemical constituents and pharmacological actions of the ingredients, explained in the Table II & III, indicates that most of the herbs are having anti inflammatory, Antipyretic, Analgesic, anti viral, anti bacterial, anti fungal, anti oxidant, Hepato protective, anti diabetic, anti-asthmatic, Anti-tussive, Immunomodulatory, anti-diarrheal and Anti-oxidant activities .

In the developing countries increased cost of medicine as well as their side effects has become a great task when the public health is concerned. Investigations have been carried out from time to time to develop different types of polyherbal formulations to enhance the overall therapeutic potential of the formulation [140]. And so, nowadays the traditional medical system and their herbal / herbo-mineral preparations are for various ailments becoming more popular. A lot of research articles confirm that these herbs possess effective anti-viral, anti-bacterial and commonly antimicrobial activity without causing any hepatic damage and renal damage to a certain extent like conventional drugs. When comparing with the ethno pharmacological aspects of these ingredients with Siddha literature strongly indicates that the KSK prepared out of these drugs can reveal Anti-viral, Anti allergic, Anti-asthmatic & antipyretic activity with Hepato- protective effect and serve as an excellent defensive as well as a healing one.

Based on this text survey the KSK can be used for preventative as well as curative for swine flu. In future more awareness must be given to the further research. This KSK formulation has not been studied for its synergistic pharmacological activities. It is the further need of time to complete pharmacological and clinical studies to protect people from the deadly disease swine flu.

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