

## Herbs used in *Siddha* medicine for arthritis – A review

Eugene Wilson\*<sup>1</sup>, GV Rajamanickam<sup>1</sup>, Neera Vyas<sup>2</sup>, A Agarwal<sup>3</sup> & GP Dubey<sup>3</sup>

<sup>1</sup>Centre for Advanced Research in Indian System of Medicine (CARISM),  
SASTRA University, Thanjavur 613 402, Tamil Nadu; <sup>2</sup>Escorts Heart Institute and Research Centre, New Delhi 110 025; <sup>3</sup>Centre for  
Psychosomatic and Biofeedback Medicine, Banaras Hindu University, Varanasi 221 005, Uttar Pradesh  
E-mail: willeuge@yahoo.co.in

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Plants used in *Siddha* system of medicine for arthritis has been studied from various *Siddha* literatures and are presented hereunder. The particulars of herbs used with its botanical name, vernacular name (Tamil), family, parts used, administration form and indication are tabulated. This information provides immense potential for studying their activity for arthritis both in pre-clinical and clinical stages, which lead to the preparation of useful pharmaceutical products.

**Keywords:** *Siddha* medicine, Arthritis, Medicinal plants

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Attention of scientists all over the world is focused towards the alternative systems of medicine in the recent past. The reason being, none but for the currently practiced medical system is not complete for all the ailments encountered till date. The various therapeutic agents / approaches aim mostly at symptomatic relief rather than a definite cure. Hence, there is growing importance in traditional health systems in providing healthcare for a wider population across the globe, especially in the developing countries. WHO currently encourages, recommends and promotes traditional as well as natural remedies in national healthcare programmes, as they are easily available at low cost, comparatively safe, and are culturally acceptable. Since time immemorial, *Siddha* System of Medicine, the heritage of the family practice of South India, is a special, scientific, significant, most respectable and of high order one. In *Bogar Nikandu*, about 4,448 diseases are described and various herbs are indicated for these diseases<sup>1</sup>. Herbs, minerals and products of animal origin are basic raw materials of the *Siddha* system<sup>2</sup>. *Siddha* System of Medicine caters a totality of herbs, and is unique in exhibiting fewer side effects. Secondly, *Siddha* medicine has a better answer for curing refractive diseases like arthritis, cancer, bronchial asthma, etc.<sup>3</sup> The name *Siddha*, owes its origin to medicinal ideas and practices of a class of Tamil sages called the *Siddhar*—perfected or holy

immortals, who had firm faith in the deathless physical body being in tune with the spiritual immortal soul. Significantly, one of the definitions of *Siddha* medicine is conquest of death or that of which ensures preventive against mortality. This statement is attributed to *Tirumoolar*, a revered *Siddhar* whose treatise called *Tirumantiram*, has 3,000 *stanzas* and is regarded as a classic text on the basic philosophy of *Siddha* medicine. According to Tamil tradition, *Siddha* medicine is associated with 18 *Siddhars*, with *Agastiyar*, *Tirumoolar*, and *Bhogar* being the most important. The dates of these *Siddhars* are uncertain, although Tamil tradition accords remote antiquity to them. However, only the later *Siddhars* like *Agastiyar*, *Tirumoolar*, and *Bhogar* who lived in fifth to sixth century, could able to record it systematically<sup>4</sup>.

The materials used by the *Siddhars* as drugs could be classified into herbal (*Mooligai* or *thavaram*), inorganic substances (*Thathu*) and animal products (*Jeeva vaguppu*). In Tamil literature, the word *Marunthu* (drug) itself means or denotes scented root or leaf. In general, among the Indian Systems of Medicine, *Siddha* uses herbs prominently. Great emphasis is given to herbs by our ancient *Siddhars*. It is stressed by the *Siddha sutra* as follows:

“*Ver paru thazhai paru minginikal*  
*Mella mella parpa chenduram pare*”

Accordingly, it is advised to administer first pure herbs in the form of liquid, powder, pill or paste. If it is not controlling, then, the physicians use mixture of

\*Corresponding author

herbs, metals, minerals and animal products in addition to herbs<sup>5</sup>. In view of this uniqueness, there was a dire need to identify the medicinal plants prescribed in *Siddha* literature and standardize the herbal drugs for some refractive diseases, and to make the international community aware of such distinctions. In the pursuit of such a venture, arthritis, the commonly affecting disease afflicted by many people due to change in food habits, life style, etc. was selected for the study. In spite of the efficiency of eradicating both rheumatoid arthritis as well as osteoarthritis in *Siddha* System of Medicine, it is not popular other than Tamil Nadu. *Siddha* system primarily uses herbal products as well as animal and mineral matters, too. As the system is started and practiced in the Tamil speaking area, it had no opportunity to spread out until and otherwise, the most useful medicine in this system is brought to light in other languages, the effective drugs of this system may not be enjoyed by others. Of late, the FDA Clause No. 312.23(a) (3) (ii), (9)), has clearly projected that any drug of traditional system can be exempted from rigorous clinical trial in case, one establishes the historical continuity of a particular drug practiced from the ancient period<sup>6</sup>. In view of such applicability, it is worth to bring out the excerpts of the original texts and the combination of the drugs particularly herbal drugs to the common mass. Moreover, such outreach in a particular language may not be possible for everyone. So, this review will be of great use is not only establishing the historical continuity but also to spread the knowledge on such drugs to the regions of other than Tamil Nadu.

In addition, this review will be much valuable to a researcher in any system of medicine to unravel the selection of better medicine. As the *Siddha* system, though much older in period, the approach to the texts for any other researcher who has no versatility in Tamil language, is difficult. The review like this will be instrumental to the researchers in other languages and other systems of medicine to compare and appreciate the wisdom of *Siddha* system. Nevertheless, once this practice of a particular medicine to arthritis is known to others, their feedback may help the local practitioners to refine their own medicine in a better form and applicable to the present times. In this direction, an effort to unearth the traditional knowledge on arthritis was taken up as *Siddha* system provides a complete cure to this challenging debilitating disease. Hence, the *Siddha*

literature available with local trained *Siddha* practitioners and people practicing herbal drug therapy from generations to generations were contacted in and around Thanjavur district, Tamil Nadu, and collated here to appreciate the richness of *Siddha* system.

### Methodology

The traditional books and palm leaf manuscripts available at the Saraswathi Mahal library, at the Raja Serfoji palace, Thanjavur, collections of the *Siddha* Medicine, Department of Tamil University and The Tamil University library, personal collections of a consultant *Siddha* medical practitioner in Thanjavur and oral discussions with a few other local practitioners were executed to get sufficient information about the traditional knowledge of treating arthritis. The observations presented herein are only pertaining to the herbs used for the treatment of arthritis. The various forms in which they are administered and the parts used involving herbomineral and animal origin were collected.

### Results and discussion

The details of various plants, their parts used and route and the form of administration with botanical name, vernacular name and family are given for all plants. Details of plants used internally as single and polyherbal formulations have been presented (Tables 1 & 2) along with details of herbs used externally as single or polyherbal formulations (Tables 3 & 4). From the detailed survey of the traditional literature, discussions with local trained *Siddha* practitioners and people practicing herbal drug for generations to follow, it has been established that there exists a wide range of treatment for treating arthritis. The treatment for arthritis varies from practitioner to practitioner and also their methods and modes do so. In *Siddha*, treatment of a particular ailment depends on the type, severity of the ailment and the individual getting the treatment, his body constitution, the season, etc.

Though, there are many herbs earmarked for arthritis, *Siddha* system takes in to account the availability of a particular herb, its properties, its action, etc. Each herb varies depending upon the soil, geomorphology, climatic conditions and more so its phytoconstituents. So, *Siddhars* according to the availability of herbs in each locality and season, adapted unique therapies both internally as well as externally. The practice of single herbal therapy in *Siddha* is called *Aga mooligai prayokam* with an idea

Table 1—Plants used internally as single herbal formulation

Plant name	Local name (Tamil)	Family	Uses
<i>Adenantha pavonina</i> Linn.	<i>Anai - kunri</i>	Leguminaceae	Leaf potion is used for frozen joints <sup>14</sup> .
<i>Alpinia galanga</i> Willd.	<i>Srit-arattai</i>	Scitamineaceae	Root powder is used for arthritic syndrome <sup>14</sup>
<i>Aristolochia indica</i> Linn.	<i>Ich-churamuli</i>	Aristolochiaceae	Root powder is used for joint disease <sup>14</sup> .
<i>Boerhaavia diffusa</i> Linn.	<i>Mukka- rattai</i>	Nyctaginaceae	Root potion is used for joints pain <sup>9</sup> .
<i>Cardiospermum halicacabum</i> Linn.	<i>Mudakkathan</i>	Sapindaceae	Leaf is used for joints pain <sup>11, 13</sup> .
<i>Clerodendron phlomoides</i> Linn.	<i>Thazhuthazhai</i>	Verbanaceae	Leaf is used for frozen joints <sup>12</sup> .
<i>Cocculus villosus</i> DC.	<i>Kattukodi</i>	Menispermaceae	Root potion is used for chronic joints disease <sup>14</sup> .
<i>Corallocarpus epigaea</i> Hook.	<i>Akashagarudan</i>	Cucurbitaceae	Root, root powder and potion are used for frozen joints <sup>14</sup> .
<i>Curcuma zedoaria</i> Rosc.	<i>Kich-chili -kizhangu</i>	Scitamineaceae	Root potion is used for crippling arthritis & frozen joints <sup>14</sup> .
<i>Enicostemma littorale</i> Blume.	<i>Vellarugu</i>	Gentianaceae	Root powder is used for frozen joints <sup>11, 14</sup> .
<i>Indigofera tinctoria</i> Linn.	<i>Avuri</i>	Papilionaceae	Leaf, root powder and potion are used for joints pain <sup>9, 11, 13</sup> .
<i>Myristica fragrans</i> Houtt.	<i>Sathikai</i>	Myristicaceae	Fruit, oil is used for joints pain <sup>14</sup> .
<i>Ocimum gratissimum</i> Linn.	<i>Elimichan tulasi</i>	Labiatae	Leaf potion is used for joints pain <sup>14</sup> .
<i>Premna integrifolia</i> Linn.	<i>Munmai</i>	Verbanaceae	Leaf and root potion are used for joints pain <sup>14</sup> .
<i>Randia dumetorum</i> Lamk.	<i>Marukarai</i>	Rubiaceae	Bark and root powder are used for joints pain <sup>14</sup> .
<i>Sida acuta</i> Burm.	<i>Ponmusuttai</i>	Malvaceae	Root potion is used for joints pain <sup>13</sup> .
<i>Withania somnifera</i> Dunal	<i>Amukkara</i>	Solanaceae	Root powder is used for pain <sup>13, 14, 16</sup> .

Table 2—Plants used internally as polyherbal formulation

Plant name	Local name	Family	Uses
<i>Acalypha fruticosa</i> Forsk.	<i>Chinni</i>	Euphorbiaceae	Plant Powder & potion is used for joints pain <sup>14</sup> .
<i>Anacylus pyrethrum</i> DC.	<i>Akkara karam</i>	Compositae	Root potion is used for joints pain <sup>10</sup> .
<i>Andrographis paniculata</i> Nees	<i>Nila vembu</i>	Acanthaceae	Leaf & stem potion is used for frozen joints & joints pain <sup>14</sup> .
<i>Argyreia speciosa</i> Sweet.	<i>Kadarpalai</i>	Convolvulaceae	Root powder is used for joints pain <sup>13</sup> .
<i>Asarum europoeum</i> Linn.	<i>Nilakadambu</i>	Aristolochiaceae	Root potion is used for joints pain <sup>14</sup> .
<i>Azima tetracantha</i> Lam.	<i>Sangamchedi</i>	Salvadoraceae	Root, leaf potion is used for joints swelling <sup>14</sup> .
<i>Balsamodendron myrrha</i> Nees	<i>Vellaip-polam</i>	Burseraceae	Resin powder is used for frozen joints <sup>14</sup> .
<i>Boswellia serrata</i> Roxb.	<i>Parangi-sambirani</i>	Burseraceae	Resin powder is used for joints pain <sup>14</sup> .
<i>Celastrus paniculatus</i> Willd.	<i>Valuzhuvai</i>	Celastraceae	Seed powder is used for severe joints pain <sup>14</sup> .
<i>Cephalandra indica</i> Naud.	<i>Kovai</i>	Cucurbitaceae	Root potion is used for joints pain <sup>14</sup> .

Table 2—Plants used internally as polyherbal formulation

Plant name	Local name	Family	Uses
<i>Citrullus colocynthis</i> Schard.	<i>Attru thumatti</i>	Cucurbitaceae	Root powder is used for joints pain <sup>14</sup> .
<i>Cleome viscosa</i> Linn.	<i>Nay-velai</i>	Leguminaceae	Leaf powder is used for joints disease <sup>14</sup> .
<i>Clerodendron inerme</i> Gaertn.	<i>Pinasangam-koppi</i>	Verbanaceae	Root powder is used for joints pain <sup>9,18</sup> .
<i>Clerodendron serratum</i> Linn.	<i>Kanduparangi</i>	Verbanaceae	Root potion is used for chronic joints disease <sup>14</sup> .
<i>Crataeva reliogiosa</i> Hook & Forst.	<i>Mavalingam</i>	Capparidaceae	Leaf potion is used for crippling arthritis <sup>8</sup> .
<i>Cuminum cyminum</i> Linn.	<i>Chirakam</i>	Umbelliferae	Seed potion is used for joints disease <sup>12</sup> .
<i>Daemia extensa</i> R. Br.	<i>Uttamani</i>	Asclepiadeae	Leaf, root powder and oil are used for joints pain <sup>8,9</sup> .
<i>Glycyrrhiza glabra</i> Linn.	<i>Athimathuram</i>	Papilionaceae	Root powder is used for frozen joints <sup>14</sup> .
<i>Gmelina asiatica</i> Linn.	<i>Nila kumizh</i>	Verbanaceae	Root powder is used for joints pain <sup>13</sup> .
<i>Heliotropium indicum</i> Linn.	<i>Thei-kodukku</i>	Compositae	Leaf potion is used for joints pain <sup>14</sup> .
<i>Indigofera aspalathoides</i> Vahl.	<i>Sivanar vembu</i>	Papilionaceae	Whole plant powder & potion is used for joints pain <sup>14</sup> .
<i>Pavonia zeylanica</i> Cav.	<i>Chirtamutti</i>	Malvaceae	Whole plant potion is used for joints pain <sup>14</sup> .
<i>Plumbago zeylanica</i> Linn.	<i>Kodiveli</i>	Plumbaginaceae	Root potion is used for joints pain <sup>9</sup> .
<i>Ricinus communis</i> Linn.	<i>Amanakku</i>	Euphorbiaceae	Seed oil is used for joints pain with swelling <sup>12</sup> .
<i>Semecarpus anacardium</i> Linn.	<i>Cherangkottai</i>	Anacardiaceae	Seed powder, electuary, ghee is used for severe crippling arthritis <sup>12,15</sup> .
<i>Shorea robusta</i> Gaertn.	<i>Kungiliyam</i>	Dipterocarpaceae	Resin powder is used for joints pain <sup>14</sup> .
<i>Smilax china</i> Linn.	<i>Parangi pattai</i>	Liliaceae	Root potion is used for crippling arthritis <sup>14</sup> .
<i>Sphaeranthus indicus</i> Linn.	<i>Kottai karanthai</i>	Compositae	Whole plant powder & potion are used for joints disease <sup>14</sup> .
<i>Terminalia chebula</i> Retz.	<i>Kadukkai</i>	Combretaceae	Seed powder and oil is used for joints pain <sup>12</sup> .
<i>Trianthema decandra</i> Linn.	<i>Saranai</i>	Ficoidaceae	Root, leaf potion is used for joints swelling <sup>14</sup> .
<i>Tribulus terrestris</i> Linn.	<i>Nerujil</i>	Zygophyllaceae	Whole plant potion is used for crippling arthritis <sup>14</sup> .
<i>Withania somnifera</i> Dunal	<i>Amukkara</i>	Solanaceae	Root powder is used for joints pain <sup>13,14,16</sup> .
<i>Zingiber officinale</i> Roxb.	<i>Chukku</i>	Scitamineae	Root potion is used for joints pain <sup>8,16</sup> .
<i>Zizyphus jujuba</i> Lam.	<i>Elanthai</i>	Rhamnaceae	Root and bark potion is used for joints pain <sup>9</sup> .

Table 3—Plants used externally as single herbal formulation

Plant name	Local name	Family	Uses
<i>Abutilon indicum</i> (Linn.) Sw.	<i>Thuthi</i>	Malvaceae	Leaf fomentation is used for joints pain <sup>7</sup> .
<i>Adansonia digitata</i> Linn.	<i>Anaipuliyamaram</i>	Malvaceae	Leaf fomentation is used for joints pain <sup>14</sup> .
<i>Alangium salviifolium</i> (Linn.f) Wang.	<i>Azhinjal</i>	Cornaceae	Root, bark oil is used for joints pain <sup>13</sup> .
<i>Anisomeles malabarica</i> R.Br.	<i>Rattai-paeymaruti</i>	Labiatae	Leaf fomentation is used for joints pain <sup>14</sup> .
<i>Anthocephalus cadamba</i> Miq.	<i>Kadambu</i>	Rubiaceae	Bark, seed fomentation is used for crippling arthritis <sup>14</sup> .
<i>Azadirachta indica</i> A.Juss.	<i>Vembu</i>	Meliaceae	Ghee fomentation is used for joints pain <sup>12,14</sup> .
<i>Brassica alba</i> Rabenh.	<i>Venkadugu</i>	Cruciferae	Seed poultice is used for crippling arthritis <sup>10</sup> .
<i>Cadaba indica</i> Lamk.	<i>Vizhuthi</i>	Capparidaceae	Leaf poultice is used for joints swelling & antiarthritic <sup>14</sup> .
<i>Calophyllum inophyllum</i> Linn.	<i>Punnai</i>	Guttiferae	Seed poultice is used for joints pain <sup>14</sup> .
<i>Calotropis gigantea</i> R. Br.	<i>Erukku</i>	Asclepiadaceae	Leaf, latex poultice is used for joints pain with swelling <sup>7,8</sup> .
<i>Cassia fistula</i> Linn.	<i>Sara konrai</i>	Caesalpinaceae	Fruit poultice is used for frozen joints <sup>14</sup> .
<i>Chrysanthemum indicum</i> Linn.	<i>Shamanthippu</i>	Compositae	Flower oil is used for joints pain with swelling <sup>14</sup> .
<i>Crinum asiaticum</i> Linn.	<i>Visha mungil</i>	Amaryllideae	Root poultice is used for joints pain <sup>14</sup> .
<i>Erythrina indica</i> Lam.	<i>Kaliyana murukku</i>	Papilionaceae	Leaf poultice is used for joints pain <sup>14</sup> .
<i>Euphorbia antiquorum</i> Linn.	<i>Shadurakalli</i>	Euphorbiaceae	Latex and oil is used for crippling arthritis <sup>12</sup> . Milk poultice is used for joints swelling <sup>14</sup> .
<i>Excoecaria agallocha</i> Linn.	<i>Thillai</i>	Euphorbiaceae	Seed poultice is used for crippling arthritis <sup>14</sup> .
<i>Ficus glomerata</i> Roxb.	<i>Athi</i>	Urticaceae	Milk poultice is used for joints pain with swelling <sup>14</sup> .
<i>Jatropha curcas</i> Linn.	<i>Katt -amanukku</i>	Euphorbiaceae	Seed poultice is used for frozen joints <sup>14</sup> .
<i>Justicia adhatoda</i> Linn.	<i>Adhatodai</i>	Acanthaceae	Leaf poultice is used for frozen joints <sup>14</sup> .
<i>Nigella sativa</i> Linn.	<i>Karunchirakam</i>	Ranunculaceae	Seed poultice is used for joints swelling <sup>10</sup> .
<i>Ocimum gratissimum</i> Linn.	<i>Elimichan tulasi</i>	Labiatae	Leaf poultice is used for joints pain <sup>14</sup> .
<i>Peucedanum Graveolens</i> Benth.	<i>Sathakuppai</i>	Umbelliferae	Seed, root poultice is used for joints pain <sup>14</sup> .
<i>Ricinus communis</i> Linn.	<i>Amanakku</i>	Euphorbiaceae	Leaf fomentation is used for joints pain with swelling <sup>12</sup> .
<i>Sapindus trifoliatus</i> Linn.	<i>Manipungu</i>	Sapindaceae	Root poultice is used for joints pain <sup>14</sup> .
<i>Tamarindus indica</i> Linn.	<i>Puli</i>	Caeselpiniaceae	Leaf poultice is used for joints pain with swelling <sup>14</sup> .
<i>Thespesia populnea</i> (L.) Soland. ex. Correa	<i>Puvarasu</i>	Malvaceae	Latex poultice is used for joints swelling <sup>14</sup> .
<i>Vitex negundo</i> Linn.	<i>Notchi</i>	Verbanaceae	Leaf fomentation is used for joints pain with swelling <sup>14</sup> .
<i>Zingiber officinale</i> Roxb.	<i>Chukku</i>	Scitaminaceae	Root poultice is used for joints swelling <sup>8,16</sup> .
<i>Ziziphus jujuba</i> Lam.	<i>Elandai</i>	Rhamnaceae	Root, bark poultice is used for joints pain <sup>9</sup> .

Table 4—Plants used externally as polyherbal formulation

Plant name	Local name	Family	Uses
<i>Acacia leucophloea</i> Willd.	<i>Vel veli</i>	Mimosaceae	Bark oil, fomentation is used for joints disease <sup>14</sup> .
<i>Acalypha indica</i> Linn.	<i>Kuppaimeni</i>	Euphorbiaceae	Whole plant poultice, oil is used for joints swelling <sup>12</sup> .
<i>Acorus calamus</i> Linn.	<i>Vasambu</i>	Aroideae	Root poultice is used for joints pain <sup>14</sup> .
<i>Aeschynomene aspera</i> Linn.	<i>Atru- netti</i>	Leguminaceae	Leaf fomentation is used for joints swelling <sup>14</sup> .
<i>Albizia lebbek</i> Benth.	<i>Vaghai</i>	Mimosaceae	Leaf, root poultice, fomentation is used for joints swelling <sup>7</sup> .
<i>Allium cepa</i> Linn.	<i>Vengayam</i>	Liliaceae	Root poultice is used for joints pain <sup>14</sup> .
<i>Artemisia absinthium</i> , Linn.	<i>Masi-patri</i>	Compositae	Leaf fomentation is used for joints pain <sup>14</sup> .
<i>Atalantia monophylla</i> DC.	<i>Kattu-elumichai</i>	Rutaceae	Fruit oil is used for joints pain <sup>9</sup> .
<i>Bacopa monnieri</i> (Linn.) Wettst.	<i>Nir-brahmi</i>	Scrophularinaceae	Leaf poultice is used for chronic arthritis <sup>11,16</sup> .
<i>Cardiospermum halicacabum</i> Linn.	<i>Mudakkathan</i>	Sapindaceae	Leaf, root oil is used for joints pain <sup>11,13</sup> .
<i>Clerodendron inerme</i> Gaertn.	<i>Pinasangam-koppi</i>	Verbanaceae	Root oil is used for joints pain <sup>9,18</sup> .
<i>Clerodendron phlomoides</i> Linn.	<i>Thazhuthazhai</i>	Verbanaceae	Leaf, root oil is used for frozen joints <sup>12</sup> .
<i>Corallocarpus epigaea</i> Hook.	<i>Akashagarudan</i>	Cucurbitaceae	Root poultice is used for joints pain <sup>14</sup> .
<i>Cymbopogon citratus</i> (DC.) Stapf.	<i>Karpoorapul</i>	Graminaceae	Leaf oil is used for joints pain <sup>14</sup> .
<i>Datura metel</i> Linn.	<i>Umattai</i>	Solanaceae	Leaf poultice, oil is used for joints pain with swelling <sup>7,11</sup> .
<i>Euphorbia nerifolia</i> Linn.	<i>Ilaikalli</i>	Euphorbiaceae	Leaf poultice is used for joints disease <sup>14</sup> .
<i>Hemidesmus indicus</i> R.Br.	<i>Nannari</i>	Asclepiadaceae	Root oil is used for joints pain <sup>14</sup> .
<i>Lawsonia inermis</i> Linn.	<i>Maruthondri</i>	Lythraceae	Leaf oil is used as antirheumatic <sup>7,10</sup> .
<i>Lepidium sativum</i> Linn.	<i>Aliverai</i>	Cruciferae	Seed poultice is used for joints pain with inflammation <sup>14</sup> .
<i>Michelia champaca</i> Linn.	<i>Shanbagam</i>	Magnoliaceae	Flower oil is used for joints swelling <sup>14</sup> .
<i>Mollugo cerviana</i> Ser.	<i>Parpatakam</i>	Ficoidaceae	Root oil is used for joints pain <sup>14</sup> .
<i>Nardostachys jatamansi</i> DC.	<i>Sadamanjil</i>	Valerianaceae	Root oil is used as antirheumatic <sup>14</sup> .
<i>Nerium odorum</i> Soland.	<i>Alari</i>	Apocynaceae	Leaf poultice is used for joints pain <sup>14</sup> .
<i>Phaseolus mungo</i> Linn.	<i>Uzhundu</i>	Papilionaceae	Seed oil is used for crippling arthritis <sup>14</sup> .
<i>Piper nigrum</i> Linn.	<i>Milagu</i>	Piperaceae	Leaf, fruit oil, fomentation is used for joints pain with swelling <sup>7,12</sup> .
<i>Plumbago zeylanica</i> Linn.	<i>Kodiveli</i>	Plumbaginaceae	Root oil is used for joints pain <sup>9</sup> .
<i>Pongamia glabra</i> Vent.	<i>Pungu</i>	Papilionaceae	Root poultice is used for joints pain <sup>8</sup> .
<i>Rubia cordifolia</i> Linn.	<i>Manjitti</i>	Rubiaceae	Root oil is used for joints pain <sup>14</sup> .
<i>Salvadora indica</i> Royle.	<i>Perungalarva</i>	Salvadoraceae	Fruit, flower oil is used for joints disease <sup>14</sup> .
<i>Sesbania grandiflora</i> Pers.	<i>Sev-agathi</i>	Leguminaceae	Root, bark poultice is used for joints pain with swelling <sup>10</sup> .
<i>Solanum xanthocarpum</i> Schrad & Wendll.	<i>Kandankhatri</i>	Solanaceae	Leaf oil is used for joints pain <sup>7</sup> .
<i>Strychnos nux-vomica</i> Linn.	<i>Yetti</i>	Loganiaceae	Seed oil is used for joints pain <sup>8,17</sup> .
<i>Terminalia chebula</i> Retz.	<i>Kadukkai</i>	Combretaceae	Seed oil is used for joints pain <sup>12</sup> .

to alleviate a particular disease using minimum resources effectively. Further, in earlier days the treatment was administered then and there. Many medicines were prepared fresh only after understanding the patient's problem. Depending upon the severity of the illness and the patient's constitution, the practitioner starts to prepare the medicine and administer them. Moreover, the root cause of a particular disease is none other than the derangement of humours. To counteract not only the disease but also the root cause, *Siddhars* introduced polyherbal formulations. Since, *Siddhars* have greatly believed in synergism, the number of polyherbal formulation used internally is more than the number of single herbal formulations (Tables 1 & 2). External preparations both single and polyherbal formulations are of equal number (Tables 3 & 4). *Siddha* literature claims that there exist 80 varieties of *Vali* diseases<sup>19</sup>. There is different school of thoughts pertaining to the number of *Vali* diseases 84, 85 and 87<sup>20-21</sup>. The nomenclature of *Vali* diseases is based on the concerned organ/system associated with clinical signs and symptoms along with the vitiated humours namely, *vali*, *azhal* and *iyyam*. *Vali* disease is a generic name comprising a number of clinical entities associated with deranged *vali* humour, pain, loss of function, etc.

Originally diseases are classified according to the three humours as *vali noi*, *azhal noi* and *iyya noi*<sup>22</sup>. *Yugimamunivar* have classified diseases authentically on the basis of clinical signs, symptoms, humoral and regional pathology. His classification of disease is so extensive and very clear. It could be compared to present day classification of disease in modern medicine and the one followed by *Siddha* physicians, even today. The insight and experience of *Yugimamunivar* is astonishing that he has described intestinal obstruction as (*Uthara vali*) and neoplasm of oesophagus as (*Orakari vali*). Some other examples of *vali* diseases that can be compared to current day clinical manifestations are psoriatic arthritis (*Kalanjagam*), synovitis or synovial arthritis (*Narithalai vali*) and inflammation of the origin of joint (*Uthiravatha sronitham/Vali Azhal Keel Vayu*). Various synonyms have been used in *Siddha* literature to explain arthritis<sup>23</sup> as: *Santhu vali* - *Santhu* (Joint), *Vali* (Pain) *Muttu vali* - *Muttu* (Joint), *Vali* (Pain) *Mudakku vali* - *Mudakku* (Crippling arthritis), *Vali* (Joint). Moreover, *Keel vayu* is a common term used to describe different types of arthritis in *Siddha* pathology. *Siddha* defines *Keel vayu* as deranged or

vitiated *vali* humour (*vayu*) in the joints (*keel*), which bring about diseased condition. There are 10 varieties of *Keel vayu* mentioned in *Siddha* writings, namely: *Vali Keel Vayu*, *Azhal Keel Vayu*, *Iyya Keel Vayu*, *Vali Azhal Keel Vayu*, *Vali Iyya Keel Vayu*, *Azhal Vali Keel Vayu*, *Azhal Iyya Keel Vayu*, *Iyya Vali Keel Vayu*, *Iyya Azhal Keel Vayu*, and *Mukutra Keel Vayu*.

Each type of *Keel vayu* presents with a group of symptoms, which can be correlated with the diagnosis of modern medicine. Firstly, *Vali Keel Vayu* manifests with joints pain, swelling, throat pain, fever, headache, palpitation, chest pain, arthritis affects mainly joints, and of migrating nature, Subcutaneous nodules, etc. coinciding with rheumatic fever. Secondly, *Azhal Keel Vayu* is caused by the vitiation of *Azhal* humour in the joints presenting with increase in swelling day-by-day correlating with osteoarthritis. As a result of the increase in *Azhal* humour, the lubricating fluid, i.e. Synovial fluid is reduced resulting in crepitations mentioned in *Siddha* as *Claluk* sound. *Iyya Keel Vayu* resembles tubercular arthritis with symptoms such as evening rise of temperature, loss of weight, swelling of the joint with pus formation and sequestration resulting in crippling arthritis, finally morbidity. *Vali Azhal Keel Vayu* mimics rheumatoid arthritis manifesting with malaise, fatigue, swelling with intense pain mainly affecting smaller joints with periods of recurrence and remission. *Vali Iyya Keel Vayu* presents with hyperpyrexia, pain and tiredness of upper and lower extremities, heaviness of the limbs, with urogenital symptoms, which at last leads to disability. *Azhal Vali Keel Vayu* is formed by the derangement of both *Azhal* and *Vali* humours resulting in haemorrhage into joints, which resembles haemophilic arthritis. *Azhal Iyya Keel Vayu* exhibits symptoms such as giddiness, vomiting, swelling in the larger joints with immobility of the joints. This type of arthritis is spread through sexual contact and hence can be correlated with syphilitic arthritis.

When *Iyyam* and *Vali* humours are deranged due to immoral sexual contact there is every chance for gonococcal arthritis known as *Iyya Vali Keel Vayu* in *Siddha*. It affects primarily the big joints of knees, ankles, elbows, shoulders, etc. It is described as if the affected joints take the shape of Fox's head. *Iyya Azhal Keel Vayu* is correlated with pneumococcal arthritis where *Iyya* humour is vitiated, and then it combines with *Azhal* humour to manifest as a disease.

Symptoms include fever, cough and severe cold, vomiting and swelling of joints leading to inability to flex and extend.

*Mukkutra Keel Vayu* is a condition where toxic symptoms prevail like severe sweating, dyspnoea, incoherent speech, vomiting, coma with absence of bowel movements and anuria with severe presentation of arthritis in the joints. In *Siddha* pharmacopoeia, various herbs and their parts have been widely used for the different types of *Keel Vayu* since 5,000 yrs. In *Siddha* system, equal importance has been given to internal as well as external medicine because *Siddha* medicine advocates 32 types of internal and 32 types of external medicine with their shelf life<sup>24</sup>. Medicated powder from herbs is a common type of internal medicine and is used as a baseline treatment for all ailments including arthritis, eg. root of *Withania somnifera* Dunal. powder (*Choornam*). Another type of internal medicine is potion, which gets absorbed quickly within our system and facilitates faster action that is of greater importance in arthritis treatment, eg. seed of *Cuminum cyminum* Linn. potion (*Kudineer*). Furthermore, internal medicines are administered in the form of pill (*Mathirai*), electuary (*Legiyam*), oil (*Ennai*), ghee (*Nei*), etc., eg. fruit of *Piper nigrum* Linn.–pill, seed of *Terminalia chebula* Retz. - oil, seed of *Semecarpus anacardium* Linn.–ghee<sup>25</sup>. External therapy includes fomentation (*Ottradam*), poultice (*Patru*), oilation (*Thailam*), etc. This type of therapy is applied to the skin to release swelling or pain so as to alleviate the deranged *vali* humour by bringing in fresh energy by improving cutaneous circulation and neural conductivity, eg. leaf of *Vitex negundo* Linn. – fomentation, root of *Zingiber officinale* Roxb.–poultice & seed of *Strychnos nuxvomica* Linn. –oilation.

Even though, there are wide arrays of treatment modalities in the *Siddha* System of Medicine practiced by a number of physicians, well-organized, preclinical and clinical trial evidences are not adequately available in order to advocate their scientific merit and supremacy over the existing therapies. Hence, scientific validation of the safety and efficacy of the *Siddha* drugs both individually as well as formulations have to be studied in a systematic and organized manner to compete in the international market.

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