

## Latex – Siddha Perspective

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### Abstract

When we go through the Siddha Literatures we will be able to understand the greatness of the Siddhars' vision in documenting the Prophylactic and Therapeutic properties of single Herbs and compound preparations. The properties of Plants and their by-products have immense medicinal and commercial values. In that way, Latex is a milky fluid found in many plants, such as poppies and sporges, which exude when the plant is cut and coagulates on exposure to the air. Latex has many therapeutic potentials and this work documents those properties. Plants are tabulated based upon their botanical family distribution.

### Introduction

Laticifers are cells or series of fused cells containing a fluid called 'Latex'. The latex is often milky or even white in appearance. Latex may be present in ordinary parenchyma cells or it may be formed in branching systems of tubes. The plants containing latex range from small herbaceous annuals to large trees like the rubber yielding Hevea.

### Composition and physical state of latex



Latex is a substance consisting of a liquid matrix with minute organic particles in suspension. The latex may be regarded as the cell sap of the laticifer. Like the cell sap, it contains various substances in solution and colloidal suspension; Carbohydrates, Organic acids, Salts, Alkaloids, Sterols, Fats, Tannins and Mucilages.

## Mechanism of Latex Formation

Laticifers release latex, when they are cut open. The flow of latex is a pressure flow (Bonner & Galston 1947). In the intact plant, the laticifers are under turgor. At the same time, the laticifers are in osmotic equilibrium with the surrounding parenchyma cells. When the laticifer is opened, the turgor gradient is established and the flow occurs towards the cut, where the turgor has been reduced to zero (Spencer 1939 c). This flow eventually ceases and subsequently the turgor is restored (Spencer 1939 c).



Some of the latex containing plants has several medicinal uses. Some of the families are listed below

### Papaveraceae

Tamil Name	Botanical Name	Description	Chemical Constituents	Medicinal Uses
<p><i>Brahmathandu</i></p> 	Argemone Mexicana	Annual prickly herbs, Stems – greyish white with yellow latex Leaves – both radical and cauline, white, spiny on margins and veins, sessile, ampleicaul, oblong(ovate), glaucous. Fruit – poricidal capsule, prickly. Seeds – Blackish brown.	Berberin, Protopine and many others.	Yellow juice of the plant is used in scabies and ophthalmia.
<p><i>Abini</i></p> 	Papaver somniferum	Annual erect herb, 15 – 30cm tall, Milky latex. Leaves – entire, glabrous. Flowers - solitary, Violet-white or red, Fruit – Round capsule with numerous white seeds.	Latex contains iso-quinolone alkaloids. Chief alkaloids are Morphine, Narcotine, Codeine, Papaverine and Thebaine.	Opium is the thickened latex collected from the outside of immatured poppy capsules that have had incissions made in the fruit capsules. The unripe capsules suitable for the production of opium, are trimmed.



				Subsequent to drying the processed latex is scraped off and formed into pieces of varying size. The obtained material is referred to as raw opium and is also the basic substance used for the production of heroin. Opium is used as a narcotic, sedative, anodyne, antispasmodic, hypnotic and sudorific.
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### Asclepiadaceae




Tamil Name	Botanical Name	Description	Chemical Constituents	Medicinal Uses
<i>Erukku</i> 	Calotropis gigantea	Soft white woolly shrubs, upto 2 m tall, latex milky, Leaves – decussate, obovate (oblong), sparsely pubescent, Flowers – purplish in axillary and terminal umbellate cymes Fruits – paired follicles, oblong, inflated Seeds – oblong with white silky coma.	Latex contains alpha – amyrin, psitaraxasterol, cardiac glycosides-calotropins, gigantins and uscharin. A proteolytic enzyme somewhat similar to papain has been found in milky juice.	The bark, root and the dried milky sap may be used in small doses in certain cutaneous infections such as leprosy and secondary syphilis.
<i>Uththamani</i> 	Pergularia daemia	Perennial, twining, semiwoody, milky weed with foetid, small stem, clothed with spreading hairs. Leaves – broadly ovate or suborbicular, Flower – greenish yellow in long	Plant – contains sterols, hentriacontane, lupeol, alpha – amyrin, beta – amyrin, beta – sitosterol, betaine, glycoside uzarigenin.	Latex with limestone is used for fever, <i>janni</i> (as pan) <i>thamboolam</i> .

		peduncled fascicles, Fruits – paired follicles, curved, softly echinate seeds with silky coma.		
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### Moraceae



Tamil Name	Botanical Name	Description	Chemical Constituents	Medicinal Uses
<p>Aal</p> 	Ficus bengalensis	<p>Very large trees, sending down many aerial roots from the main trunk and large branches, which descend to the soil.</p> <p>Leaves – Elliptic, Ovate, Alternate, coriaceous, glabrous above puberulous below.</p> <p>Flowers – In figs, Axillary, Sessile, In pairs, globose, puberulous, red when ripe.</p>	<p>Latex contains 0.3-7.7% caoutchouc, an unsaturated sterol – like compound provisionally named ficosterol and glutathione are present.</p>	<p>The milky latex is applied externally for pains in rheumatism and lumbago. It is also used as a remedy for tooth ache</p> <p>The coagulum of the latex may be employed in making bird-lime</p>
<p>Piraii</p> 	Strebulus asper	<p>Large shrubs or small crooked trees.</p> <p>Bark – Light grey, Rough, Laticiferous.</p> <p>Leaves – Elliptic (obovate), Denticulate.</p> <p>Flowers – Unisexual, Male in capitata clusters, yellowish green. Female solitary or 2 – 4 together.</p> <p>Drupe – Globose, Yellowish when ripe, succulent.</p>	<p>Plant contains triterpenoids – friedlin, epifriedlinol, taraxeryl acetate. Stem bark contains cardiac glycoside, strebloside, mansonin.</p>	<p>Fissures, dental diseases, aphrodisiac.</p>

## Apocynaceae

Tamil Name	Botanical Name	Description	Chemical Constituents	Medicinal Uses
<p>Nanthiyaavattam</p> 	Ervatamia coronaria	<p>Dichotomously branched, large shrub.</p> <p>Leaves – Oblanceolate to Oblong.</p> <p>Flowers – Creamish-white with yellow coloured spot, in terminal divaricate cymes, Fragrant.</p> <p>Fruit – Mericarp, Curved and Beaked</p>	Plant contains Indole alkaloids, caoutchouc, resins, sugars, fatty acid.	The milky juice mixed with oil is rubbed into the head to cure pain in the eyes. In Western India, milk has the reputation of being very cooling and is applied to wounds to prevent inflammation.
<p>Eezhathalari</p> 	Plumeria rubra	<p>Deciduous, profusely branched tree, upto 10 cm tall.</p> <p>Leaves – Broadly obovate (spathulate).</p> <p>Flowers – Cream with yellow centre.</p> <p>Fruit – paired follicles (scarce)</p>	Latex contains phenols.	For chronic wounds and pubo and inflammation.
<p>Ezhilaipalai</p> 	Alstonia scholaris	<p>Large evergreen tree, base buttressed.</p> <p>Bark – Dark grey, nearly smooth.</p> <p>Latex – Milky</p> <p>Leaves – 4-7 in a whorl, coriaceous, elliptic (oblong or obovate)</p> <p>Flowers – Greenish-white, sub-capitate at the end of panicle branches.</p> <p>Follicles – Pendulous,</p>	Caoutchouc and resins.	Sores, ulcers, tumours and rheumatic swellings.

		cylindric. Seeds – Numerous, flattened, hairy.		
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### Euphorbiaceae

Tamil Name	Botanical Name	Description	Chemical Constituents	Medicinal Uses
Thillai 	Excoecaria agallocha	Evergreen tree with shining greyish black. Leaves – Alternate, elliptic or ovate. Flowers – Minute, yellowish green, fragrant.	Latex contains a wax and mannitol. Wax contains exocarol, agalochol and isoeagalocol.	Vesicant, purgative. Hemiplegia, pain, convulsions. Latex sometimes used as a caustic in the treatment of obstinate ulcers. The juice boiled in oil is applied in rheumatism, leprosy and paralysis.
Ammaanpacharisi 	Euphorbia hirta	Annual ascending hispid herbs to 60 cm tall. Leaves – Elliptic (lanceolate), opposite, base obliquely acute. Flowers – Cyathia, Male florets 4-6. Female floret laterally pedunculous. Fruit – Capsule, pubescent. Seed – Four angled	Plant contains alkaloid, xanthorhamnin, quercetin, triacontane, a phytosterol, terpenes, anthocyanins, steroids, phytosterolin, leucocyanidol, quercitol, camphol, quercitin.	Latex is applied to warts.

## **Conclusion**

The medicinal properties of Latex give a wide scope for the Researchers to do more work and documentation. This is also the right time to do more Phyto-chemical and Phyto-pharmacological studies on these wonderful plant entities. This work will be a curtain raiser and an eye opener to further explore the prophylactic and therapeutic properties and incorporate them into the clinical practice for the benefit of the mankind.

## **Reference**

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